



Quarterly Research Digest on HIV and Key Populations

March 2016

The LINKAGES Project is pleased to provide this quarterly compilation of article abstracts from the peer-reviewed literature related to HIV and key populations in Africa, Asia and Pacific, Eastern Europe, Latin America, the Caribbean, and the Middle East. Abstracts are grouped by key population (people who inject drugs, men who have sex with men, sex workers, and transgender people). This quarterly digest includes articles published between December 1, 2015 and March 1, 2016. For open access articles, we include the link to the full text.

Browse by topic:

[Key Populations General - 6](#)

[People Who Inject Drugs - 35](#)

[Men who have Sex with Men - 48](#)

[Sex Workers - 37](#)

[Transgender People - 10](#)

[Young Key Populations - 7](#)

Key Populations General - 6

1. Pouget, E. R., et al. "**Developing Measures of Pathways that May Link Macro Social/Structural Changes with HIV Epidemiology.**" *AIDS Behav* 2016.

Macro-social/structural events ("big events") such as wars, disasters, and large-scale changes in policies can affect HIV transmission by making risk behaviors more or less likely or by changing risk contexts. The purpose of this study was to develop new measures to investigate hypothesized pathways between macro-social changes and HIV transmission. We developed novel scales and indexes focused on topics including norms about sex and drug injecting under different conditions, involvement with social groups, helping others, and experiencing denial of dignity. We collected data from 300 people who inject drugs in New York City during 2012-2013. Most investigational measures showed evidence of validity (Pearson correlations with criterion variables range = 0.12-0.71) and reliability (Cronbach's alpha range = 0.62-0.91). Research is needed in different contexts to evaluate whether these measures can be used to better understand HIV outbreaks and help improve social/structural HIV prevention intervention programs.

2. Kaplan, R. L., et al. **"In the name of brevity: The problem with binary HIV risk categories."** *Glob Public Health* 2016: 1-11.

According to the 'Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care for Key Populations' there are five groups of people at elevated risk of HIV, including 'transgender women or transgender men who have receptive anal sex with men'. Although cost effectiveness strategies and best practice lessons recommend targeting specific populations for HIV prevention, existing risk categories lack specificity, and may in fact cause further confusion. Existing categories of risk often perpetuate notions of gender and sexuality that can erroneously exclude, alienate, and stigmatise those who are at the highest risk and thus should be prioritised. We review the troubled history of the MSM category and the problematic conflation of trans feminine individuals and MSM in much of the existing HIV literature, and how this practice has stymied progress in slowing the HIV epidemic in the most at-risk groups, including those who do not fit neatly into binary notions of gender and sex. We draw from examples in the field, specifically among trans feminine people in Beirut and San Francisco, to illustrate the lived experiences of individuals whose identities may not fit into Euro-Atlantic constructs of HIV prevention categories.

3. Mugo, N. R., et al. **"The preexposure prophylaxis revolution; from clinical trials to programmatic implementation."** *Curr Opin HIV AIDS* 2016 11(1): 80-6.

PURPOSE OF REVIEW: An investment in preexposure prophylaxis (PrEP) delivery must have public health impact in reducing HIV infections. Sustainable delivery of PrEP requires policy, integration of services, and synergy with other existing HIV prevention programs. This review discusses key policy and programmatic considerations for implementation and scale up of PrEP in Africa. RECENT FINDINGS: PrEP delivery has been delayed by concerns about adherence and delivery in 'real world' settings. Demonstration projects and clinical service delivery models are providing evidence of PrEP effectiveness with an impact much higher than that found in randomized clinical trials. Data confirm that PrEP uptake, adherence, and retention has been high, more so by persons who perceive themselves at high risk for HIV infection, and PrEP is well tolerated. PrEP delivery is more than dispensation of a pill and programs should address other risk drivers, which differ by population. In Africa, barriers to PrEP uptake and adherence include stigma among MSM and low HIV risk perception among young women. Additional data have provided insight into optimal points of service delivery, provider training requirements and quality assurance needs. Of the 2 million new HIV infections in 2014, 70% were in Africa. PrEP use is not lifelong, and use limited to periods of risk may be both effective and cost-effective for the continent. SUMMARY: HIV prevention programs should determine strategies to identify those at substantial risk for HIV infection, formulate and deliver PrEP in combination with interventions that target social drivers of HIV vulnerability specific to each population. Policy guidance for optimal combination of interventions and service delivery avenues, clinical protocols, health infrastructure requirements are required. Cost-effectiveness and efficiency data are essential for policy guidance to navigate ethical questions over use of antiretroviral therapy for HIV-negative individuals when treatment coverage has not been attained in many parts of Africa. Countries need to invest in purposeful advocacy at both local and global forums. Failure to implement PrEP will be a failure to protect future generations.

4. Platt, L., et al. **"Prevalence and burden of HCV co-infection in people living with HIV: a global systematic review and meta-analysis."** *Lancet Infect Dis* 2016.

BACKGROUND: At global level, there are 37 million people infected with HIV and 115 million people with antibodies to hepatitis C virus (HCV). Little is known about the extent of HIV-HCV co-infection. We sought to characterise the epidemiology and burden of HCV co-infection in people living with HIV. METHODS: In this systematic review and meta-analysis we searched MEDLINE, Embase, CINAHL+, POPLINE, Africa-wide Information, Global Health, Web of Science, and the Cochrane Library and WHO databases for studies measuring prevalence of HCV and HIV, published between Jan 1, 2002, and Jan 28, 2015. We included studies in HIV population samples of more than 50 individuals and recruited patients based on HIV infection status or other behavioural characteristics. We excluded editorials or reviews containing no primary data, samples of HCV or HIV-HCV co-infected individuals, or samples relying on self-reported infection status. We also excluded samples drawn from populations with other comorbidities or undergoing interventions that

put them at increased risk of co-infection. Populations were categorised according to HIV exposure, with the regional burden of co-infection being derived by applying co-infection prevalence estimates to published numbers of HIV-infected individuals. We did a meta-analysis to estimate the odds of HCV in HIV-infected individuals compared with their HIV-negative counterparts. FINDINGS: From 31 767 citations identified, 783 studies met the inclusion criteria, resulting in 902 estimates of the prevalence of HIV-HCV co-infection. In HIV-infected individuals, HIV-HCV co-infection was 2.4% (IQR 0.8-5.8) within general population samples, 4.0% (1.2-8.4) within pregnant or heterosexually exposed samples, 6.4% (3.2-10.0) in men who have sex with men (MSM), and 82.4% (55.2-88.5) in people who inject drugs (PWID). Odds of HCV infection were six times higher in people living with HIV (5.8, 95% CI 4.5-7.4) than their HIV-negative counterparts. Worldwide, there are approximately 2 278 400 HIV-HCV co-infections (IQR 1 271 300-4 417 000) of which 1 362 700 (847 700-1 381 800) are in PWID, equalling an overall co-infection prevalence in HIV-infected individuals of 6.2% (3.4-11.9). INTERPRETATION: We noted a consistently higher HCV prevalence in HIV-infected individuals than HIV-negative individuals across all risk groups and regions, but especially in PWID. This study highlights the importance of routine HCV testing in all HIV-infected individuals, but especially in PWID. There is also a need to improve country-level surveillance of HCV prevalence across different population groups in all regions. FUNDING: WHO.

5. Mohammed, H., et al. **"Surveillance systems for sexually transmitted infections: a global review."** *Curr Opin Infect Dis* 2016 29(1): 64-9.

PURPOSE OF REVIEW: Sexually transmitted infections (STIs) continue to exert a substantial public health burden globally but surveillance remains a challenge, especially in the developing world. We reviewed STI surveillance systems in various regions globally and used available data to provide an overview of recent trends in STI epidemiology. RECENT FINDINGS: STI surveillance systems in the developing world are often limited and restricted to ad hoc cross-sectional surveys; however, available data suggest that these areas are disproportionately affected by STIs, with a higher burden in marginalized groups such as sex workers. Developed countries typically have established surveillance systems. Recent reports suggest many of these countries are experiencing rising diagnoses of STIs in men who have sex with men (MSM) and an increasing contribution of HIV-positive MSM to STI epidemics. SUMMARY: There is considerable variability in the surveillance for STIs globally, ranging from active or passive, to sentinel, laboratory or clinic-based systems. Given different levels of resources and patterns of healthcare provision, it is difficult to compare surveillance data across regions; however, available data suggest that considerable inequality in STI burden exists. In resource-limited settings, syndromic surveillance with periodic laboratory assessments is recommended to monitor trends in STIs.

6. Hladik, W., et al. **"The utility of population-based surveys to describe the continuum of HIV services for key and general populations."** *Int J STD AIDS* 2016 27(1): 5-12.

Monitoring the cascade or continuum of HIV services - ranging from outreach services to anti-retroviral treatment - has become increasingly important as the focus in prevention moves toward biomedical interventions, in particular, 'Treatment as Prevention.' The HIV continuum typically utilises clinic-based care and treatment monitoring data and helps identify gaps and inform programme improvements. This paper discusses the merits of a population-based survey-informed continuum of services. Surveys provide individual-level, population-based data by sampling persons both in and outside the continuum, which facilitate the estimation of population fractions, such as the proportion of people living with HIV in care, as well as the examination of determinants for being in or outside the continuum. Survey-informed cascades of services may especially benefit key populations at increased risk for HIV infection for who social marginalisation, criminalisation, and stigma result in barriers to access and retention in services, a low social visibility, mobility, and outreach-based services can compromise clinic-based monitoring. Adding CD4+ T-cell count and viral load measurements to such surveys may provide population-level information on viral load suppression, stage of disease, treatment needs, and population-level transmission potential. While routine clinic-based reporting will remain the mainstay of monitoring, a survey-informed service cascade can address some of its limitations and offer additional insights.

[Back to top](#)

People Who Inject Drugs – 35

1. Suntharasamai, P., et al. **"Assessment of Oral Fluid HIV Test Performance in an HIV Pre-Exposure Prophylaxis Trial in Bangkok, Thailand."** *PLoS One* 2015 10(12): e0145859.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4696659/pdf/pone.0145859.pdf>

BACKGROUND: Rapid easy-to-use HIV tests offer opportunities to increase HIV testing among populations at risk of infection. We used the OraQuick Rapid HIV-1/2 antibody test (OraQuick) in the Bangkok Tenofovir Study, an HIV pre-exposure prophylaxis trial among people who inject drugs.

METHODS: The Bangkok Tenofovir Study was a randomized, double-blind, placebo-controlled trial. We tested participants' oral fluid for HIV using OraQuick monthly and blood using a nucleic-acid amplification test (NAAT) every 3 months. We used Kaplan-Meier methods to estimate the duration from a positive HIV NAAT until the mid-point between the last non-reactive and first reactive oral fluid test and proportional hazards to examine factors associated with the time until the test was reactive.

RESULTS: We screened 3678 people for HIV using OraQuick. Among 447 with reactive results, 436 (97.5%) were confirmed HIV-infected, 10 (2.2%) HIV-uninfected, and one (0.2%) had indeterminate results. Two participants with non-reactive OraQuick results were, in fact, HIV-infected at screening yielding 99.5% sensitivity, 99.7% specificity, a 97.8% positive predictive value, and a 99.9% negative predictive value. Participants receiving tenofovir took longer to develop a reactive OraQuick (191.8 days) than participants receiving placebo (16.8 days) ($p = 0.02$) and participants infected with HIV CRF01_AE developed a reactive OraQuick earlier than participants infected with other subtypes ($p = 0.04$).

DISCUSSION: The oral fluid HIV test performed well at screening, suggesting it can be used when rapid results and non-invasive tools are preferred. However, participants receiving tenofovir took longer to develop a reactive oral fluid test result than those receiving placebo. Thus, among people using pre-exposure prophylaxis, a blood-based HIV test may be an appropriate choice. TRIAL REGISTRATION: ClinicalTrials.gov NCT00119106.

2. Tran, B. X., et al. **"Behavioral and quality-of-life outcomes in different service models for methadone maintenance treatment in Vietnam."** *Harm Reduct J* 2016 13(1): 4.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4736621/pdf/12954_2016_Article_91.pdf

BACKGROUND: Integrating HIV/AIDS and methadone maintenance treatment (MMT) services with existing health care delivery system is critical in sustaining efforts to fight HIV/AIDS in large injection-driven epidemics. However, efficiency of different integrative service models is unknown. This study assessed behavioral and health-related quality-of-life (HRQOL) outcomes of MMT in four service delivery models and explored factors associated with these outcomes of interest. METHODS: A cross-sectional survey was conducted in two HIV epicenters in Vietnam: Hanoi and Nam Dinh Province. All patients in five selected MMT clinics were invited to participate, and 1016 were interviewed (80-90 % response rate). RESULTS: Respondents had a mean age of 35.8, taken MMT for average 16.5 months and 3.3 % on MMT for 36-60 months. The MMT integrated with rural district health center (DHC) has the highest prevalence of concurrent drug use (11.3 %). The percentage of condom use (last sexual intercourse) with primary and casual partners was lowest in the MMT at urban DHCs. Patients at the rural DHC reported very high proportions of pain/discomfort (37.8 %), anxiety/depression (43.1 %), and mobility (13.3 %). In regression models, poorer HRQOL outcomes were found in MMT models in the rural areas or without general health care, and among those patients who were HIV positive, reported concurrent drug use, and had higher numbers of previous drug rehabilitation episodes. Mobility and anxiety/depression are factors that increased the likelihood of

concurrent drug use among MMT patients. CONCLUSIONS: Outcomes of MMT were diverse across different integrative service models. Policies on rapid expansion of the MMT program in Vietnam should also emphasize on the integration with comprehensive health care services including psychological supports for patients.

3. Saleem, H. T., et al. **"Can't you initiate me here?: Challenges to timely initiation on antiretroviral therapy among methadone clients in Dar es Salaam, Tanzania."** *Int J Drug Policy* 2015.

BACKGROUND: Despite dramatic improvement in antiretroviral therapy (ART) access globally, people living with HIV who inject drugs continue to face barriers that limit their access to treatment. This paper explores barriers and facilitators to ART initiation among clients attending a methadone clinic in Dar es Salaam, Tanzania.

METHODS: We interviewed 12 providers and 20 clients living with HIV at the Muhimbili National Hospital methadone clinic between January and February 2015. We purposively sampled clients based on sex and ART status and providers based on job function. To analyze interview transcripts, we adopted a content analysis approach.

RESULTS: Participants identified several factors that hindered timely ART initiation for clients at the methadone clinic. These included delays in CD4 testing and receiving CD4 test results; off-site HIV clinics; stigma operating at the individual, social and institutional levels; insufficient knowledge of the benefits of early ART initiation among clients; treatment breakdown at the clinic level possibly due to limited staff; and initiating ART only once one feels physically ill. Participants perceived social support as a buffer against stigma and facilitator of HIV treatment. Some clients also reported that persistent monitoring and follow-up on their HIV care and treatment by methadone clinic providers led them to initiate ART.

CONCLUSION: Health system factors, stigma and limited social support pose challenges for methadone clients living with HIV to initiate ART. Our findings suggest that on-site point-of-care CD4 testing, a peer support system, and trained HIV treatment specialists who are able to counsel HIV-positive clients and initiate them on ART at the methadone clinic could help reduce barriers to timely ART initiation for methadone clients.

4. Sakha, M. A., et al. **"Challenges AND Successes Of Harm Reduction Services In Women's Drop-In Centres: Perspective Of Vulnerable Women."** *Mater Sociomed* 2015 27(6): 434-7.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4733544/pdf/MSM-27-434.pdf>

BACKGROUND: The objective of this study was to shed light on the challenges and successes of HIV/AIDS services delivery as perceived by Sex workers.

METHODS: Face-to-face semi-structured interviews were conducted with 20 IDUs and Sex workers in drop-in centers in Shiraz. A thematic analysis of these qualitative data was conducted by the authors.

RESULTS: Participants identified major challenges and successes of HIV/AIDS services delivery. Access services, services delivery in terms of challenges and the successes concept were classified.

CONCLUSIONS: Our study demonstrates that while there is greater availability of HIV/AIDS services, this does not equate with greater accessibility because multiple, complex and interrelated barriers to HIV/AIDS service utilization at the service delivery level such as Stigma, discrimination, violence, harassment and social equity issues are critical concerns of FSW.

5. Shahesmaeili, A., et al. **"Developing a Brief Scale to Measure HIV Transmission Risk Among Injecting Drug Users."** *Int J High Risk Behav Addict* 2015 4(4): e26159.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4744901/pdf/ijhrba-04-04-26159.pdf>

BACKGROUND: One of the main concerns of policymakers is to measure the impact of harm reduction programs and different interventions on the risk of HIV transmission among Injecting Drug Users (IDUs). Looking simultaneously at multiple factors and conditions that affect the risk of HIV transmission may provide policymakers a better insight into the mixed nature of HIV transmission.

OBJECTIVES: The present study aimed to design a simple, brief, and multi-dimensional scale for measuring HIV transmission risk among IDUs.

PATIENTS AND METHODS: From October 2013 to March 2014, we conducted face-to-face interviews with 147 IDUs. Eligible participants were individuals 18 years or older who had injected drugs at least once during the last year and had not participated in similar studies within the 2 months before the interview. To design a scale for measuring HIV transmission risk, we specified 11 items, which address different dimensions of HIV risk taking behaviors/situations based on experts' opinion. We applied exploratory factor analysis (EFA) with principal component extraction to develop scales. Eigen values greater than 1 were used as a criterion for factor extraction.

RESULTS: We extracted 7 items based on first factor, which were accounted for 21% of the variations. The final scale contained 7 items: 4 items were related to injecting practice and 3 items related to sexual behaviors. The Cronbach's alpha coefficient was 0.66, acceptable for such a brief scale.

CONCLUSIONS: Applying a simple and brief scale that incorporates the different dimensions of HIV transmission risk may provide policymakers and harm reductionists with a better understanding of HIV transmission in this key group and may be advantageous for evaluating intervention programs.

6. Tran, B. X., et al. "**Economic vulnerability of methadone maintenance patients: Implications for policies on co-payment services.**" *Int J Drug Policy* 2016.

BACKGROUND: Co-payment for methadone maintenance treatment (MMT) services is a strategy to ensure the financial sustainability of the HIV/AIDS programs in Vietnam. In this study, we examined health services utilization and expenditure among MMT patients, and further explored factors associated with catastrophic health expenditure among affected households.

METHODS: A multi-site cross-sectional study was conducted among 1016 patients in two epicentres: Hanoi and Nam Dinh province in 2013.

RESULTS: Overall, 8.2% and 28.7% respondents used inpatient and outpatient health care services in the past 12 months apart from receiving MMT. There were 12.8% respondents experiencing catastrophic health expenditure given MMT is provided free-of-charge, otherwise 63.5% patients would suffer from health care costs. MMT integrated with general health or HIV services may encourage health care services utilization of patients. Patients, who were single, lived in the rural, had inpatient care and reported problems in Mobility were more likely to experience catastrophic health expenditure than other patient groups.

CONCLUSIONS: The health care costs are still financially burden to many drug users and remained over the course of MMT that implies the necessity of continuous supports from the program. Scaling-up and decentralizing integrated MMT clinics together with economic empowerments for treated drug users and their families should be prioritized in Vietnam.

7. Nazari, S. S., et al. "**The effect of on-site and outreach-based needle and syringe programs in people who inject drugs in Kermanshah, Iran.**" *Int J Drug Policy* 2016 27: 127-31.

BACKGROUND: Needle and syringe programs (NSPs) are widely used to reduce harms associated with drug injecting. This study assessed the effect of facility-based (on-site services at drop-in centre) and outreach models of NSP on injection risk behaviours.

METHODS: Self-reported data from 455 people who injected drugs (PWID) during 2014 in Kermanshah, Iran, were examined to measure demographic characteristics and risk behaviors. Self-reported and program data were also assessed to identify their main source of injection equipment. Participants were divided into three sub-groups: facility-based NSP users, outreach NSP users and non-users (comparison group). Coarsened exact matching was used to make the three groups statistically equivalent based on age, place of residence, education and income, and groups were compared regarding the proportion of borrowing or lending of syringes/cookers, reusing syringes and recent HIV testing.

RESULTS: Overall, 76% of participants reported any NSP service use during the two months prior to interview. Only 23% (95%CI: 17-27) reported outreach NSP as their main source of syringes. Using facility-based NSP significantly decreased recent syringe borrowing (OR: 0.27, 95%CI: 0.10-0.70), recent syringe reuse (OR: 0.38, 95%CI: 0.23-0.68) and increased recent HIV testing (OR: 2.60, 95%CI: 1.48-4.56). Similar effects were observed among outreach NSP users; in addition, the outreach NSP model significantly reduced the chance of lending syringes (OR: 0.31, 95%CI: 0.15-0.60), compared to facility-based NSP (OR: 1.25, 95%CI: 0.74-2.17).

CONCLUSION: These findings suggest that the outreach NSP model is as effective as facility-based NSP in reducing injection risk behaviours and increasing the rate of HIV testing. Outreach NSP was even more effective than facility-based in reducing the lending of syringes to others. Scaling up outreach NSP is an effective intervention to further reduce transmission of HIV via needle sharing.

8. Heimer, R., et al. "**Emergence of methadone as a street drug in St. Petersburg, Russia.**" *Int J Drug Policy* 2016 27: 97-104.

BACKGROUND: The syndemic of opioid addiction, HIV, hepatitis, tuberculosis, imprisonment, and overdose in Russia has been worsened by the illegality of opioid substitution therapy. As part of on-going serial studies, we sought to explore the influence of opioid availability on aspects of the syndemic as it has affected the city of St. Petersburg.

METHODS: We employed a sequential approach in which quantitative data collection and statistical analysis were followed by a qualitative phase. Quantitative data were obtained in 2013-2014 from a respondent-driven sample (RDS) of people who inject drugs (PWID). Individuals recruited by RDS were tested for antibodies to HIV and interviewed about drug use and injection practices, sociodemographics, health status, and access to medical care. Subsequently, we collected in-depth qualitative data on methadone use, knowledge, and market availability from PWID recruited at nine different locations within St. Petersburg.

RESULTS: Analysis of interview data from the sample revealed the percentage of PWID injecting methadone in the 30 days prior to interview increased from 3.6% in 2010 to 53.3% in 2012-2013. Injection of only methadone, as compared to injecting only heroin or both drugs, was associated with less frequent injection and reduced HIV-related injected risk, especially a lower rate of injecting with a previously used syringe. In-depth questioning of methadone injectors corroborated the finding from serial quantitative surveys of PWID that methadone's black market availability is a recent phenomenon. Spatial analysis revealed widespread methadone availability but no concentration in any specific districts of the city.

CONCLUSION: Despite the prohibition of substitution therapy and demonization of methadone, the drug has emerged to rival heroin as the most commonly available opioid in St. Petersburg. Ironically, its use is associated with reduced injection-related HIV risk even when its use is illegal.

9. Tan, A. X., et al. "**Epidemiology of Drug Use and HIV-Related Risk Behaviors among People Who Inject Drugs in Mwanza, Tanzania.**" *PLoS One* 2015 10(12): e0145578.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4689416/pdf/pone.0145578.pdf>

Heroin trafficking and consumption has increased steadily over the past decade in Tanzania, but limited

information regarding HIV and drug use exists for the city of Mwanza. Our study investigates the epidemiology of drug use, and HIV risk behaviors among drug users in the northwestern city of Mwanza. Using a combination of targeted sampling and participant referral, we recruited 480 participants in Mwanza between June and August 2014. The sample was 92% male. Seventy-nine (16.4%) participants reported injecting heroin, while 434 (90.4%) reported smoking heroin. Unstable housing and cohabitation status were the only socioeconomic characteristics significantly associated with heroin injection. More than half of heroin injectors left syringes in common locations, and half reported sharing needles and syringes. Other risk behaviors such as lack of condom use during sex, and the use of illicit drugs during sex was widely reported as well. Among the study sample, there was poor awareness of health risks posed by needle/syringe sharing and drug use. Our results show that heroin use and HIV risk related behaviors are pressing problems that should not be ignored in Mwanza. Harm reduction programs are urgently needed in this population.

10. Adebajo, S., et al. **"Evaluating the effect of HIV prevention strategies on uptake of HIV counselling and testing among male most-at-risk-populations in Nigeria; a cross-sectional analysis."** *Sex Transm Infect* 2015 91(8): 555-60.

OBJECTIVE: The aim of this study was to evaluate the effects of three strategies in increasing uptake of HIV counselling and testing (HCT) among male most-at-risk-population (M-MARPs) using programmatic data.

DESIGN: HIV prevention strategies were evaluated in a cross-sectional analysis.

METHODS: Three HCT strategies were implemented between July 2009 and July 2012 among men who have sex with men (MSM) and people who inject drugs (PWIDs) in four states in Nigeria. The first strategy (S1), involved key opinion leaders (KOLs) who referred M-MARPs to health facilities for HCT. The second strategy (S2) involved KOLs referring M-MARPs to nearby mobile HCT teams while the third (S3) involved mobile M-MARPs peers conducting the HCT. χ^2 statistics were used to test for differences in the distribution of categorical variables across groups while logistic regression was used to measure the effect of the different strategies while controlling for confounding factors. RESULTS: A total of 1988, 14 726 and 14 895 M-MARPs were offered HCT through S1, S2 and S3 strategies, respectively. Overall, S3 (13%) identified the highest proportion of HIV-positive M-MARPs compared with S1 (9%) and S2 (3%), $p < / = 0.001$. Also S3 (13%) identified the highest proportion of new HIV diagnosis compared with S1 (8%) and S2 (3%), respectively, $p < / = 0.001$. When controlled for age, marital status and occupation, MSM reached via S3 were 9 times (AOR: 9.21; 95% CI 5.57 to 15.23) more likely to uptake HCT when compared with S1 while PWIDs were 21 times (AOR: 20.90; 95% CI 17.33 to 25.21) more likely to uptake to HCT compared with those reached via S1. CONCLUSIONS: Peer-led HCT delivered by S3 had the highest impact on the total number of M-MARPs reached and in identifying HIV-positive M-MARPs and new testers. Training M-MARPs peers to provide HCT is a high impact approach in delivering HCT to M-MARPs.

11. Bridge, J., et al. **"The Global Fund to Fight AIDS, Tuberculosis and Malaria's investments in harm reduction through the rounds-based funding model (2002-2014)."** *Int J Drug Policy* 2016 27: 132-7. Online at: [http://www.ijdp.org/article/S0955-3959\(15\)00236-4/pdf](http://www.ijdp.org/article/S0955-3959(15)00236-4/pdf)

BACKGROUND: Harm reduction is an evidence-based, effective response to HIV transmission and other harms faced by people who inject drugs, and is explicitly supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria. In spite of this, people who inject drugs continue to have poor and inequitable access to these services and face widespread stigma and discrimination. In 2013, the Global Fund launched a new funding model-signalling the end of the previous rounds-based model that had operated since its founding in 2002. This study updates previous analyses to assess Global Fund investments in harm reduction interventions for the duration of the rounds-based model, from 2002 to 2014.

METHODS: Global Fund HIV and TB/HIV grant documents from 2002 to 2014 were reviewed to identify grants that contained activities for people who inject drugs. Data were collected from detailed grant budgets, and relevant budget lines were recorded and analysed to determine the resources allocated to different interventions that were specifically targeted at people who inject drugs.

RESULTS: 151 grants for 58 countries, plus one regional proposal, contained activities targeting people who inject drugs-for a total investment of US\$ 620million. Two-thirds of this budgeted amount was for interventions in the "comprehensive package" defined by the United Nations. 91% of the identified amount was for Eastern Europe and Asia.

CONCLUSION: This study represents an updated, comprehensive assessment of Global Fund investments in harm reduction from its founding (2002) until the start of the new funding model (2014). It also highlights the overall shortfall of harm reduction funding, with the estimated global need being US\$ 2.3billion for harm reduction in 2015 alone. Using this baseline, the Global Fund must carefully monitor its new funding model and ensure that investments in harm reduction are maintained or scaled-up. There are widespread concerns regarding the withdrawal from middle-income countries where harm reduction remains essential and unfunded through other sources: for example, 15% of the identified investments were for countries which are now ineligible for Global Fund support.

12. Berbesi-Fernandez, D., et al. **"Hepatitis C and HIV in injecting drug users in Armenia, Colombia."** *Adicciones* 2015 27(4): 246-252.

A constant and progressive increase in the availability of heroin in Colombia in recent decades and the intravenous use of this drug have established the need to prevent a possible epidemic of HIV and hepatitis C. This research determined the sero-prevalence of hepatitis C and HIV according to sociodemographic characteristics and risk behaviors in people who inject drugs in Armenia, Colombia. This is a cross-sectional study on 265 users captured through respondent-driven sampling after informed consent. Sero-prevalence of hepatitis C was 22.3 % [95% CI 12.3 % -23.5 %]; for HIV infection, it was 2.6 % [95% CI 0.4 to 6.0]; 67.5% reported injecting for more than two years, 35 % shared needles and syringes, and 12.4 % had used a condom during their last sexual intercourse. Users who did not purchase syringes in drugstores in the last six months are 2.7 times [95% CI 1.32 to 5.48] more likely to contract hepatitis C; daily injection frequency was higher in HIV- positive cases [OR 2.87; 95% CI 0.55 to 15.9] but nonsignificant. One fourth of respondents are infected with HIV or hepatitis C, either as a single infection or co-infection. This study identified risk practices such as sharing needles and low condom use in the last six months, worldwide documented and discussed risk factors. This research is a first step in the search for strategies to prevent the spread of HIV infection and hepatitis C in networks of injecting drug users.

13. Mateu-Gelabert, P., et al. **"Heroin Use and Injection Risk Behaviors in Colombia: Implications for HIV/AIDS Prevention."** *Subst Use Misuse* 2016 51(2): 230-40.

BACKGROUND: Heroin production in Colombia has increased dramatically in recent decades, and some studies point to an increase in local heroin use since the mid-1990s. Despite this rapid increase, little is known about the effects of these activities on heroin injection within Colombia. One of the biggest concerns surrounding heroin injection is the potential spread of HIV through drug user networks.

OBJECTIVES: This article examines injection risk behaviors among heroin injectors in the Colombian cities of Medellin and Pereira to explore the implications for possible increased HIV transmission within this group.

METHODS: A cross-sectional study used respondent-driving sampling to recruit a sample of 540 people who inject drugs (PWID) over 18 years of age (Medellin: n = 242, Pereira: n = 298). Structured interviews with each participant were conducted using the World Health Organization Drug Injection Study Phase II Survey. An HIV test was also administered.

RESULTS: Information regarding the socio-demographics, injection drug use, HIV risk and transmission behaviors, injection risk management, and HIV knowledge and prevalence of participants are reported. The study identified many young, newly initiated injectors who engage in risky injection practices. The study also found that HIV prevalence is fairly low among participants (2.7%).

CONCLUSIONS/IMPORTANCE: Findings indicate a potential risk for the spread of HIV among PWID in Colombia given their widespread sharing practices, high rate of new injector initiation, and unsafe syringe cleaning practices. Colombia has a possibly time-limited opportunity to prevent an HIV epidemic by implementing harm reduction interventions among young, newly initiated PWID.

14. Nadol, P., et al. **"High HIV Prevalence and Associated Risk Factors Among Female Sexual Partners of Male Injection Drug Users (MWID) in Ho Chi Minh City, Vietnam."** *AIDS Behav* 2016 20(2): 395-404.

Injection drug use is a major factor in acquiring and transmitting HIV in Vietnam. This analysis aims to present estimates of HIV infection and factors associated with HIV infection among female sex partners (FSP) of MWID in Ho Chi Minh City (HCMC), Vietnam. Cross-sectional surveys were conducted in 2011 and 2013 among males who inject drugs (MWID) who then referred their FSP for a behavioral and biologic survey. In total, 445 MWID and FSPs were enrolled. HIV prevalence among MWID was 50 and 35 % among FSPs. Among FSPs, 60.3 % reported ever using illegal drugs and among those, 72.7 % reported ever injecting illicit drugs. Among FSP, injection drug for >1 year [adjusted Odds Ratio (aOR), 95 % CI 2.94, 1.19-7.26], p value = <0.001] and having a male partner infected with HIV [(aOR 3.35: 1.97-5.69), p value = <0.001] were associated with HIV infection. The prevalence of HIV infection is high among FSP of MWID in HCMC and is highly associated with the injection drug use behavior of the FSP. Harm-reduction intervention programs that focus on the MWID-FSP couple or directly on the FSPs are required.

15. Mehta, S. H., et al. **"HIV care continuum among men who have sex with men and persons who inject drugs in India: barriers to successful engagement."** *Clin Infect Dis* 2015 61(11): 1732-41.

BACKGROUND: We characterize the human immunodeficiency virus (HIV) care continuum for men who have sex with men (MSM) and persons who inject drugs (PWID) across India.

METHODS: We recruited 12 022 MSM and 14 481 PWID across 26 Indian cities, using respondent-driven sampling (September 2012 to December 2013). Participants were aged ≥ 18 years and either self-identified as male and reported sex with a man in the prior year (MSM) or reported injection drug use in the prior 2 years (PWID). Correlates of awareness of HIV-positive status were characterized using multilevel logistic regression.

RESULTS: A total of 1146 MSM were HIV infected, of whom a median of 30% were aware of their HIV-positive status, 23% were linked to care, 22% were retained before antiretroviral therapy (ART), 16% had started ART, 16% were currently receiving ART, and 10% had suppressed viral loads. There was site variability (awareness range, 0%-90%; suppressed viral load range, 0%-58%). A total of 2906 PWID were HIV infected, of whom a median of 41% were aware, 36% were linked to care, 31% were retained before ART, 20% had started ART, 18% were currently receiving ART, and 15% had suppressed viral loads. Similar site variability was observed (awareness range: 2%-93%; suppressed viral load range: 0%-47%). Factors significantly associated with awareness were region, older age, being married (MSM) or female (PWID), use of other services (PWID), more lifetime sexual partners (MSM), and needle sharing (PWID). Ongoing injection drug use (PWID) and alcohol use (MSM) were associated with lower awareness.

CONCLUSIONS: In this large sample, the major barrier to HIV care engagement was awareness of HIV-positive status. Efforts should focus on linking HIV testing to other essential services. CLINICAL TRIALS REGISTRATION: NCT01686750.

16. Des Jarlais, D. C., et al. **"HIV infection among persons who inject drugs: Ending old epidemics and addressing new outbreaks."** *AIDS* 2016.

AIDS among persons who inject drugs, first identified in December 1981, has become a global epidemic. Injecting drug use has been reported in 148 countries and HIV infection has been seen among persons who inject drugs in 61 countries. Many locations have experienced outbreaks of HIV infection among persons who inject drugs, under specific conditions that promote very rapid spread of the virus. In response to these

HIV outbreaks, specific interventions for persons who inject drugs include needle/syringe exchange programs, medicated assisted treatment (with methadone or buprenorphine) and antiretroviral therapy. Through a "combined prevention" approach, these interventions significantly reduced new HIV infections among persons who inject drugs in several locations including New York City, Vancouver and France. The efforts effectively ended the local HIV epidemic among persons who inject drugs in those locations. This review examines possible processes through which combined prevention programs may lead to ending HIV epidemics. However, notable outbreaks of HIV among persons who inject drugs have recently occurred in several countries, including in Athens, Greece, Tel-Aviv, Israel, Dublin Ireland, as well as in Scott County, Indiana USA. This review also considers different factors that may have led to these outbreaks. We conclude with addressing the remaining challenges for reducing HIV infection among persons who inject drugs.

17. Bazazi, A. R., et al. **"HIV Prevalence Among People Who Inject Drugs in Greater Kuala Lumpur Recruited Using Respondent-Driven Sampling."** *AIDS Behav* 2015 19(12): 2347-57.

The HIV epidemic in Malaysia is concentrated among people who inject drugs (PWID). Accurate estimates of HIV prevalence are critical for developing appropriate treatment and prevention interventions for PWID in Malaysia. In 2010, 461 PWID were recruited using respondent-driven sampling in Greater Kuala Lumpur, Malaysia. Participants completed rapid HIV testing and behavioral assessments. Estimates of HIV prevalence were computed for each of the three recruitment sites and the overall sample. HIV prevalence was 15.8 % (95 % CI 12.5-19.2 %) overall but varied widely by location: 37.0 % (28.6-45.4 %) in Kampung Baru, 10.3 % (5.0-15.6 %) in Kajang, and 6.3 % (3.0-9.5 %) in Shah Alam. Recruitment extended to locations far from initial interview sites but was concentrated around discrete geographic regions. We document the high prevalence of HIV among PWID in Greater Kuala Lumpur. Sustained support for community surveillance and HIV prevention interventions is needed to stem the HIV epidemic among PWID in Malaysia.

18. Scheibe, A., et al. **"HIV prevalence and risk among people who inject drugs in five South African cities."** *Int J Drug Policy* 2016.

BACKGROUND: Policy and programming for people who inject drugs (PWID) in South Africa is limited by the scarcity of epidemiological data.

METHODS: We conducted a cross-sectional survey among 450 PWID (362 males and 88 females) from five South African cities in 2013, using outreach and peer referral to recruit participants. We carried out rapid HIV tests on participants' saliva and assessed drug-using and sexual practices by means of a questionnaire.

RESULTS: We found that 26% of females and 13% of males reported to always share injecting equipment, while 49% of all participants had used contaminated injecting equipment the last time they injected. Only 6% of participants usually used bleach to clean their injecting equipment. We found that half of participants reported using a condom the last time they had sex. A quarter of participants reported symptoms of a sexually transmitted infection (STI) in the previous 12 months and 22% had ever worked as a sex worker (51% of females). HIV prevalence among participants was 14% (18% among females and 13% among males). In multivariate analysis HIV was significantly associated with being 25 years and older (adjusted odds ratio (aOR) 2.1, 95% confidence interval (CI) 1.0-4.6, p=0.06), belonging to a racial group other than white (aOR 4.2, 95% CI 1.9-9.4, p<0.001), coming from Gauteng province (aOR 2.3, 95% CI 1.1-5.5, p=0.023), having ever worked as a sex worker (aOR 3.4, 95% CI 1.7-7.2, p=0.001) and the presence of STI symptoms in the last 12 months (aOR 2.4, 95% CI 1.1-4.4, p=0.019).

CONCLUSIONS: This study highlights the need for increased access to sterile injecting equipment, education around safer injecting practices and access to sexual and reproductive health services for PWID in South Africa. Programmes for PWID should also address the specific needs of female PWID, PWID who sell sex and PWID from previously disadvantaged communities.

19. Visavakum, P., et al. **"HIV prevalence and risk behaviors among people who inject drugs in Songkhla, Thailand: A respondent-driven sampling survey."** *Int J Drug Policy* 2016.

BACKGROUND: Songkhla has one of the most serious provincial HIV epidemics among people who inject drugs (PWID). However, there remains a lack of systematic data on drug use patterns, HIV risk behaviors and access to interventions. To address the gap, we conducted an integrated bio-behavioral survey in 2010.

METHODS: Respondent-driven sampling (RDS) was used to recruit PWID who reported injecting in the last six months. Participants were interviewed and tested for HIV and sexually transmitted infections (STIs). RDS Analysis Tool (RDSAT) was used to generate adjusted proportion estimates.

RESULTS: Of 202 participants, almost all were men, 90% injected heroin, followed by methamphetamine (22%). One-third (37%) injected multiple drugs. HIV prevalence was high (22%). Seven percent reported needle sharing at last injection and 27% reported using a condom at last sex. Nearly half (42%) were currently on methadone treatment. Few participants received new needles (10%) and condoms (11%) from drop-in centers and/or peer outreach workers.

CONCLUSION: This RDS survey informs the understanding of the HIV epidemic and the programmatic response among PWID in Songkhla. It was effective at recruiting PWID who were currently out-of-treatment. Given the increasing trend of poly-drug injecting use documented, a comprehensive and integrated combination intervention approach for HIV services is recommended.

20. Kurth, A. E., et al. **"HIV Prevalence, Estimated Incidence, and Risk Behaviors Among People Who Inject Drugs in Kenya."** *J Acquir Immune Defic Syndr* 2015 70(4): 420-7.

OBJECTIVE: HIV infection in sub-Saharan Africa increasingly occurs among people who inject drugs (PWID). Kenya is one of the first to implement a national needle and syringe program. Our study undertook a baseline assessment as part of evaluating needle and syringe program in a seek, test, treat, and retain approach.

METHODS: Participants enrolled between May and December 2012 from 10 sites. Respondent-driven sampling was used to reach 1785 PWID for HIV-1 prevalence and viral load determination and survey data.

RESULTS: Estimated HIV prevalence, adjusted for differential network size and recruitment relationships, was 14.5% in Nairobi (95% CI: 10.8 to 18.2) and 20.5% in the Coast region (95% CI: 17.3 to 23.6). Viral load (log₁₀ transformed) in Nairobi ranged from 1.71 to 6.12 (median: 4.41; interquartile range: 3.51-4.94) and in the Coast from 1.71 to 5.88 (median: 4.01; interquartile range: 3.44-4.72). Using log₁₀ viral load 2.6 as a threshold for HIV viral suppression, the percentage of HIV-infected participants with viral suppression was 4.2% in Nairobi and 4.6% in the Coast. Heroin was the most commonly injected drug in both regions, used by 93% of participants in the past month, typically injecting 2-3 times/day. Receptive needle/syringe sharing at last injection was more common in Nairobi (23%) than in the Coast (4%). Estimated incidence among new injectors was 2.5/100 person-years in Nairobi and 1.6/100 person-years in the Coast.

CONCLUSIONS: The HIV epidemic is well established among PWID in both Nairobi and Coast regions. Public health scale implementation of combination HIV prevention has the potential to greatly limit the epidemic in this vulnerable and bridging population.

21. Meade, C. S., et al. **"HIV Risk Behavior Among Methamphetamine Users Entering Substance Abuse Treatment in Cape Town, South Africa."** *AIDS Behav* 2016.

South Africa is experiencing a growing methamphetamine problem, and there is concern that methamphetamine use may accelerate HIV transmission. There has been little research on the HIV prevention needs of methamphetamine users receiving substance abuse treatment in South Africa. This study assessed the prevalence and correlates of HIV risk behaviors among 269 methamphetamine users

entering substance abuse treatment in two clinics in Cape Town. The prevalence of sexual risk behaviors was high among sexually active participants: 34 % multiple partners, 26 % unprotected intercourse with a casual partner, and 24 % sex trading for money/methamphetamine. The strongest predictor of all sexual risk behaviors was concurrent other drug use. Over half had not been HIV tested in the past year, and 25 % had never been tested, although attitudes toward HIV testing were overwhelmingly positive. This population of primarily heterosexual, non-injecting methamphetamine users is a high-risk group in need of targeted HIV prevention interventions. Substance abuse treatment is an ideal setting in which to reach methamphetamine users for HIV services.

22. Gouse, H., et al. **"HIV testing and sero-prevalence among methamphetamine users seeking substance abuse treatment in Cape Town."** *Drug Alcohol Rev* 2015.

INTRODUCTION AND AIMS: Methamphetamine use is highly prevalent in parts of South Africa, and there is concern this will contribute to the country's substantial HIV epidemic. We examined the feasibility of implementing routine HIV testing at a community-based substance abuse treatment centre in Cape Town and determined the HIV sero-prevalence among methamphetamine users seeking treatment at this site.

DESIGN AND METHODS: In this cross-sectional study, 293 participants completed measures of demographics, substance use and HIV treatment. HIV sero-prevalence was determined by a rapid finger-prick HIV test, and prior HIV diagnosis was confirmed via clinic records.

RESULTS: The majority of participants were male and self-identified as 'Coloured', with a mean age of 28 years. The HIV sero-prevalence was 3.8%. Of the 11 participants who tested HIV positive, four were newly diagnosed. HIV-positive and HIV-negative participants were comparable on demographic and substance use factors. Uptake of HIV testing among all clients at the drug treatment centre increased from <5% prior to study initiation to 89% after study completion. Measures implemented to ensure high rates of HIV testing were regarded as sustainable.

DISCUSSION AND CONCLUSIONS: Our study suggests that integrating routine HIV testing into substance abuse treatment is feasible in a community-based health centre. The low HIV prevalence among this sample of treatment-seeking methamphetamine users highlights the potential benefits of supporting expanded efforts to optimise HIV prevention with this young adult population. [Gouse H, Joska JA, Lion RR, Watt MH, Burnhams W, Carrico AW, Meade CS. HIV testing and sero-prevalence among methamphetamine users seeking substance abuse treatment in Cape Town. *Drug Alcohol Rev* 2015;00:000-000].

23. Spooner, C., et al. **"Impacts of stigma on HIV risk for women who inject drugs in Java: A qualitative study."** *Int J Drug Policy* 2015 26(12): 1244-50.

BACKGROUND: People who inject drugs have experienced stigma around the world. Stigma has been found to have negative consequences for individuals in relation to health-service use, psychological wellbeing and physical health; and for populations in terms of health inequalities. Indonesia has experienced a rapid growth in injecting drug use and HIV and little is known about drivers of HIV risk among Indonesian women who inject drugs. The purpose of this paper is to describe and consider the multiple impacts of stigmatization of injecting drug use on injecting behaviors among women who inject drugs in Java.

METHODS: In-depth interviews were conducted with 19 women who inject drugs in Java. Mean age was 25 years, all but one was employed or at college. The interviewers were Indonesian women.

RESULTS: Significant stigma around women's drug use was reported from multiple sources in Java including family, friends and health services, resulting in feelings of shame. To avoid this stigma, most of the study participants hid their drug use. They lived away from family and had few friends outside their drug-injecting circle, resulting in isolation from mainstream society and harm-reduction services. Sharing of injecting equipment was restricted to a small, closed circle of trusted friends, thus limiting possible HIV transmission to a small number of injectors.

CONCLUSIONS: The stigmatization of drug use, particularly of drug use by women, in Indonesia appears to have contributed to significant shame, isolation from mainstream society and high rates of sharing injecting equipment with a small group of trusted friends (particularly the partner).

24. Calabrese, S. K., et al. **"Internalized HIV and Drug Stigmas: Interacting Forces Threatening Health Status and Health Service Utilization Among People with HIV Who Inject Drugs in St. Petersburg, Russia."** *AIDS Behav* 2016 20(1): 85-97.

Marked overlap between the HIV and injection drug use epidemics in St. Petersburg, Russia, puts many people in need of health services at risk for stigmatization based on both characteristics simultaneously. The current study examined the independent and interactive effects of internalized HIV and drug stigmas on health status and health service utilization among 383 people with HIV who inject drugs in St. Petersburg. Participants self-reported internalized HIV stigma, internalized drug stigma, health status (subjective rating and symptom count), health service utilization (HIV care and drug treatment), sociodemographic characteristics, and health/behavioral history. For both forms of internalized stigma, greater stigma was correlated with poorer health and lower likelihood of service utilization. HIV and drug stigmas interacted to predict symptom count, HIV care, and drug treatment such that individuals internalizing high levels of both stigmas were at elevated risk for experiencing poor health and less likely to access health services.

25. Booth, R. E., et al. **"Krokodile Injectors in Ukraine: Fueling the HIV Epidemic?"** *AIDS Behav* 2016 20(2): 369-76.

This study was designed to assess the characteristics of krokodile injectors, a recent phenomenon in Ukraine, and HIV-related risk factors among people who inject drugs (PWID). In three Ukraine cities, Odessa, Donetsk and Nikolayev, 550 PWID were recruited between December 2012 and October 2013 using modified targeted sampling methods. The sample averaged 31 years of age and they had been injecting for over 12 years. Overall, 39 % tested positive for HIV, including 45 % of krokodile injectors. In the past 30 days, 25 % reported injecting krokodile. Those who injected krokodile injected more frequently ($p < 0.001$) and they injected more often with others ($p = 0.005$). Despite knowing their HIV status to be positive, krokodile users did not reduce their injection frequency, indeed, they injected as much as 85 % ($p = 0.016$) more frequently than those who did not know their HIV status or thought they were negative. This behavior was not seen in non-krokodile using PWID. Although only a small sample of knowledgeable HIV positive krokodile users was available ($N = 12$), this suggests that krokodile users may disregard their HIV status more so than nonkrokodile users. In spite of widespread knowledge of its harmful physical consequences, a growing number of PWID are turning to injecting krokodile in Ukraine. Given the recency of krokodile use the country, the associated higher frequency of injecting, a propensity to inject more often with others, and what could be a unique level of disregard of HIV among krokodile users, HIV incidence could increase in future years.

26. Mlunde, L. B., et al. **"A Mismatch between High-Risk Behaviors and Screening of Infectious Diseases among People Who Inject Drugs in Dar es Salaam, Tanzania."** *PLoS One* 2016 11(2): e0148598.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4744010/pdf/pone.0148598.pdf>

BACKGROUND: People who inject drugs are at risk of various infectious diseases. Despite such a risk, evidence is limited which studied the utilization of screening services for common infectious diseases among people who inject drugs in Tanzania. We aimed to examine their high-risk behaviors; utilization of screening services for HIV infection, hepatitis B/C, any other sexually transmitted infection, and tuberculosis; and their associated factors in Dar es Salaam, Tanzania.

METHODS: We conducted a baseline cross-sectional study as part of a prospective cohort study of people who inject drugs. We included 578 participants comprising of new enrollees of the integrated methadone-assisted treatment program and those who were selected from the communities but not enrolled in the program. We interviewed new enrollees preceding their enrollment and receipt of services from the

program. We measured participants' high-risk behaviors and their utilization of screening services. We analyzed the data descriptively and used multiple logistic regressions to identify the factors associated with ever being screened for infectious diseases.

RESULTS: Of 578 participants, 14.2% shared injection needles. Of 547 sexually active participants, 37.5% had multiple sexual partners and only 17.4% used a condom. Of all participants, however, only 36.0% had ever been screened for HIV infection, 18.5% for tuberculosis, 11.8% for any other sexually transmitted infection, and 11.6% for hepatitis B/C. They were more likely to have ever been screened for HIV infection if they had education levels above primary education (adjusted odds ratio [AOR]: 2.54, 95% CI: 1.54-4.20), had a history of transactional sex (OR: 2.63, 95% CI: 1.01-6.84), and were new enrollees of the program (AOR: 7.41, 95% CI: 4.41-12.86).

CONCLUSIONS: People who inject drugs practice high-risk behaviors but their utilization of screening services for infectious diseases is poor in Dar es Salaam, Tanzania. It is crucial to increase the coverage of screening services for them and strengthen the counseling of safer sexual practices.

27. Racz, J., et al. **"New cases of HIV among people who inject drugs in Hungary: False alarm or early warning?"** *Int J Drug Policy* 2016 27: 13-6.

Between 2009 and the first quarter of 2014, only one case of HIV (contracted outside Hungary) was detected among PWIDs in Hungary. However, more recent evidence suggests increased sharing of injecting paraphernalia among PWIDs. This is linked to the emergence of new designer drugs that require frequent injection, alongside funding cuts to the Hungarian needle exchange program (NEP) which has reduced access to sterile injecting equipment. During the past five years in Hungary, drug use has become increasingly discussed in moral as opposed to public health terms, and drug consumption has been re-criminalized. The largest NEP in Hungary was closed because of political pressure and government funding for regular HCV/HIV testing/counselling and seroprevalence studies among PWIDs has been stopped. This paper describes the detection of two new cases of HIV infection in PWIDs attending two NEPs in Budapest in May 2014. These new cases may indicate an unfolding HIV outbreak among PWIDs-similar to those reported in Greece and Romania. Yet the question remains: If no further HIV cases are detected, is this because there are no new cases or because there are no testing facilities for PWID?

28. Wickersham, J. A., et al. **"Patterns of substance use and correlates of lifetime and active injection drug use among women in Malaysia."** *Am J Drug Alcohol Abuse* 2016 42(1): 98-110.

BACKGROUND: While drug use is associated with HIV risk in Southeast Asia, little is known about substance use behaviors among women, including drug injection.

OBJECTIVES: To describe patterns of substance use among women using alcohol and drugs in Malaysia and identify correlates of lifetime and active drug injection, a risk factor for HIV transmission.

METHODS: A survey of 103 women who used drugs in the last 12 months assessed drug use history and frequency, including drug injection and drug use during pregnancy, self-reported HIV-status, childhood and adulthood physical and sexual abuse, and access to and utilization of harm reduction services, including needle-syringe exchange programs (NSEP) and opioid agonist maintenance therapy (OAT). Principal component analyses (PCA) were conducted to assess drug use grouping.

RESULTS: Amphetamine-type substances (ATS; 82.5%), alcohol (75.7%) and heroin (71.8%) were the most commonly used drugs across the lifetime. Drug injection was reported by 32.0% (n = 33) of participants with 21.4% (n = 22) having injected in the last 30 days. PCA identified two groups of drug users: opioids/benzodiazepines and club drugs. Lifetime drug injection was significantly associated with lower education, homelessness, prior criminal justice involvement, opioid use, polysubstance use, childhood physical and sexual abuse, and being HIV-infected, but not with prior OAT.

CONCLUSION: Women who use drugs in Malaysia report high levels of polysubstance use and injection-related risk behaviors, including sharing of injection equipment and being injected by others. Low OAT utilization suggests the need for improved access to OAT services and other harm reduction measures that prioritize women.

29. Baum, M. K., et al. **"Recruitment, Follow-Up and Characteristics of HIV Infected Adults who Use Illicit Drugs in Southern Africa."** *J Drug Abuse* 2015 1(1).

BACKGROUND: With one of the worst HIV prevalence rates in the world, Botswana has made great strides in addressing AIDS. Nevertheless, to fully contain the epidemic, outreach to marginalized groups, including illicit drug users, is critical.

OBJECTIVE: To conduct targeted outreach within an intervention trial to recruit HIV-infected drug users and assess HIV disease and nutritional status.

METHOD: Recruitment strategies included safeguarding confidentiality, involving local health-care professionals, advertising, and participation incentives. Urine toxicology, CD4 cell count, HIV viral load, blood chemistry, plasma micronutrients, dietary history, drug use and morbidity were assessed for two years.

RESULTS: Targeted outreach identified 138 HIV-infected persons who used marijuana; 18.1% had CD4 cell counts \leq 350 cells/ μ L and 39.9% had low BMI. Eligible marijuana users (N=52) had significantly lower BMI (21.8 \pm 3.7 vs. 24.3 \pm 5.3 kg/m², P=0.001), higher HIV viral load (4.36 \pm 0.89 vs. 4.09 \pm 0.89 log₁₀, P=0.018), and higher kilocalorie intake (1924 \pm 1055 vs. 1620 \pm 926 Kcalories, P=0.025) than those who did not use marijuana (N=748) with similar CD4 cell count. Marijuana users \geq 40 years old had more opportunistic diseases (P=0.020) than non-users of the same age. Benzodiazepine use was detected among 57 participants and they had higher BMI than marijuana users (24.4 \pm 6.8 vs. 21.8 \pm 3.7 kg/m², P= 0.017).

CONCLUSION: A population stigmatized by illicit drug use and HIV-infection can be brought into a clinical research setting in Africa. HIV-infected marijuana users were at a risk for higher HIV viral load, lower BMI and more comorbidities than nonusers. Outreach to this marginalized group is important for containing the HIV epidemic.

30. Samo, R. N., et al. **"Risk Factors for Loss to Follow-Up among People Who Inject Drugs in a Risk Reduction Program at Karachi, Pakistan. A Case-Cohort Study."** *PLoS One* 2016 11(2): e0147912.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4739707/pdf/pone.0147912.pdf>

INTRODUCTION: Retention of male people who inject drugs (PWIDs) is a major challenge for harm reduction programs that include sterile needle/syringe exchange in resource-limited settings like Pakistan. We assessed the risk factors for loss to follow-up among male PWIDs enrolled in a risk reduction program in Karachi, Pakistan.

METHODS: We conducted a prospective cohort study among 636 HIV-uninfected male PWIDs enrolled during March-June 2009 in a harm reduction program for the estimation of incidence rate. At 24 months post-enrollment, clients who had dropped out of the program were defined as lost to follow-up and included as cases for case-cohort study.

RESULTS: The median age of the participants was 29 years (interquartile range: 23-36). Active outreach accounted for 76% (483/636) of cohort recruits. Loss to follow-up at 24 months was 25.5% (162/636). In multivariable logistic regression, younger age (AOR: 0.97, 95% CI: 0.92-0.99, p = 0.028), clients from other provinces than Sindh (AOR: 1.49, 95% CI: 1.01-2.22, p = 0.046), having no formal education (AOR: 3.44, 95% CI: 2.35-4.90, p<0.001), a history of incarceration (AOR: 1.68, 95% CI: 1.14-2.46, p<0.008), and being homeless (AOR: 1.47, 95% CI: 1.00-2.19, p<0.049) were associated with loss to follow-up.

CONCLUSIONS: Our cohort retained 74.5% of male PWIDs in Karachi for 24 months. Its loss to follow up rate

suggested substantial ongoing programmatic challenges. Programmatic enhancements are needed for the highest risk male PWIDs, i.e., younger men, men not from Sindh Province, men who are poorly educated, formerly incarcerated, and/or homeless.

31. Hernandez, D., et al. **"Self-Reported HIV and HCV Screening Rates and Serostatus Among Substance Abuse Treatment Patients."** *AIDS Behav* 2016 20(1): 204-14.

Substance users are at increased risk for HIV and HCV infection. Still, many substance use treatment programs (SUTP) fail to offer HIV/HCV testing. The present secondary analysis of screening data from a multi-site randomized trial of rapid HIV testing examines self-reported HIV/HCV testing patterns and serostatus of 2473 SUTP patients in 12 community-based sites that had not previously offered on-site testing. Results indicate that most respondents screened for the randomized trial tested more than a year prior to intake for HIV (52 %) and HCV (38 %). Prevalence rates were 3.6 and 30 % for HIV and HCV, respectively. The majority of participants that were HIV (52.2 %) and HCV-positive (40.5 %) reported having been diagnosed within the last 1-5 years. Multivariable logistic regression showed that members of high-risk groups were more likely to have tested. Bundled HIV/HCV testing and linkage to care issues are recommended for expanding testing in community-based SUTP settings.

32. Pasa, M. K., et al. **"Sharing of Needles and Syringes among Men Who Inject Drugs: HIV Risk in Northwest Bangladesh."** *PLoS One* 2016 11(2): e0148276.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4743837/pdf/pone.0148276.pdf>

INTRODUCTION: Injection drug use is prevalent in northwestern Bangladesh. We sought to explore the context of needle/syringe sharing among persons who inject drugs (PWID), examining risk exposures to blood-borne infections like the human immunodeficiency virus (HIV) and hepatitis in a region where these dual epidemics are likely to expand.

METHODS: We used a qualitative research approach to learn about injection practices, conducting 60 in-depth interviews among PWID. We then conducted 12 focus group discussions (FGDs) that generated a checklist of salient issues, and followed up with personal observations of typical days at the drug-use venues. Content and interpretative frameworks were used to analyze qualitative information and socio-demographic information, using SPSS software.

RESULTS: We found that needle/syringe-sharing behaviours were integrated into the overall social and cultural lives of drug users. Sharing behaviours were an central component of PWID social organization. Sharing was perceived as an inherent element within reciprocal relationships, and sharing was tied to beliefs about drug effects, economic adversity, and harassment due to their drug user status. Carrying used needles/syringes to drug-use venues was deemed essential since user-unfriendly needle-syringe distribution schedules of harm reduction programmes made it difficult to access clean needles/syringes in off-hours. PWID had low self-esteem. Unequal power relationships were reported between the field workers of harm reduction programmes and PWID. Field workers expressed anti-PWID bias and judgmental attitudes, and also had had misconceptions about HIV and hepatitis transmission. PWID were especially disturbed that no assistance was forthcoming from risk reduction programme staff when drug users manifested withdrawal symptoms.

CONCLUSION: Interventions must take social context into account when scaling up programmes in diverse settings. The social organization of PWID include values that foster needle-syringe sharing. Utilization and impact of risk reduction programmes might be improved with expanded clean needle/syringe distribution at times and venues convenient for PWID, better trained and non-judgmental staff, and medical assistance for health problems, including drug withdrawal symptoms.

33. Loeliger, K. B., et al. **"The syndemic of HIV, HIV-related risk and multiple co-morbidities among women who use drugs in Malaysia: Important targets for intervention."** *Addict Behav* 2016 53: 31-9.

BACKGROUND: Substance use and HIV are syndemic public health problems in Malaysia. Harm reduction efforts to reduce HIV transmission have primarily focused on men with substance use disorders.

OBJECTIVES: To explore HIV risk behaviors, substance use, and social factors associated with poor health outcomes among women who use drugs in Malaysia.

METHODS: A cross-sectional survey of 103 drug-using women in Kuala Lumpur, Malaysia were recruited to assess their medical, psychiatric and social comorbidity as well as their engagement in nationally recommended HIV testing and monitoring activities.

RESULTS: One-third reported having ever injected drugs, with most (68.2%) having recently shared injection paraphernalia. Sex work (44.7%) and infrequent condom use (42.4%) were common as was underlying psychiatric illness and physical and sexual violence during childhood and adulthood. Most women (62.1%) had unstable living situations and suffered from an unmet need for social support and health services. HIV prevalence was high (20%) with only two thirds of women eligible for antiretroviral therapy having received it. Suboptimal HIV testing and/or monitoring was positively associated with interpersonal violence (AOR 2.73; 95% CI 1.04-7.14) and negatively associated with drug injection (AOR 0.28; 95% CI 0.10-0.77).

CONCLUSIONS/IMPORTANCE: Women who use drugs in Malaysia demonstrate considerable medical, psychiatric and social co-morbidity, which negatively contributes to optimal and crucial engagement in HIV treatment-as-prevention strategies. Mental health and social support may be key targets for future public health interventions aimed at drug-using women in Malaysia.

34. Glasman, L. R., et al. **"Using Peer-Referral Chains with Incentives to Promote HIV Testing and Identify Undiagnosed HIV Infections Among Crack Users in San Salvador."** *AIDS Behav* 2015.

In El Salvador, crack users are at high risk for HIV but they are not targeted by efforts to promote early HIV diagnosis. We evaluated the promise of peer-referral chains with incentives to increase HIV testing and identify undiagnosed HIV infections among networks of crack users in San Salvador. For 14 months, we offered HIV testing in communities with a high prevalence of crack use. For the following 14 months, we promoted chains in which crack users from these communities referred their peers to HIV testing and received a small monetary incentive. We recorded the monthly numbers of HIV testers, and their crack use, sexual risk behaviors and test results. After launching the referral chains, the monthly numbers of HIV testers increased significantly ($Z = 6.90, p < .001$) and decayed more slowly ($Z = 5.93, p < .001$), and the total number of crack-using testers increased nearly fourfold. Testers in the peer-referral period reported fewer HIV risk behaviors, but a similar percentage (~5 %) tested HIV positive in both periods. More women than men received an HIV-positive diagnosis throughout the study ($\chi^2(1, N = 799) = 4.23, p = .040$). Peer-referral chains with incentives can potentially increase HIV testing among networks of crack users while retaining a focus on high-risk individuals.

35. Go, V. F., et al. **"Variations in the Role of Social Support on Disclosure Among Newly Diagnosed HIV-Infected People Who Inject Drugs in Vietnam."** *AIDS Behav* 2016 20(1): 155-64.

Stigma and perceived social support can influence the decision to disclose HIV positive status, especially for people who inject drugs (PWID). In this analysis, the association between social support and HIV disclosure among 336 newly diagnosed HIV-infected PWID in Northern Vietnam was assessed. One month after diagnosis, 34.8 % of participants had not disclosed to anyone. Disclosure to anyone and to a family member specifically, was associated with baseline social support in the form of positive interactions and a history of incarceration. Disclosing to a family member was less likely among those who had unprotected sex in the previous 3 months. Disclosure to an injecting partner was more likely among those with a history of being in a drug treatment program, knowing someone on ART and believing that ART is safe. These data suggest that social support may facilitate disclosure among family members, including spouses, while disclosure to injecting partners is greater when PWID know that ART is a safe and viable option.

[Back to top](#)

Men who have Sex with Men - 48

1. Vu, N. T., et al. "**Amphetamine-type stimulant use among men who have sex with men (MSM) in Vietnam: Results from a socio-ecological, community-based study.**" *Drug Alcohol Depend* 2016 158: 110-7.

INTRODUCTION: Amphetamine-type-stimulants (ATS) use is associated with HIV-related sexual risk behaviours and is an emergent problem among men who have sex with men (MSM) in Vietnam. The purpose of this study is to describe ATS use patterns and understand the correlates of recent methamphetamine use from a socio-ecological perspective.

METHODS: From September through December, 2014, 622 MSM were recruited in Hanoi and Ho Chi Minh City, Vietnam. We collected information on demographic characteristics, HIV testing behaviours, use of ATS and other recreational drugs (ever and recently), sexual sensation seeking, depressive mood, experienced and internalized stigma related to homosexuality, social involvement with other MSM, and perceptions of ATS use in MSM networks. We performed descriptive statistics to describe ATS use patterns and multivariate logistic regression to establish independent correlates of recent methamphetamine use.

RESULTS: Nearly one-third (30.4%) had ever used ATS, including 23.6% who had used methamphetamine, 4.3% who had used amphetamine ('speed') and 20.9% who had used ecstasy. 20.1% and 11.9% had ever used methamphetamine and ecstasy, respectively, during sex. Eighteen percent of methamphetamine users were classified as engaged in high-risk use. Recent methamphetamine use (in the last 3 months) was associated with participants perceiving more methamphetamine use in their MSM network, recent sex work, and higher sexual sensation seeking scores.

CONCLUSIONS: ATS use is relatively prevalent among MSM sampled in Vietnam's main cities. Interventions to address methamphetamine are warranted for MSM in Vietnam. Methamphetamine treatments are needed for high-risk users.

2. Perez-Brumer, A. G., et al. "**Anonymous partnerships among MSM and transgender women (TW) recently diagnosed with HIV and other STIs in Lima, Peru: an individual-level and dyad-level analysis.**" *Sex Transm Infect* 2016.

OBJECTIVES: Partner notification (PN) following sexually transmitted disease (STI) diagnosis is a key strategy for controlling HIV/STI transmission. Anonymous partnerships are an important barrier to PN and often associated with high-risk sexual behaviour. Limited research has examined the profile of men who have sex with men (MSM) and transgender women (TW) who engage in anonymous sex. To better understand anonymous partnership practices in Lima, Peru, we assessed participant-level and partnership-level characteristics associated with anonymous sex among a sample of MSM and TW recently diagnosed with HIV/STI.

METHODS: MSM and TW diagnosed with HIV/STI within the past month completed a cross-sectional survey regarding anticipated PN practices. Participants reported sexual partnership types and characteristics of up to three of their most recent partners. Using a Poisson generalised estimating equation model, we assessed participant-level and partnership-level characteristics associated with anonymous partnerships.

RESULTS: Among 395 MSM and TW with HIV/STI, 36.0% reported at least one anonymous sexual partner in

the past 3 months (mean of 8.6 anonymous partners per participant; SD 17.0). Of the 971 partnerships reported, 118 (12.2%) were anonymous and the majority (84.8%) were with male partners, followed by 11.0% with female partners and 4.2% with transgender/travesti partners. Partner-level characteristics associated with increased likelihood of having an anonymous partner included female (adjusted prevalence ratio (aPR) 2.28, 95% CI 1.05 to 4.95, $p=0.04$) or transgender/travesti (aPR 4.03, 95% CI 1.51 to 10.78, $p=0.006$) partner gender.

CONCLUSIONS: By assessing both individual-level and dyadic-level factors, these results represent an important step in understanding the complexity of partnership interactions and developing alternative PN strategies for Latin America.

3. Liu, Y., et al. **"Barriers and Facilitators of Linkage to and Engagement in HIV Care Among HIV-Positive Men Who Have Sex with Men in China: A Qualitative Study."** *AIDS Patient Care STDS* 2016 30(2): 70-7.

Linking and engaging HIV-positive patients in care is the key bridging step to glean the documented health and prevention advantages of antiretroviral therapy (ART). In China, HIV transmission among men who have sex with men (MSM) is surging, yet many HIV-positive MSM do not use HIV care services. We conducted a qualitative study in order to help positive interventions to promote linkage-to-care in this key population. Four focus group discussions (FGD) were held among HIV-positive MSM in Beijing, China, to ascertain knowledge, beliefs, attitudes, and practices related to HIV care. FGD participants highlighted six major barriers of linkage to/engagement in HIV care: (1) perceived discrimination from health care workers; (2) lack of guidance and follow-up; (3) clinic time or location inconvenience; (4) privacy disclosure concerns; (5) psychological burden of committing to HIV care; and (6) concerns about treatment. Five major sub-themes emerged from discussions on the facilitators of linkage to/engagement in care: (1) peer referral and accompaniment; (2) free HIV care; (3) advocacy from HIV-positive MSM counselors; (4) extended involvement for linking MSM to care; and (5) standardization of HIV care (i.e., reliable high quality care regardless of venue). An understanding of the barriers and facilitators that may impact the access to HIV care is essential for improving the continuum of care for MSM in China. Findings from our study provide research and policy guidance for how current HIV prevention and care interventions can be enhanced to link and engage HIV-positive MSM in HIV care.

4. Moller, L. M., et al. **"Changes in sexual risk behavior among MSM participating in a research cohort in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S211-9.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4734130/pdf/nihms-748730.pdf>

OBJECTIVE: To describe changes in sexual risk behavior among Kenyan MSM who received regular risk reduction counseling (RRC).

DESIGN: Data were derived from two cohorts of HIV-1-negative and HIV-1-positive MSM in Kenya. Behavioral data were collected at enrollment and at monthly or quarterly scheduled follow-up visits. At each visit, RRC was provided to all men and HIV-1 testing to seronegative men.

METHODS: Random effects logistic and Poisson regression models with time since study entry as main variable of interest were used to evaluate changes in number of sex partners and unprotected sex in the past week, and insertive, receptive, and unprotected anal intercourse in the past 3 months. Analyses were adjusted for HIV-1-status, calendar year of follow-up, and several baseline characteristics. Trends over follow-up time were allowed to differ by HIV-1-status. Men were censored when they seroconverted for HIV.

RESULTS: Number of regular and casual sex partners and unprotected anal intercourse decreased in both HIV-1-negative and HIV-1-positive men. Unprotected sex with both regular and casual sex partners decreased more strongly early in follow-up in HIV-1-positive men than in HIV-1-negative men. Decreases in insertive anal intercourse were found for HIV-1-positive men only, whereas decreases in receptive anal intercourse were found for HIV-1-negative men only.

CONCLUSION: MSM who were regularly exposed to RRC showed some reductions in sexual risk behavior, but it is uncertain if these reductions are sustained over time. As HIV-1 incidences in Kenyan MSM are very high, RRC should be supported by comprehensive biomedical interventions.

5. Brown, C. A., et al. **"Characterizing the Individual, Social, and Structural Determinants of Condom Use Among Men Who Have Sex with Men in Swaziland."** *AIDS Res Hum Retroviruses* 2016.

Within the broadly generalized HIV epidemic in Swaziland, men who have sex with men (MSM) have specific HIV acquisition and transmission risks. In the current era of expanding antiretroviral therapy-based prevention and treatment approaches, condom use remains a core component of mitigating these risks. A cross-sectional study characterizing the vulnerabilities for HIV among MSM in Swaziland was analyzed to describe factors associated with condom use at last sex with a male partner. Bivariate and multivariate logistic regression analyses were conducted to assess correlates of condom use at last sex with both casual and regular male partners. Disclosure of sexual practices to a healthcare provider and being able to count on other MSM to support condom use were significantly associated with condom use at last sex with a casual and a regular partner, respectively. Reporting difficulty insisting on condom use was inversely associated with condom use at last sex with both regular and casual partners. In addition, having faced legal discrimination was similarly inversely associated with condom use at last sex with a regular partner. Condom use among MSM in Swaziland may increase with improved partner communication, provider sensitization to encourage sexual disclosure, and the promotion of safer sex norms within MSM communities. These approaches, in combination with existing and emerging evidence of informed and human rights affirming prevention and HIV treatment approaches may reduce the incidence of HIV among MSM in Swaziland and all those in their sexual networks.

6. Ramakrishnan, L., et al. **"Comparison of Sexual Risk, HIV/STI Prevalence and Intervention Exposure Among Men Who Have Sex with Men and Women (MSMW) and Men Who Have Sex with Men Only (MSMO) in India: Implications for HIV Prevention."** *AIDS Behav* 2015 19(12): 2255-69.

Using data from a cross-sectional bio-behavioral survey conducted among men who have sex with men (n = 3833) in India, we examined differences related to HIV-related sexual risk, HIV/STI prevalence and intervention exposures between men who have sex with men and women (MSMW, 35 % of the sample) and men who have sex with men only (MSMO). Among MSMW, 93 % reported having female regular partners, 14 % had female paid partners, and all types of male partners (regular 55 %; casual 77.1 %; paying 47 %; paid 19 %). Logistic regression revealed that MSMW had higher odds of being aged 26 years and above (AOR 4.45, 95 % CI 3.66-5.42), lower odds of inconsistently using condoms with male partners (AOR 0.82, 95 % CI 0.67-0.98) and lower odds of having kothi (feminine/mostly receptive) identity (AOR 0.07, 95 % CI 0.06-0.09). HIV intervention exposure and HIV/STI prevalence did not differ significantly between MSMW and MSMO (HIV 13.1 vs. 12.2 %; active syphilis 3.5 vs. 3.1 %, respectively). Concurrent sexual partnerships with men and women pose risk of HIV transmission/acquisition for MSM and their male and female partners. All subgroups of MSM require tailored information and skills to consistently use condoms with different types of partners of either gender.

7. Secor, A. M., et al. **"Depression, substance abuse and stigma among men who have sex with men in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S251-9.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706380/pdf/nihms748729.pdf>

OBJECTIVES: Mental health conditions can erode quality of life and interfere with health-related behaviours such as medication adherence. We aimed to determine the prevalence and correlates of depression and other psychosocial factors among self-identified men who have sex with men (MSM) in coastal Kenya.

DESIGN: A cross-sectional survey.

METHODS: Psychosocial and mental health characteristics were assessed in an audio computer-assisted self-interview (ACASI) survey among 112 MSM participating in two ongoing HIV-positive and HIV-negative

cohorts in Mtwapa, Kenya. RESULTS: One-third of participants met criteria for major depressive disorder [16.1%, 95% confidence interval (95% CI) 9.8-24.2] or other depressive disorder (15.2%, 95% CI 9.1-23.2). Alcohol abuse was reported by 45% of respondents (95% CI 35.2-54.3) and other substance abuse by 59.8% (95% CI 50.1-69.0). Sexual and HIV stigma were moderate, with median scores of 11 [interquartile range (IQR) 6-17, potential range 0-33] and 25 (IQR 23-29, potential range 11-44), respectively. There were significant bivariate correlations between alcohol abuse, other substance abuse, sexual stigma and childhood and recent abuse. In a multivariable linear regression model, sexual stigma (beta = 0.17, 95% CI 0.03-0.32) and marriage to a woman (beta = -2.41 95% CI -4.74 to -0.09) were each associated with depression score.

CONCLUSION: We found moderate to high levels of depression and substance abuse, and moderate levels of sexual stigma. These variables were highly inter-correlated and associated with an experience of trauma or abuse. Comprehensive mental health services are needed in this population to address these issues.

8. Graham, S. M., et al. "**Development and pilot testing of an intervention to promote care engagement and adherence among HIV-positive Kenyan MSM.**" *AIDS* 2015 29 Suppl 3: S241-9.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706368/pdf/nihms-748728.pdf>

OBJECTIVES: In many African settings, MSM are a stigmatized group whose access to and engagement in HIV care may be challenging. Our aim was to design a targeted, culturally appropriate intervention to promote care engagement and antiretroviral therapy (ART) adherence for MSM in coastal Kenya, and describe intervention safety, feasibility, and acceptability based upon a small pilot study.

DESIGN: Based on qualitative work including in-depth interviews with HIV-positive MSM and focus groups with providers, we developed a tailored intervention and conducted a pilot test to refine intervention materials and procedures.

METHODS: The Shikamana intervention combines modified Next-Step Counseling by trained providers, support from a trained peer navigator, and tailored use of SMS messaging, phone calls, and discrete pill carriers. Providers, including counselors and clinicians, work together with peer navigators as a case management team.

RESULTS: Forty HIV-positive MSM aged 19-51 participated in intervention development and testing. Six counselors, three clinical officers, and four MSM peers were trained in intervention procedures. Of 10 ART-naive participants who enrolled in the pilot, eight completed follow-up with no adverse events reported. One participant was lost to follow-up after 2 months and another failed to initiate ART despite ongoing counseling. No adverse events were reported. Staff feedback and exit interviews rated the intervention as feasible and acceptable.

CONCLUSION: This adherence support intervention tailored for Kenyan MSM was well tolerated, feasible, and acceptable in the pilot phase. A randomized controlled trial of a scaled-up programme to estimate intervention efficacy is ongoing.

9. Rhodes, S. D., et al. "**The ecology of sexual health of sexual minorities in Guatemala City.**" *Health Promot Int* 2015 30(4): 832-42.

Guatemalan gay and bisexual men, men who have sex with men (MSM), and transgender persons carry disproportionate burden of HIV and other sexually transmitted infections compared with other Guatemalan subgroups. However, little is known about the determinants of sexual health to inform health promotion and disease prevention interventions among these sexual minorities. We sought to explore sexual health and HIV risk among Guatemalan sexual minorities, using a community-based participatory research approach. We conducted 8 focus groups (n = 87 participants total) and 10 individual in-depth interviews with gay and bisexual men, MSM, and transgender persons. Using constant comparison, an approach to grounded theory, we analyzed verbatim transcripts and identified 24 themes that we organized into five ecological factors influencing sexual health: intrapersonal (e.g. misconceptions about HIV transmission, low perceived

susceptibility and lack of condoms use skills); interpersonal (e.g. family rejection and condom use as a barrier to intimacy); community (e.g. discrimination and stigma); institutional (e.g. limited access to health promotion resources); and public policy (e.g. perceived lack of provider confidentiality and anti-gay rhetoric). There is profound need for multiple-level interventions to ensure that Guatemalan sexual minorities have the knowledge and skills needed to reduce sexual risk. Interventions are warranted to increase social support among sexual minorities, reduce negative perspectives about sexual minorities, develop institutional resources to meet the needs of sexual minorities and reduce harmful anti-gay rhetoric. Understanding and intervening on the identified factors is especially important given that the health of Guatemalan sexual minorities has been to-date neglected.

10. Adebajo, S., et al. **"Evaluating the effect of HIV prevention strategies on uptake of HIV counselling and testing among male most-at-risk-populations in Nigeria; a cross-sectional analysis."** *Sex Transm Infect* 2015 91(8): 555-60.

OBJECTIVE: The aim of this study was to evaluate the effects of three strategies in increasing uptake of HIV counselling and testing (HCT) among male most-at-risk-population (M-MARPs) using programmatic data.

DESIGN: HIV prevention strategies were evaluated in a cross-sectional analysis.

METHODS: Three HCT strategies were implemented between July 2009 and July 2012 among men who have sex with men (MSM) and people who inject drugs (PWIDs) in four states in Nigeria. The first strategy (S1), involved key opinion leaders (KOLs) who referred M-MARPs to health facilities for HCT. The second strategy (S2) involved KOLs referring M-MARPs to nearby mobile HCT teams while the third (S3) involved mobile M-MARPs peers conducting the HCT. χ^2 statistics were used to test for differences in the distribution of categorical variables across groups while logistic regression was used to measure the effect of the different strategies while controlling for confounding factors. RESULTS: A total of 1988, 14 726 and 14 895 M-MARPs were offered HCT through S1, S2 and S3 strategies, respectively. Overall, S3 (13%) identified the highest proportion of HIV-positive M-MARPs compared with S1 (9%) and S2 (3%), $p < / = 0.001$. Also S3 (13%) identified the highest proportion of new HIV diagnosis compared with S1 (8%) and S2 (3%), respectively, $p < / = 0.001$. When controlled for age, marital status and occupation, MSM reached via S3 were 9 times (AOR: 9.21; 95% CI 5.57 to 15.23) more likely to uptake HCT when compared with S1 while PWIDs were 21 times (AOR: 20.90; 95% CI 17.33 to 25.21) more likely to uptake to HCT compared with those reached via S1.

CONCLUSIONS: Peer-led HCT delivered by S3 had the highest impact on the total number of M-MARPs reached and in identifying HIV-positive M-MARPs and new testers. Training M-MARPs peers to provide HCT is a high impact approach in delivering HCT to M-MARPs.

11. Calabrese, S. K., et al. **"Framing HIV Pre-Exposure Prophylaxis (PrEP) for the General Public: How Inclusive Messaging May Prevent Prejudice from Diminishing Public Support."** *AIDS Behav* 2016.

Strategic framing of public messages about HIV pre-exposure prophylaxis (PrEP) may influence public support for policies and programs affecting access. This survey study examined how public attitudes toward PrEP differed based on the social group PrEP was described as benefiting ("beneficiary") and the moderating effect of prejudice. Members of the general public ($n = 154$) recruited online were randomly assigned to three beneficiary conditions: general population, gay men, or Black gay men. All participants received identical PrEP background information before completing measures of PrEP attitudes (specifying beneficiary), racism, and heterosexism. Despite anticipating greater PrEP adherence among gay men and Black gay men and perceiving PrEP as especially beneficial to the latter, participants expressed lower support for policies/programs making PrEP affordable for these groups vs. the general population. This disparity in support was stronger among participants reporting greater prejudice. Inclusive framing of PrEP in public discourse may prevent prejudice from undermining implementation efforts.

12. McKay, T. **"From marginal to marginalised: The inclusion of men who have sex with men in global and national AIDS programmes and policy."** *Glob Public Health* 2016: 1-21.

In the last decade, gay men and other men who have sex with men (msm) have come to the fore of global policy debates about AIDS prevention. In stark contrast to programmes and policy during the first two decades of the epidemic, which largely excluded msm outside of the Western countries, the Joint United Nations Programme on HIV/AIDS now identifies gay men and other msm as 'marginalized but not marginal' to the global response. Drawing on archival data and five waves of United Nations Country Progress Reports on HIV/AIDS (2001-2012), this paper examines the productive power of international organisations in the development and diffusion of the msm category, and considers how international organisations have shaped the interpretation of msm in national policies and programmes. These data show that the increasing separation of sexual identity and sexual behaviour at the global level helped to construct notions of risk and disease that were sufficiently broad to accommodate the diverse interests of global policy-makers, activists, and governments. However, as various international and national actors have attempted to develop prevention programmes for msm, the failure of the msm category to map onto lived experience is increasingly apparent.

13. Sandfort, T. G., et al. **"Gender Expression and Risk of HIV Infection Among Black South African Men Who Have Sex with Men."** *AIDS Behav* 2015 19(12): 2270-9.

To explore demographic, behavioral and psychosocial risk factors for HIV infection in South African MSM we recruited 480 MSM (aged 18 and 44 years) using respondent-driven sampling. Data were collected through individual computer-assisted face-to-face interviews. Participants were tested for HIV. RDS-adjusted HIV prevalence is 30.1 % (unadjusted 35.6 %). Few participants had ever engaged in both receptive and insertive anal sex; sex with women was frequently reported. Independent demographic and behavioral correlates of HIV infection include age, education, number of male sexual partners, ever having been forced to have sex, and ever having engaged in transactional sex; engagement in sex with women was a protective factor. Psychosocial risk factors independently associated with HIV infection were feminine identification, internalized homophobia, and hazardous drinking. Our findings confirm what has been found in other studies, but also suggest that the dynamics and context of sexual transmission among MSM in South Africa differ from those among MSM in Western countries.

14. Mimiaga, M. J., et al. **"A Group-Based Sexual Risk Reduction Intervention for Men Who Have Sex With Men in Ho Chi Minh City, Vietnam: Feasibility, Acceptability, and Preliminary Efficacy."** *Arch Sex Behav* 2015.

An emerging HIV epidemic can be seen among men who have sex with men (MSM) in Vietnam. There are currently no evidence-based behavioral sexual risk reduction interventions for MSM in this setting. Between October 2012 and June 2013, 100 high-risk MSM from Ho Chi Minh City were enrolled in an open pilot trial to assess feasibility and acceptability of a group-based, manualized sexual risk reduction intervention, and to preliminarily examine changes in primary and secondary outcomes. Participants completed a behavioral assessment battery and HIV testing at baseline, 3, and 6 months post-baseline. Over 80.0 % of the sample was <25 years old and 77.0 % identified as Bong kin ("hidden," masculine-appearing). Feasibility and acceptability of the program was evidenced by 87.0 % retention for the intervention sessions, 78.0 % completion of the 6 month assessment, and positive responses on evaluation forms and qualitative exit interviews. There was a decline in the number of condomless anal sex acts from baseline (6.32) to 3 month (2.06) and 6 month (2.49) follow-up ($p < .0001$). These data support the need for further testing of this group-based, behavioral HIV prevention intervention to reduce sexual risk behavior among MSM in Vietnam in a randomized controlled efficacy trial.

15. Smith, A. D., et al. **"Heterosexual behaviours among men who sell sex to men in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S201-10.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706370/pdf/nihms748726.pdf>

OBJECTIVE: African men who have sex with men often sell sex to men, and MSM who sell sex (MSM-SW) often also have female partners. We compared sexual risk behaviour of MSM-SW who were sexually active

with female partners (bisexual MSW) to MSM-SW with only male partners (exclusive MSW).

DESIGN: Descriptive behavioural study **METHODS:** : A novel, validated daily event and partner diary self-completed by 82 MSM who sold sex over a follow-up period of 42 days with weekly review. Cumulative individual counts of sex and condomless sex were compiled by partner characteristics. The incidence of specific partnerships and sex acts were compared within and between bisexual and exclusive MSW.

RESULTS: Most (59%) MSM-SW reported female partners during follow-up. The majority of both male and female partners were cash-paying clients originating locally. Bisexual MSW reported a similar rate of condomless sex with male and female partners, but significantly fewer male partners than exclusive MSW. Bisexual MSW had lower HIV prevalence, were more likely to only report insertive anal sex roles, and reported lower frequencies of condomless receptive anal sex than exclusive MSW.

CONCLUSION: Bisexually active male sex workers in coastal Kenya create HIV and other sexually transmitted infection transmission pathways to partners and clients in both MSM and heterosexual networks, but differed from exclusive MSW in having lower HIV acquisition and transmission risks. Epidemiological projection methods are liable to overestimate bridging potential of MSM-SW and MSM populations without account for systematic differences in risk within these populations.

16. Bowring, A. L., et al. **"HIV and Sexual Risk Among Men Who Have Sex With Men and Women in Asia: A Systematic Review and Meta-Analysis."** *AIDS Behav* 2016.

We performed a systematic review to estimate the proportion of men who have sex with men (MSM) in Asia who are bisexual and compare prevalence of HIV and sexual risk between men who have sex with men and women (MSMW) and men who have sex with men only (MSMO). Forty-eight articles based on 55 unique samples were identified from nine countries in Asia. Bisexual behaviour was common among MSM (pooled prevalence 32.8 %). Prevalence of HIV (pooled OR 0.90; 95 % CI 0.77-1.05), recent syphilis infection (pooled OR 0.99; 95 % CI 0.93-1.06) and unprotected anal intercourse (pooled OR 0.80; 95 % CI 0.57-1.11) were similar between MSMW and MSMO, but heterogeneity was high. MSMW had lower odds of reporting a prior HIV test than MSMO (OR 0.82; 95 % CI 0.70-0.95; $p = 0.01$, $I^2 = 0\%$). Targeted interventions are needed to increase uptake of HIV testing among MSMW. Increased reporting of disaggregated data in surveillance and research will help improve understanding of risk in MSMW and inform targeted interventions.

17. Mehta, S. H., et al. **"HIV care continuum among men who have sex with men and persons who inject drugs in India: barriers to successful engagement."** *Clin Infect Dis* 2015 61(11): 1732-41.

BACKGROUND: We characterize the human immunodeficiency virus (HIV) care continuum for men who have sex with men (MSM) and persons who inject drugs (PWID) across India.

METHODS: We recruited 12 022 MSM and 14 481 PWID across 26 Indian cities, using respondent-driven sampling (September 2012 to December 2013). Participants were aged ≥ 18 years and either self-identified as male and reported sex with a man in the prior year (MSM) or reported injection drug use in the prior 2 years (PWID). Correlates of awareness of HIV-positive status were characterized using multilevel logistic regression.

RESULTS: A total of 1146 MSM were HIV infected, of whom a median of 30% were aware of their HIV-positive status, 23% were linked to care, 22% were retained before antiretroviral therapy (ART), 16% had started ART, 16% were currently receiving ART, and 10% had suppressed viral loads. There was site variability (awareness range, 0%-90%; suppressed viral load range, 0%-58%). A total of 2906 PWID were HIV infected, of whom a median of 41% were aware, 36% were linked to care, 31% were retained before ART, 20% had started ART, 18% were currently receiving ART, and 15% had suppressed viral loads. Similar site variability was observed (awareness range: 2%-93%; suppressed viral load range: 0%-47%). Factors significantly associated with awareness were region, older age, being married (MSM) or female (PWID), use of other services (PWID), more lifetime sexual partners (MSM), and needle sharing (PWID). Ongoing injection drug

use (PWID) and alcohol use (MSM) were associated with lower awareness.

CONCLUSIONS: In this large sample, the major barrier to HIV care engagement was awareness of HIV-positive status. Efforts should focus on linking HIV testing to other essential services. **CLINICAL TRIALS REGISTRATION:** NCT01686750.

18. Bustamante, M. J., et al. **"HIV self-testing in Peru: questionable availability, high acceptability but potential low linkage to care among men who have sex with men and transgender women."** *Int J STD AIDS* 2016.

HIV status awareness is key to prevention, linkage-to-care and treatment. Our study evaluated the accessibility and potential willingness of HIV self-testing among men who have sex with men (MSM) and transgender women in Peru. We surveyed four pharmacy chains in Peru to ascertain the commercial availability of the oral HIV self-test. The pharmacies surveyed confirmed that HIV self-test kits were available; however, those available were not intended for individual use, but for clinician use. We interviewed 147 MSM and 45 transgender women; nearly all (82%) reported willingness to perform the oral HIV self-test. However, only 55% of participants would definitely seek a confirmatory test in a clinic after an HIV-positive test result. Further, price may be a barrier, as HIV self-test kits were available for 18 USD, and MSM and transgender women were only willing to pay an average of 5 USD. HIV self-testing may facilitate increased access to HIV testing among some MSM/transgender women in Peru. However, price may prevent use, and poor uptake of confirmatory testing may limit linkage to HIV treatment and care.

19. Han, L., et al. **"HIV test uptake among MSM in China: Implications for enhanced HIV test promotion campaigns among key populations."** *Glob Public Health* 2016: 1-14.

Despite global efforts to increase HIV test uptake among men who have sex with men (MSM), social stigma and negative attitudes toward homosexuality hinder the effectiveness of traditional test promotion campaigns. Increasing HIV test uptake requires greater understanding of the conditions that facilitate decisions to get tested. We conducted an online survey hosted by two of the most highly frequented MSM web portals in China. A generalised ordered logistic regression analysis was conducted to determine factors associated with HIV testing behaviour. Compared to men who had never tested for HIV, men who had tested in the past year were more likely to have never engaged in sex with women, have multiple male sex partners in the past 3 months and have disclosed their sexual orientation to others. MSM found testing at local Chinese Centers for Disease Control and Prevention (80.7%), gay men's community-based organisations (80.2%) and public hospitals (70.9%) to be acceptable, while saunas (50.5%) and gay bars (41.8%) were found to be unacceptable testing venues. Our study shows that MSM in China prefer to test at venues that guarantee confidentiality, quality and quick results. Our study also suggests that self-testing may be a feasible approach to increase test uptake.

20. Pines, H. A., et al. **"HIV testing among men who have sex with men in Tijuana, Mexico: a cross-sectional study."** *BMJ Open* 2016 6(2): e010388.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4746448/pdf/bmjopen-2015-010388.pdf>

OBJECTIVES: HIV testing is critical to the delivery of comprehensive HIV prevention and care services, yet coverage of sexual minorities by HIV testing programmes remains insufficient in many low- and middle-income countries, including Mexico. The objective of this study was to identify the prevalence and correlates of HIV testing among men who have sex with men (MSM) in Tijuana, Mexico.

METHODS: We conducted a cross-sectional study (2012-2013) among 189 MSM recruited via respondent-driven sampling (RDS). RDS-weighted logistic regression was used to identify correlates of prior HIV testing.

RESULTS: RDS-adjusted prevalence of prior and recent (≤ 12 months) HIV testing was 63.5% (95% CI 51.9% to 73.5%) and 36.8% (95% CI 25.4% to 46.4%), respectively. Prior HIV testing was positively associated with older age (adjusted OR (AOR)=1.09, 95% CI 1.04 to 1.15), being born in Tijuana (AOR=2.68, 95% CI 1.05 to

6.86), higher levels of education (AOR=2.65, 95% CI 1.08 to 6.53), identifying as homosexual or gay (AOR=3.73, 95% CI 1.48 to 9.42), being more 'out' about having sex with men (AOR=1.28, 95% CI:1.02 to 1.62), and a history of sexual abuse (AOR=3.24, 95% CI 1.06 to 9.86). Prior HIV testing was negatively associated with reporting more condomless anal intercourse acts (past 2 months) (AOR=0.95, 95% CI 0.92 to 0.98) and greater internalised homophobia (AOR=0.92, 95% CI 0.86 to 0.99).

CONCLUSIONS: Our findings indicate an urgent need for expanded HIV testing services for MSM in Tijuana. Innovative, non-stigmatising, confidential HIV testing interventions targeted at young, less educated, migrant and non-gay identifying MSM may facilitate HIV testing and timely linkage to HIV care and treatment within this population.

21. Thomann, M. **"HIV vulnerability and the erasure of sexual and gender diversity in Abidjan, Cote d'Ivoire."** *Glob Public Health* 2016: 1-16.

In the fight against concentrated HIV epidemics, men who have sex with men (MSM) are often framed as a homogeneous population, with little attention paid to sexual and gender diversity and its impact on HIV vulnerability. This article draws on ethnographic research conducted in Abidjan, Cote d'Ivoire among les branches - a local term encompassing several categories of same-sex desire and practice. In the context of increased HIV prevention programming targeting Ivoirian sexual and gender minorities, such diversity is effectively erased. This obfuscation of difference has particularly negative impacts for travestis, who may be at higher risk for HIV infection, though research and prevention efforts in which they are grouped with 'MSM' render them underrepresented and make their vulnerability difficult to quantify. Branches whose class and/or ethnic backgrounds compound their stigmatised status as sexual and gender minorities also bear the burden of this exclusion. Furthermore, some branches deploy 'MSM' as a form of self-identification, further complicating who such categories represent. By highlighting the ways in which constructions of gender and sexuality within HIV/AIDS programming obscure complex social realities, I aim to reorient thinking around the development of purposeful HIV programming that engages the complexity of sexual and gender minority experience.

22. Wanyenze, R. K., et al. **"If You Tell People That You Had Sex with a Fellow Man, It Is Hard to Be Helped and Treated": Barriers and Opportunities for Increasing Access to HIV Services among Men Who Have Sex with Men in Uganda.**" *PLoS One* 2016 11(1): e0147714.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726486/pdf/pone.0147714.pdf>

BACKGROUND: Despite the high HIV prevalence among men who have sex with men (MSM) in sub-Saharan Africa, little is known about their access to HIV services. This study assessed barriers and opportunities for expanding access to HIV services among MSM in Uganda.

METHODS: In October-December 2013, a cross-sectional qualitative study was conducted in 12 districts of Uganda. Semi-structured in-depth interviews were conducted with 85 self-identified MSM by snowball sampling and 61 key informants including HIV service providers and policy makers. Data were analysed using manifest content analysis and Atlas.ti software.

RESULTS: Three quarters of the MSM (n = 62, 72.9%) were not comfortable disclosing their sexual orientation to providers and 69 (81.1%) felt providers did not respect MSM. Half (n = 44, 51.8%) experienced difficulties in accessing health services. Nine major barriers to access were identified, including: (i) unwelcoming provider behaviours; (ii) limited provider skills and knowledge; (iii) negative community perceptions towards MSM; (iv) fear of being exposed as MSM; (v) limited access to MSM-specific services; (vi) high mobility of MSM, (vii) lack of guidelines on MSM health services; (viii) a harsh legal environment; and (ix) HIV related stigma. Two-thirds (n = 56, 66%) participated in MSM social networks and 86% of these (48) received support from the networks to overcome barriers to accessing services.

CONCLUSIONS: Negative perceptions among providers and the community present barriers to service

access among MSM. Guidelines, provider skills building and use of social networks for mobilization and service delivery could expand access to HIV services among MSM in Uganda.

23. Colchero, M. A., et al. **"Impact and economic evaluations of a combination prevention programme for men who have sex with men in Mexico."** *AIDS* 2016 30(2): 293-300.

BACKGROUND: Despite the high-profile support for combination prevention programmes (CPPs) since 2008, there is little rigorous evidence on their impact and cost-effectiveness. In 2010, Mexico received funds from the Global Fund to implement a series of behavioural, biomedical, and structural interventions over 3 years targeted to men who have sex with men. The aims of the study were to estimate the impact of the programme across a range of outcomes and cost-effectiveness.

METHODS: A quasi-experiment was designed before the implementation of the CPP, in which 24 cities were randomly selected for impact evaluation and 12 pairs of cities were matched. In practice, though, implementation of the programme was staggered over 1 year. Therefore, we used two different approaches to estimate impact: a difference-in-difference estimation comparing both groups and a dose-response approach using time exposure to the programme at the city level.

FINDINGS: Results from the difference-in-difference estimation showed modest impact on condom use. However, the dose-response findings revealed a 7.5% increase in HIV testing per additional year exposed to the programme, relative to baseline coverage; an increase in awareness of HIV status among HIV-positive individuals of 6.6%; a 6.4% increase in HIV-positive individuals on treatment; and an 8% reduction in the perception of stigma/discrimination from healthcare personnel. The cost per person not exposed to an untreated HIV-positive individual was gauged to be US\$400.

CONCLUSIONS: The study provides evidence of the effectiveness and cost of a CPP along the HIV treatment cascade: access to HIV tests, awareness of HIV status, and antiretroviral therapy initiation.

24. Herrera, M. C., et al. **"Impact of alcohol use on sexual behavior among men who have sex with men and transgender women in Lima, Peru."** *Drug Alcohol Depend* 2016.

BACKGROUND: Alcohol use disorders (AUDs) may enhance the likelihood of risky sexual behaviors and the acquisition of sexually transmitted infections (STIs). Associations between AUDs with condomless anal intercourse (CAI) and STI/HIV prevalence were assessed among men who have sex with men (MSM) and transgender women (TW) in Lima, Peru.

METHODS: MSM and TW were eligible to participate based on a set of inclusion criteria which characterized them as high-risk. Participants completed a bio-behavioral survey. An AUDIT score ≥ 8 determined AUD presence. Recent STI diagnosis included rectal gonorrhoea/chlamydia, syphilis, and/or new HIV infection within 6 months. Prevalence ratios (PR) were calculated using Poisson regression.

RESULTS: Among 312 MSM and 89 TW, 45% (181/401) had an AUD. Among those with an AUD, 164 (91%) were hazardous/harmful drinkers, and 17 (9%) had alcohol dependence. Higher CAI was reported by participants with an AUD vs. without, (82% vs. 72% albeit not significant). Reporting anal sex in two or more risky venues was associated with screening AUD positive vs. not (24% vs. 15%, $p=0.001$). There was no difference in recent STI/HIV prevalence by AUD status (32% overall). In multivariable analysis, screening AUD positive was not associated with CAI or recent STI/HIV infection.

CONCLUSIONS: In our sample AUDs were not associated with CAI or new HIV infection/recent STI. However higher prevalence of CAI, alcohol use at last sex, and anal sex in risky venues among those with AUDs suggests that interventions to reduce the harms of alcohol should be aimed toward specific contexts.

25. Wei, C., et al. **"The Impact of Homophobia and HIV Stigma on HIV Testing Uptake Among Chinese Men Who Have Sex With Men: a Mediation Analysis."** *J Acquir Immune Defic Syndr* 2016 71(1): 87-93.

BACKGROUND: Gay and HIV-related stigma and discrimination are major barriers to accessing HIV prevention services among Men Who Have Sex with Men (MSM) worldwide. We aimed to identify modifiable factors that mediate the relationships between gay and HIV-related stigma and discrimination and HIV testing uptake among Chinese MSM.

METHODS: We conducted a cross-sectional survey study of 523 HIV-uninfected or unknown HIV status MSM in Jiangsu Province, China between November 2013 and January 2014. Multivariable analyses were conducted to examine the associations among experienced homophobia, HIV stigma, and recent HIV testing. Causal mediation parametric analyses were conducted to assess whether depression and social norms mediated hypothesized associations.

RESULTS: Stronger subjective norms toward testing was associated with higher odds of recent HIV testing (adjusted odds ratio [AOR]: 1.10, 95% confidence interval [CI]: 1.01 to 1.21), whereas increasing levels of depression and HIV stigma were both associated with lower odds of recent testing (AOR: 0.96, 95% CI: 0.92 to 0.99; and AOR: 0.91, 95% CI: 0.84 to 0.99, respectively). There was an indirect relationship (natural indirect effect [NIE]) of experienced homophobia on recent testing (ORNIE: 0.96, 95% CI: 0.93 to 0.98) mediated (35.0%) through depression. Furthermore, there was an indirect relationship of HIV stigma on recent testing (ORNIE: 0.98, 95% CI: 0.95 to 0.99) mediated (19.2%) through subjective norms.

CONCLUSIONS: Depression and social norms are important mediators of HIV testing uptake among stigmatized Chinese MSM. Therefore, in addition to advocacy efforts and policies that address social-level stigma and discrimination, HIV prevention programs should also address mental health issues and incorporate community-based approaches to changing social norms toward HIV testing.

26. Sanders, E. J., et al. "**Kenyan MSM: no longer a hidden population.**" *AIDS* 2015 29 Suppl 3: S195-9.

27. Clark, J. L., et al. "**'Manejar la Situación': Partner Notification, Partner Management, and Conceptual Frameworks for HIV/STI Control Among MSM in Peru.**" *AIDS Behav* 2015 19(12): 2245-54.

Previous analyses of partner notification (PN) have addressed individual, interpersonal, social, and structural issues influencing PN outcomes but have paid less attention to the conceptual framework of PN itself. We conducted 18 individual interviews and 8 group discussions, in a two-stage qualitative research process, to explore the meanings and contexts of PN for sexually transmitted infections (STI) among men who have sex with men (MSM) and men who have sex with men and women (MSMW) in Lima, Peru. Participants described PN as the open disclosure of private, potentially stigmatizing information that could strengthen or disrupt a partnership, structured by the tension between concealment and revelation. In addition to informing partners of an STI diagnosis, the act of PN was believed to reveal other potentially stigmatizing information related to sexual identity and practices such as homosexuality, promiscuity, and HIV co-infection. In this context, the potential development of visible, biological STI symptoms represented a risk for disruption of the boundary between secrecy and disclosure that could result in involuntary disclosure of STI status. To address the conflict between concealment and disclosure, participants cited efforts to "manejar la situación" (manage the situation) by controlling the biological risks of STI exposure without openly disclosing STI status. We use this concept of "managing the situation" as a practical and theoretical framework for comprehensive Partner Management for HIV/STI control systems among MSM in Latin America.

28. Biello, K. B., et al. "**Multiple syndemic psychosocial factors are associated with reduced engagement in HIV care among a multinational, online sample of HIV-infected MSM in Latin America.**" *AIDS Care* 2016: 1-8.

Latin America has some of the highest levels of antiretroviral therapy (ART) coverage of any developing region in the world. Early initiation and optimal adherence to ART are necessary for improved health outcomes and reduction in onward transmission. Previous work has demonstrated the role of psychosocial problems as barriers to uptake and adherence to ART, and recently, a syndemic framework has been applied

to the role of multiple psychosocial syndemic factors and adherence to ART, in the USA. However, to our knowledge, these associations have not been investigated outside of the USA, nor in a multi-country context. To address these gaps, we assessed the association between multiple co-occurring psychosocial factors and engagement in HIV-related medical care and adherence to ART among a large, multinational sample of sexually-active HIV-infected men who have sex with men in Latin America. Among the 2020 respondents, 80.7% reported currently receiving HIV-related medical care, 72.3% reported currently receiving ART; among those, 62.5% reported 100% adherence. Compared with experiencing no psychosocial health problems, experiencing five or more psychosocial health problems is associated with 42% lower odds of currently receiving HIV-related medical care (adjusted odds ratio, aOR = 0.58, 95% CI 0.36, 0.95) and of currently receiving ART (aOR = 0.58, 95% CI 0.38, 0.91). The number of psychosocial health problems experienced was associated with self-reported ART adherence in a dose-response relationship; compared to those with none of the factors, individuals with one syndemic factor had 23% lower odds (aOR = 0.77, 95% CI 0.60, 0.97) and individuals with five or more syndemic factors had 72% lower odds (aOR = 0.28, 95% CI 0.14, 0.55) of reporting being 100% adherent to ART. Addressing co-occurring psychosocial problems as potential barriers to uptake and adherence of ART in Latin America may improve the effectiveness of secondary prevention interventions.

29. Hoang, H. T., et al. **"Needs Assessment on the Use of Health Services Among Men Who Have Sex with Men in Ho Chi Minh City, Vietnam."** *LGBT Health* 2015 2(4): 341-5.

PURPOSE: Men who have sex with men (MSM) in Vietnam are at high risk for HIV and sexually transmitted infections (STI). However, few MSM in Vietnam routinely utilize HIV/STI testing and treatment services. We conducted a survey among MSM in Ho Chi Minh City to assess practices and preferences for accessing health services.

METHODS: In this qualitative study, 19 individual interviews and 3 focus group discussions were conducted with a total of 50 MSM. All participants self-identified as gay or bisexual and were stratified by age group. Recruitment was by convenience sampling through social networks. Semi-structured interview guides included experience accessing health services, stigma and discrimination in the health care setting, and preferences for HIV and STI counseling and services.

RESULTS: Fifty MSM aged 17 to 40 participated in the assessment. The majority had post-secondary education (92%) and above-average incomes. Almost all participants appreciated the cleanliness and quicker service in the private sector, while services in public hospitals were described as lower in quality but acceptable and uniform. The majority of the participants expressed a preference for MSM-specific services focusing on HIV/STI counseling, testing, and treatment. There was a strong preference for accessing HIV and STI services at a stand-alone clinic independent from other health facilities, where confidentiality could be assured. The majority were willing to pay a higher cost for private sector services, provided the service was of high quality, confidential, and non-stigmatizing.

CONCLUSION: This study confirms the need for high quality, nonjudgmental, and confidential HIV/STI health services for MSM in Vietnam. There is generally a willingness to pay for health services provided that the services are seen to be tolerant and friendly to MSM.

30. Anderson, P. L., et al. **"Nondaily preexposure prophylaxis for HIV prevention."** *Curr Opin HIV AIDS* 2016 11(1): 94-101.

PURPOSE OF REVIEW: To discuss nondaily preexposure prophylaxis (PrEP) modalities that may provide advantages compared with daily PrEP in cost and cumulative toxicity, but may have lower adherence forgiveness.

RECENT FINDINGS: Animal models have informed our understanding of early viral transmission events, which help guide event-driven PrEP dosing strategies. These models indicate early establishment of viral replication in rectal or cervicovaginal tissues, so event-driven PrEP should rapidly deliver high mucosal drug

concentrations within hours of the potential exposure event. Macaque models have demonstrated the high biological efficacy for event-driven dosing of oral tenofovir disoproxil fumarate (TDF) and emtricitabine (FTC) against both vaginal and rectal virus transmission. In humans, the IPERGAY study demonstrated 86% efficacy for event-driven oral TDF/FTC dosing among men who have sex with men (MSM), while no similar efficacy data are available on women or heterosexual men. The HPTN 067 study showed that certain MSM populations adhere well to nondaily PrEP, whereas other populations of women adhere more poorly to nondaily versus daily regimens. Pharmacokinetic studies following oral TDF/FTC dosing in humans indicate that TFV-diphosphate (the active form of TFV) accumulates to higher concentrations in rectal versus cervicovaginal tissue, but nonadherence in trials complicates the interpretation of differential mucosal drug concentrations.

SUMMARY: Event-driven dosing for TFV-based PrEP has promise for HIV prevention in MSM. Future research of event-driven PrEP in women and heterosexual men should be guided by a better understanding of the importance of mucosal drug concentrations for PrEP efficacy and its sensitivity to adherence.

31. Pitpitan, E. V., et al. **"'Outness' as a Moderator of the Association Between Syndemic Conditions and HIV Risk-Taking Behavior Among Men Who Have Sex with Men in Tijuana, Mexico."** *AIDS Behav* 2016 20(2): 431-8.

Multiple psychosocial conditions tend to co-occur and contribute to higher risk for HIV among men who have sex with men (MSM), a phenomenon known as syndemics. Less is known about moderating factors that may attenuate the relation between syndemic conditions and sexual risk-taking. We examined disclosure of same-sex sexual behavior or "outness" as a moderating factor of the syndemic effect. We recruited a sample of MSM (n = 191) using respondent-driven sampling in Tijuana, Mexico. Participants completed a survey of syndemic conditions (i.e., substance use, depression, violence, internalized homophobia, and sexual compulsivity), sexual risk-taking (i.e., condom unprotected anal sex with a stranger in the past 2 months), and the degree to which they are "out" about sex with men. Consistent with previous research, we found that men who report more syndemic conditions show a greater prevalence of sexual risk-taking. As predicted, men who were out to more people showed a weaker association between syndemic conditions and sexual risk-taking, whereas men who were out to fewer people showed the strongest association. This study is the first to provide evidence of "outness" as a moderating factor that attenuates syndemic effects on sexual risk-taking. Building upon previous research, the data suggest that "outness" may be a resilience factor for MSM in Tijuana. HIV prevention intervention implications are discussed.

32. Zhang, H., et al. **"Poppers use and risky sexual behaviors among men who have sex with men in Beijing, China."** *Drug Alcohol Depend* 2016 160: 42-8.

BACKGROUND: Although poppers are increasingly popular among MSM in China, little is known about the patterns of poppers use. The objectives of this study were to describe the patterns of poppers use and examine its association with sexual behaviors and HIV infection among MSM in Beijing, China.

METHODS: As part of a multi-component HIV intervention trial, 3588 MSM were surveyed between March 2013 and March 2014 in Beijing, China. Blood samples were collected and tested for HIV and syphilis. The questionnaire collected information about socio-demographic and behavioral characteristics. Univariate and multivariable logistic regression analyses were performed to evaluate the correlates of poppers use.

RESULTS: Over a quarter of men (27.5%) reported having used at least one type of drugs in the past three months. Poppers were the most popular one (26.8%). Poppers use was correlated with a higher HIV prevalence [odds ratio (OR): 1.38, 95% confidence interval (CI): 1.11-1.70]. Demographic and sexual behavioral factors associated with poppers use included: younger age [adjusted OR (AOR): 1.56, 95% CI: 1.25-1.94], higher education (AOR: 1.61, 95% CI: 1.33-1.96), alcohol use (AOR: 1.32, 95% CI: 1.10-1.60), seeking male partners mainly via the internet (AOR: 1.60, 95% CI: 1.28-2.00), multiple male sex partnership (AOR: 2.22, 95% CI: 1.90-2.60), and unprotected receptive anal intercourse (AOR: 1.52, 95% CI: 1.28-1.81).

CONCLUSIONS: In this study, poppers use was positively associated with HIV infection and unprotected anal intercourse. Intervention efforts should be devoted to promote safer sex and HIV testing and counseling among MSM who use poppers.

33. Sulaberidze, L., et al. **"Population Size Estimation of Men Who Have Sex with Men in Tbilisi, Georgia; Multiple Methods and Triangulation of Findings."** *PLoS One* 2016 11(2): e0147413.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4734621/pdf/pone.0147413.pdf>

INTRODUCTION: An accurate estimation of the population size of men who have sex with men (MSM) is critical to the success of HIV program planning and to monitoring of the response to epidemic as a whole, but is quite often missing. In this study, our aim was to estimate the population size of MSM in Tbilisi, Georgia and compare it with other estimates in the region.

METHODS: In the absence of a gold standard for estimating the population size of MSM, this study reports a range of methods, including network scale-up, mobile/web apps multiplier, service and unique object multiplier, network-based capture-recapture, Handcock RDS-based and Wisdom of Crowds methods. To apply all these methods, two surveys were conducted: first, a household survey among 1,015 adults from the general population, and second, a respondent driven sample of 210 MSM. We also conducted a literature review of MSM size estimation in Eastern European and Central Asian countries.

RESULTS: The median population size of MSM generated from all previously mentioned methods was estimated to be 5,100 (95% Confidence Interval (CI): 3,243 ~ 9,088). This corresponds to 1.42% (95%CI: 0.9% ~ 2.53%) of the adult male population in Tbilisi.

CONCLUSION: Our size estimates of the MSM population (1.42% (95%CI: 0.9% ~ 2.53%) of the adult male population in Tbilisi) fall within ranges reported in other Eastern European and Central Asian countries. These estimates can provide valuable information for country level HIV prevention program planning and evaluation. Furthermore, we believe, that our results will narrow the gap in data availability on the estimates of the population size of MSM in the region.

34. Liu, Y., et al. **"Predictors of antiretroviral therapy initiation: a cross-sectional study among Chinese HIV-infected men who have sex with men."** *BMC Infect Dis* 2015 15(1): 570.

Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4696158/pdf/12879_2015_Article_1309.pdf

BACKGROUND: Early antiretroviral therapy (ART) initiation is crucial to achieve HIV viral suppression and reduce transmission. HIV-infected Chinese men who have sex with men (MSM) were less likely to initiate ART than other HIV-infected individuals. We assessed predictors of ART initiation among Chinese MSM.

METHODS: In 2010-2011, a cross-sectional study was conducted among MSM in Beijing, China. We examined ART initiation within the subgroup who were diagnosed with HIV infection prior to participation in the survey. Logistic regression models were fitted to evaluate socio-demographic and behavioral factors associated with ART initiation. The eligibility criterion in the 2010/2011 national HIV treatment guidelines was CD4 cell count <350 cells/ μ L or World Health Organization (WHO) clinical stage III/IV.

RESULTS: Of 238 eligible HIV-infected participants, the median duration of HIV infection was 15 months (range: 31 days-12 years); 62 (26.1 %) had initiated ART. Among 103 men with CD4 counts <350 cells/ μ L, 38 (36.9 %) initiated ART. Being married to a woman (adjusted odd ratios [aOR]: 2.50; 95 % confidence interval [CI]: 1.07-5.87), longer duration of HIV infection (aOR: 10.71; 95 % CI: 3.66-31.32), and syphilis co-infection (aOR: 2.58; 95 % CI: 1.04-6.37) were associated with a higher likelihood of ART initiation. Of 135 men with CD4 count \geq 350 cells/ μ L, 24 (18 %) initiated ART. Being married to a woman (aOR: 4.21; 95 % CI: 1.60-11.06), longer duration of HIV infection (aOR: 22.4; 95 % CI: 2.79-180), older age (aOR: 1.26; 95 % CI: 1.1-1.44), Beijing hukou (aOR: 4.93; 95 % CI: 1.25-19.33), presence of AIDS-like clinical symptoms (aOR: 3.97; 95 % CI: 1.32-14.0), and history of sexually transmitted infections (aOR: 4.93; 95 % CI: 1.25-19.43) were associated with ART initiation. Compared with men who did not initiate ART, those with ART were more

likely to receive counseling on benefits of ART (96.8 % vs. 66.4 %, $P = 0 < 0.01$), HIV stigma coping strategy (75.8 % vs. 65.9 %, $P = 0.04$), mental health (66.1 % vs. 52.9 %, $P = 0.02$), and substance use (46.7 % vs. 36.6 %, $P = 0.04$). CONCLUSIONS: We documented low rates of ART initiation among Chinese MSM. Policy changes for expanding ART eligibility and interventions to improve the continuum of HIV care are in progress in China. Impact evaluations can help assess continuing barriers to ART initiation among MSM.

35. Garg, S., et al. **"Randomized Controlled Trial to Compare Immunogenicity of Standard-Dose Intramuscular Versus Intradermal Trivalent Inactivated Influenza Vaccine in HIV-Infected Men Who Have Sex With Men in Bangkok, Thailand."** *Clin Infect Dis* 2016 62(3): 383-91.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4707082/pdf/nihms740572.pdf>

BACKGROUND: Individuals infected with human immunodeficiency virus (HIV) are at increased risk for severe influenza, yet immune responses to standard-dose intramuscular (IM) influenza vaccine are suboptimal in this population. Intradermal (ID) delivery of influenza vaccine might improve immune response through enhanced stimulation of dendritic cells.

METHODS: We conducted a randomized, double-blind, controlled trial to compare the immunogenicity of off-label standard-dose (15 microg) ID vs standard-dose (15 microg) IM inactive influenza vaccine in HIV-infected men in Bangkok, Thailand. The primary study outcome was seroconversion (minimum titer of 1:40 and ≥ 4 -fold rise in antibody titer) at 1 month postvaccination based on serum hemagglutination inhibition antibody titers against each vaccine strain. Adverse events (AEs) in the 7 days following vaccination were also assessed.

RESULTS: We enrolled 400 HIV-infected participants; 200 were randomly assigned to receive IM and 200 ID vaccine. Vaccine arms were well-balanced with respect to age, CD4 cell count, HIV RNA load, and antiretroviral treatment. Percentage of seroconversion to all (ID 14% vs IM 15%; $P = .8$) or at least 1 (ID 69% vs IM 68%; $P = .7$) of the 3 vaccine strains did not differ significantly between ID vs IM vaccine recipients. A higher proportion of participants who received ID vaccine had mild injection-site AEs compared with participants who received IM vaccine (77% vs 27%).

CONCLUSIONS: There were no significant differences in the immunogenicity of standard-dose ID vs IM influenza vaccine in this HIV-infected population in Thailand. Additional strategies to enhance immune responses to influenza vaccine among HIV-infected persons are needed.

CLINICAL TRIALS REGISTRATION: NCT01538940.

36. Micheni, M., et al. **"Risk of sexual, physical and verbal assaults on men who have sex with men and female sex workers in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S231-6.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706373/pdf/nihms748731.pdf>

BACKGROUND: Violence toward MSM and female sex workers (FSW) is associated with HIV risk, and its prevention is prioritized in international HIV/AIDS policy.

METHODS: Sociodemographic and behavioural data derived from HIV risk and follow-up cohorts including MSM and FSW in coastal Kenya between 2005 and 2014 was used to estimate the risk of rape, physical assault and verbal abuse, and to assess associations between first occurrence of assault with individual and recent behavioural factors.

RESULTS: Incidence of first reported rape was similar for MSM [3.9, confidence interval (CI) 3.1-5.0 per 100 person-years (pyrs)] and FSW (4.8 CI 3.5-6.4 per 100 pyrs), $P = 0.22$. Incidence of first reported physical and verbal assault was higher for FSW than MSM (21.1 versus 12.9 per 100 pyrs, $P = 0.14$ and 51.3 versus 30.9 per 100 pyrs, $P = 0.03$ respectively). Recent alcohol use was associated with reporting of all forms of assault by MSM [adjusted odds ratio (AOR) 1.8, CI 0.9-3.5] and FSW (AOR 4.4, CI 1.41-14.0), as was recent sale of sex for MSM (AOR 2.0, CI 1.1-3.8). Exclusive sex with men, active sex work, and group sex were also specifically

associated with reporting rape for MSM. Perpetrators of sexual and verbal assault were usually unknown, whilst perpetrators of physical violence toward FSW were usually regular sexual partners.

CONCLUSION: MSM and FSW experienced a similarly high incidence of sexual assault in coastal Kenya, in addition to physical and verbal assault. Current national policies focus heavily on gender-based violence against women and young girls, but need to be inclusive of MSM and FSW.

37. Rodriguez-Hart, C., et al. **"Serosorting and Sexual Risk for HIV Infection at the Ego-Alter Dyadic Level: An Egocentric Sexual Network Study Among MSM in Nigeria."** *AIDS Behav* 2016.

The objective of this egocentric network study was to investigate engagement in serosorting by HIV status and risk for HIV between seroconcordant and serodiscordant ego-alter dyads. Respondent-driving sampling was used to recruit 433 Nigerian men who have sex with men (MSM) from 2013 to 2014. Participant (ego) characteristics and that of five sex partners (alters) were collected. Seroconcordancy was assessed at the ego level and for each dyad. Among 433 egos, 18 % were seroconcordant with all partners. Among 880 dyads where participants knew their HIV status, 226 (25.7 %) were seroconcordant, with 11.7 % of HIV positive dyads seroconcordant and 37.0 % of HIV negative dyads seroconcordant. Seroconcordant dyads reported fewer casual sex partners, less partner concurrency, and partners who had ever injected drugs, but condom use did not differ significantly. Serosorting may be a viable risk reduction strategy among Nigerian MSM, but awareness of and communication about HIV status should be increased. Future studies should assess serosorting on a partner-by-partner basis.

38. Stahlman, S., et al. **"Sexual identity stigma and social support among men who have sex with men in Lesotho: a qualitative analysis."** *Reprod Health Matters* 2015 23(46): 127-35.

Men who have sex with men (MSM) face sexual identity stigma in many settings, which can increase risk for HIV by limiting access to care. This paper examines the roles of social support, sexual identity stigma, and sexual identity disclosure among MSM in Lesotho, a lower-middle income country within South Africa. Qualitative data were collected from 23 in-depth interview and six focus group participants and content analysis was performed to extract themes. Four primary themes emerged: 1) Verbal abuse from the broader community is a major challenge faced by MSM in Lesotho, 2) participants who were open about their sexual identity experienced greater stigma but were more self-sufficient and had higher self-confidence, 3) relationships between MSM tend to be conducted in secrecy, which can be associated with unhealthy relationships between male couples and higher risk sexual practices, and 4) MSM community organisations provide significant social and emotional support. Friends and family members from outside the MSM community also offer social support, but this support cannot be utilised by MSM until the risk of disclosing their sexual identity is reduced. Greater acceptance of same-sex practices would likely result in more open, healthy relationships and greater access to social support for MSM.

39. Blair, C. S., et al. **"Sexual Orientation, Gender Identity and Perceived Source of Infection Among Men Who Have Sex with Men (MSM) and Transgender Women (TW) Recently Diagnosed with HIV and/or STI in Lima, Peru."** *AIDS Behav* 2016.

Risk perception and health behaviors result from individual-level factors influenced by specific partnership contexts. We explored individual- and partner-level factors associated with partner-specific perceptions of HIV/STI risk among 372 HIV/STI-positive MSM and transgender women (TW) in Lima, Peru. Generalized estimating equations explored participants' perception of their three most recent partner(s) as a likely source of their HIV/STI diagnosis. Homosexual/gay (PR = 2.07; 95 % CI 1.19-3.61) or transgender (PR = 2.84; 95 % CI 1.48-5.44) partners were more likely to be considered a source of infection than heterosexual partners. Compared to heterosexual respondents, gay and TW respondents were less likely to associate their partner with HIV/STI infection, suggesting a cultural link between gay or TW identity and perceived HIV/STI risk. Our findings demonstrate a need for health promotion messages tailored to high-risk MSM partnerships addressing how perceived HIV/STI risk aligns or conflicts with actual transmission risks in sexual partnerships and networks.

40. Aggarwal, P., et al. **"Sexually transmitted infections and HIV in self reporting men who have sex with men: A two-year study from India."** *J Infect Public Health* 2016.

Homosexuality is not legally and socially accepted in India. Thus, this area of research has largely been ignored by Indian authors, resulting in dearth of knowledge, particularly with respect to sexually transmitted infections (STIs) in this high-risk group. Over a period of two years (2013-2014), 738 males sought care at skin and venereal diseases clinics, 52 (7.05%, 95% CI=5.4-9.14%) of who identified themselves as MSM and were enrolled in the study. Diagnosis was made on the basis of clinical presentation and laboratory testing, wherever indicated. Thirty six percent of MSM had only homosexual preferences, while 64% were bisexual. The most common sexually transmitted infection was genital warts (23.08%, 95% CI=13.58-36.28%). Fourteen patients (26.92%, 95% CI=16.67-40.35%) were VDRL and TPHA positive (two, five and four with primary syphilis, secondary syphilis and latent syphilis, respectively). These were followed by genital herpes (11.54%, 95% CI=5.03-23.34%), genital molluscum contagiosum (9.62% 95% CI=3.75-21.04%), and gonorrhoea (5.77%, 95% CI=1.38-16.25%). Of those tested, 23.08% (95% CI=13.58-36.28%) of patients were reactive for HIV serology. Thus, MSM is a high-risk group with high prevalence of HIV and other STIs in this group, mandating greater focus, education and counseling.

41. Grover, E., et al. **"Social cohesion, social participation and HIV testing among men who have sex with men in Swaziland."** *AIDS Care* 2016: 1-10.

Social cohesion and social participation are social factors that may help reduce HIV risks and optimize health-seeking behaviors. We examined the association between these factors and HIV testing in the last 12 months among men who have sex with men (MSM) in Swaziland using a cross-sectional survey conducted with 326 men, 18 years of age or older reporting having sex with another man in the last 12 months. Social capital analyses included measures of social cohesion and social participation. The social cohesion measurement scale was created through exploratory factor analysis using polychoric correlations to determine unidimensionality and Cronbach's Alpha to assess internal consistency. The measurement scale was divided at the 25th and 75th percentiles using "high," "medium" and "low" levels of social cohesion for between-group comparisons. The social participation index included four questions regarding participation, resulting in a participation index ranging from 0 to 4. In the final multivariate logistic regression model, an increase in the level of social participation was found to be significantly associated with HIV testing in the last 12 months, adjusting for age, income, reporting a casual partner, family exclusion and rejection by other MSM due to sexual orientation (adjusted odds ratio [aOR]: 1.3, 95% confidence interval [CI] 1.1-1.7, $p < .01$). MSM with high social cohesion had almost twice the odds of HIV testing in the last 12 months (aOR: 1.8, 95% CI 1.1-3.3, $p < .05$) as MSM with medium social cohesion, though the overall social cohesion variable was not found to be significant using a Wald test in either the adjusted or unadjusted logistic regression models. These data suggest that building solidarity and trust within and between groups may be a strategy to improve uptake of HIV testing.

42. Nguyen, T. V., et al. **"Sociodemographic Factors, Sexual Behaviors, and Alcohol and Recreational Drug Use Associated with HIV Among Men Who Have Sex with Men in Southern Vietnam."** *AIDS Behav* 2016.

A total of 2768 MSM participated in a survey in southern Vietnam. Univariate and multivariate logistic regression analyses were performed to determine predictors of HIV infection. The prevalence of HIV among MSM was 2.6%. HIV infection was more likely in MSM who were older, had a religion, had engaged in anal sex with a foreigner in the past 12 months, previously or currently used recreational drugs, perceived themselves as likely or very likely to be infected with HIV, and/or were syphilis seropositive. MSM who had ever married, were exclusively or frequently receptive, sometimes consumed alcohol before sex, and/or frequently used condoms during anal sex in the past 3 months were less likely to be infected with HIV. Recreational drug use is strongly associated with HIV infection among MSM in southern Vietnam. HIV interventions among MSM should incorporate health promotion, condom promotion, harm reduction, sexually transmitted infection treatment, and address risk behaviors.

43. Earnshaw, V. A., et al. **"Stigma Toward Men Who Have Sex with Men Among Future Healthcare Providers in Malaysia: Would More Interpersonal Contact Reduce Prejudice?"** *AIDS Behav* 2016 20(1): 98-106.

Men who have sex with men (MSM) living in countries with strong stigma toward MSM are vulnerable to HIV and experience significant barriers to HIV care. Research is needed to inform interventions to reduce stigma toward MSM in these countries, particularly among healthcare providers. A cross-sectional survey of 1158 medical and dental students was conducted at seven Malaysian universities in 2012. Multivariate analyses of variance suggest that students who had interpersonal contact with MSM were less prejudiced toward and had lower intentions to discriminate against MSM. Path analyses with bootstrapping suggest stereotypes and fear mediate associations between contact with prejudice and discrimination. Intervention strategies to reduce MSM stigma among healthcare providers in Malaysia and other countries with strong stigma toward MSM may include facilitating opportunities for direct, in-person or indirect, media-based prosocial contact between medical and dental students with MSM.

44. van der Elst, E. M., et al. **"Strengthening healthcare providers' skills to improve HIV services for MSM in Kenya."** *AIDS* 2015 29 Suppl 3: S237-40.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706371/pdf/nihms748733.pdf>

45. Canoy, N. A., et al. **"Struggling to care: A discursive-material analysis of negotiating agency among HIV-positive MSM."** *Health (London)* 2016.

A discursive-materialist framework of agency asserts the mutual constitution of agency within cultural discursive, economic, and embodied material structures. Understanding how HIV-positive men who have sex with men in the Philippines negotiate agency vis-a-vis wider social structures, we utilized Foucault's care of the self to locate agency in relationships with the self, others, and the broader world. Using data from narratives of 20 Filipino HIV-positive men who have sex with men, we analyzed the negotiation of agency as HIV-positive as embedded in the unique discursive terrain of Roman Catholicism and the economic materiality of a developing country. Three main processes of negotiating agency are elaborated: (1) questioning the spiritual self and the sexual body in the relationship with the self, (2) navigating interpersonal limits to care giving in the relationship with others, and (3) reclaiming human dignity in health care in the relationship with the broader world. Theoretical insights on the discursive and material constitution of healing in light of discursive and material challenges are discussed.

46. Young, S. D., et al. **"Substance use and sexual risk behaviors among Peruvian MSM social media users."** *AIDS Care* 2016 28(1): 112-8.

Peru is experiencing a concentrated HIV epidemic among men who have sex with men (MSM). Substance use (alcohol and drug use) has been found to be associated with HIV-related sexual risk behaviors. A recent surge in the number of social media users in Peru has enabled these technologies to be potential tools for reaching HIV at-risk individuals. This study sought to assess the relationship between substance use and sexual risk behaviors among Peruvian MSM who use social media. A total of 556 Peruvian MSM Facebook users (ages 18-59) were recruited to complete a 92-item survey on demographics, sexual risk behaviors, and substance use. We performed a logistic regression of various sexual risk behaviors (e.g., unprotected sex, casual sex) on substance abuse, including alcohol, adjusting for potential covariates. Drinking more than five alcoholic drinks a day in the past three months was associated with an increased odds of having unprotected sex (vaginal and anal) (aOR: 1.52; 95% CI: 1.01, 2.28), casual sex (1.75; 1.17, 2.62), and sex with unknown persons (1.82; 1.23, 2.71). Drug use was not significantly associated with sexual risk behaviors. Among Peruvian MSM social media users, findings suggest that alcohol use was associated with increased HIV-related sexual risk behaviors.

47. Sharma, M., et al. **"Systematic review and meta-analysis of community and facility-based HIV testing to address linkage to care gaps in sub-Saharan Africa."** *Nature* 2015 528(7580): S77-85.
Online at: http://www.nature.com/nature/journal/v528/n7580_supp_custom/pdf/nature16044.pdf

HIV testing and counselling is the first crucial step for linkage to HIV treatment and prevention. However, despite high HIV burden in sub-Saharan Africa, testing coverage is low, particularly among young adults and men. Community-based HIV testing and counselling (testing outside of health facilities) has the potential to reduce coverage gaps, but the relative impact of different modalities is not well assessed. We conducted a systematic review of HIV testing modalities, characterizing community (home, mobile, index, key populations, campaign, workplace and self-testing) and facility approaches by population reached, HIV positivity, CD4 count at diagnosis and linkage. Of 2,520 abstracts screened, 126 met eligibility criteria. Community HIV testing and counselling had high coverage and uptake and identified HIV-positive people at higher CD4 counts than facility testing. Mobile HIV testing reached the highest proportion of men of all modalities examined (50%, 95% confidence interval (CI) = 47-54%) and home with self-testing reached the highest proportion of young adults (66%, 95% CI = 65-67%). Few studies evaluated HIV testing for key populations (commercial sex workers and men who have sex with men), but these interventions yielded high HIV positivity (38%, 95% CI = 19-62%) combined with the highest proportion of first-time testers (78%, 95% CI = 63-88%), indicating service gaps. Community testing with facilitated linkage (for example, counsellor follow-up to support linkage) achieved high linkage to care (95%, 95% CI = 87-98%) and antiretroviral initiation (75%, 95% CI = 68-82%). Expanding home and mobile testing, self-testing and outreach to key populations with facilitated linkage can increase the proportion of men, young adults and high-risk individuals linked to HIV treatment and prevention, and decrease HIV burden.

48. Oldenburg, C. E., et al. "**Transactional Sex and the HIV Epidemic Among Men Who have Sex with Men (MSM): Results From a Systematic Review and Meta-analysis.**" *AIDS Behav* 2015 19(12): 2177-83.

Engagement in transactional sex has been hypothesized to increase risk of HIV among MSM, however conflicting evidence exists. We conducted a systematic review and meta-analysis comparing HIV prevalence among MSM who engaged in transactional sex to those who did not (33 studies in 17 countries; n = 78,112 MSM). Overall, transactional sex was associated with a significant elevation in HIV prevalence (OR 1.34, 95% CI 1.11-1.62). Latin America (OR 2.28, 95% CI 1.87-2.78) and Sub-Saharan Africa (OR 1.72, 95% CI 1.02-2.91) were the only regions where this elevation was noted. Further research is needed to understand factors associated with sex work and subsequent HIV risk in Latin America and Sub-Saharan Africa.

[Back to top](#)

Sex Workers - 37

1. Magni, S., et al. "**Alcohol Use and Transactional Sex among Women in South Africa: Results from a Nationally Representative Survey.**" *PLoS One* 2015 10(12): e0145326.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4684302/pdf/pone.0145326.pdf>

BACKGROUND: Transactional sex is a risk factor for HIV infection. Alcohol use may increase the risk of transactional sex. No nationally-representative studies have examined the relationship between multiple dimensions of alcohol use and transactional sex in women in South Africa. The aim of the study was to examine the relationship between alcohol dependence, binge drinking and frequency of drinking in the past month and transactional sex in adult women in South Africa.

METHODS: A cross-sectional study using multi-stage, cluster sampling collected data from a nationally representative sample of 5,969 women aged 16-55 years in 2012. The analysis conducted for this paper was restricted to women reporting sexual activity in the past 12 months (n = 3,594). Transactional sex was defined as having received money/gifts in exchange for sex with any sex partner in the past year. Alcohol use measures included: alcohol dependence (≥ 2 positive responses to the CAGE questionnaire); binge

drinking (≥ 4 drinks for women on one occasion); and drinking frequency in the previous month. Logistic regression models were built to test the hypotheses that each dimension of alcohol use was associated with transactional sex.

RESULTS: About 6.3% ($n = 225$) of sexually active women reported transactional sex. Almost a third (30.6%) of sexually active women had ever drunk alcohol, and 19.2% were current (past month) drinkers. Among lifetime drinkers, 28.0% were alcohol dependent and 56.6% were binge drinkers. Alcohol dependent women were twice as likely to report transactional sex (AOR 2.0, 95% CI 1.1-4.3, $p < 0.05$) than those not alcohol dependent. Binge drinkers were 3.1 times more likely to have had transactional sex (95% CI 1.5-6.6, $p < 0.01$) than non-binge drinkers. There was no significant relationship between frequency of drinking in the past month and transactional sex.

CONCLUSION: Alcohol dependency and binge drinking are significantly associated with transactional sex in South African women. HIV prevention programmes need to target these women, and address both their alcohol use, as well as the HIV risks associated with transactional sex.

2. Olsthoorn, A. V., et al. "**Barriers to the uptake of postexposure prophylaxis among Nairobi-based female sex workers.**" *AIDS* 2016 30(1): 99-103.

INTRODUCTION: Female sex workers (FSWs) in sub-Saharan Africa are at a particularly high risk for HIV infection. Postexposure prophylaxis (PEP) is available as part of an HIV care and prevention program through dedicated FSW clinics in Nairobi, Kenya, but is underutilized. We evaluated PEP knowledge, access, and adherence among clinic attendees.

METHODS: An anonymous questionnaire was administered to unselected HIV-uninfected FSWs. Participants were dichotomized into high and low HIV risk categories based on self-reported sexual practices. Prior PEP use, knowledge, and adherence were then evaluated.

RESULTS: One hundred and thirty-four HIV-uninfected FSWs participated, with 64 (48%) categorized as being at high risk for HIV acquisition. High-risk FSWs were less likely to have heard of or accessed PEP than lower risk FSWs (37.5 vs. 58.6%, $P = 0.014$; and 21.9 vs. 40.6%, $P = 0.019$, respectively). Among higher risk FSWs, those who had accessed PEP were more likely to report treatment for a genital infection (71.4 vs. 42.0%, $P = 0.049$) or sex with an HIV-infected man (62.5 vs. 37.5%, $P = 0.042$) during the last 6 months. However, only 35.7% of high-risk women accessing PEP completed a full course of treatment, and noncompleters were more likely to report prior unprotected sex with an HIV-infected man ($P = 0.023$).

CONCLUSION: Despite freely available PEP for Nairobi-based FSWs, women at highest risk were less likely to have heard of PEP, access PEP, or complete the full course of therapy once initiated. Program delivery needs to be improved to ensure that FSW most at risk are able to benefit from this resource.

3. Carrico, A. W., et al. "**Behavioral interventions for Cambodian female entertainment and sex workers who use amphetamine-type stimulants.**" *J Behav Med* 2016.

Conditional cash transfer (CCT) and cognitive-behavioral treatments are evidence-based approaches to reduce stimulant use and sexual risk taking. We describe the adaptation and implementation of sequential behavioral interventions for Cambodian female entertainment and sex workers (FESW) who use amphetamine-type stimulants (ATS): (1) a 12-week CCT intervention; and (2) a 4-week cognitive-behavioral aftercare (AC) group. An ongoing cluster randomized stepped wedge trial in 10 Cambodian provinces is enrolling FESW with confirmed recent ATS use to examine the effectiveness of CCT + AC. In the first six provinces, 138 of the 183 eligible FESW (75 %) enrolled in CCT and completed a median of 25 (interquartile range 9-32) of the 36 urine screening visits. Of the 84 participants who were eligible for AC, 79 completed at least one session (94 %) and 57 completed three or more sessions (68 %). Culturally tailored behavioral interventions to reduce ATS use and optimize HIV prevention are feasible in resource-limited settings.

4. Sakha, M. A., et al. **"CHALLENGES AND SUCCESSES OF HARM REDUCTION SERVICES IN WOMEN'S DROP-IN CENTRES: PERSPECTIVE OF VULNERABLE WOMEN."** *Mater Sociomed* 2015 27(6): 434-7.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4733544/pdf/MSM-27-434.pdf>

BACKGROUND: The objective of this study was to shed light on the challenges and successes of HIV/AIDS services delivery as perceived by Sex workers.

METHODS: Face-to-face semi-structured interviews were conducted with 20 IDUs and Sex workers in drop-in centers in Shiraz. A thematic analysis of these qualitative data was conducted by the authors.

RESULTS: Participants identified major challenges and successes of HIV/AIDS services delivery. Access services, services delivery in terms of challenges and the successes concept were classified.

CONCLUSIONS: Our study demonstrates that while there is greater availability of HIV/AIDS services, this does not equate with greater accessibility because multiple, complex and interrelated barriers to HIV/AIDS service utilization at the service delivery level such as Stigma, discrimination, violence, harassment and social equity issues are critical concerns of FSW.

5. Katusiime, C., et al. **"Characteristics of Sexually Transmitted Infections among High-Risk HIV-Positive Patients Attending an Urban Clinic in Uganda."** *J Int Assoc Provid AIDS Care* 2016 15(1): 36-41.

BACKGROUND: Sexually transmitted infections (STIs) significantly increase HIV transmission. Sexually transmitted infections may be asymptomatic and therefore remain undiagnosed in HIV-positive persons. Routine screening and treatment of STIs in HIV-positive high-risk populations in sub-Saharan Africa have not been described previously.

METHODS: We reviewed data from an HIV-positive high-risk population at the Infectious Diseases Institute, Makerere University, a large urban HIV clinic, between July 2011 and April 2012. Our high-risk population cohort included female sex workers, long-distance drivers, barmaids, taxi drivers, commercial motorcycle "boda-boda" riders, soldiers, police officers, prison officers, security guards, prisoners, and fishermen.

RESULTS: Of 355 participants enrolled in the high-risk population's program, 21.4% were diagnosed with an STI either clinically or microbiologically. The STIs diagnosed in this population were syphilis, hepatitis B, genital herpes, human papilloma virus infection (condylomata acuminata), nongonococcal urethritis (NGU), and gonorrhoea. Rates of syphilis, hepatitis B, genital herpes, condylomata acuminata, NGU, and gonorrhoea were 8.5%, 7.0%, 5.4%, 1.4%, 1.4%, and 0.3%, respectively.

CONCLUSION: Clinical and microbiologically diagnosed STIs were diagnosed in nearly one-fourth of the HIV-positive high-risk population. HIV care programs should note our high rates of STIs among HIV-positive high-risk populations and consider routine screening and treatment algorithms for these populations in their own settings.

6. Saeng-Aroon, S., et al. **"Circulation of HIV-1 multiple complexity recombinant forms among female sex workers recently infected with HIV-1 in Thailand."** *AIDS Res Hum Retroviruses* 2016.

The circulating subtype distribution of HIV-1 has not been well characterized in female sex worker (FSW) populations in Thailand. To understand the mechanisms and interrelationships of epidemics involving FSWs in Thailand, in this study we performed a large molecular epidemiological study of FSWs aged ≤ 25 years with recently acquired HIV-1 infections. The samples were collected in 2005, 2007, 2009, and 2011 at 38 provinces, representing every region of Thailand. After gag (p24), pol (pro-RT), and env (C2/V3) were sequenced, comprehensive genome analysis was performed. Genetic subtypes were determined in 159 plasma samples. The percentage of circulating recombinant forms (CRF) CRF01_AE (90.6%) was major predominant, but subtype B (1.3%), other CRFs (1.9%), and unique recombinant forms (URFs) (6.2%) were identified as minor population. Interestingly, the unique recombinant nature of these HIV-1 strains was

verified in 10 specimens, indicating the presence of new forms of HIV-1 inter-subtypes G/A, C/B, AE/B/C, and AE/B with different recombination breakpoints. Subtype B has contributed to these new generations of unique CRF01/B recombinants, especially in the pol (RT) gene, in which the template switching of the RT genomes occurred during reverse transcription. These results imply that the several unique recombinant viruses circulating in Thailand were probably generated in the population or introduced from neighboring countries. Our study helps to clarify the patterns of viral transmission and to define transmission pathways in Thailand.

7. Reed, E., et al. "**Client-perpetrated and husband-perpetrated violence among female sex workers in Andhra Pradesh, India: HIV/STI risk across personal and work contexts.**" *Sex Transm Infect* 2016.

OBJECTIVES: This study examines violence experienced in work and personal contexts and relation to HIV risk factors in these contexts among female sex workers (FSW) in Andhra Pradesh, India.

METHODS: FSW at least 18 years of age (n=2335) were recruited through three rounds of respondent-driven sampling between 2006 and 2010 for a survey on HIV risk. Using crude and adjusted logistic regression models, any sexual/physical violence (last 6 months) perpetrated by clients and husbands were separately assessed in association with accepting more money for sex without a condom (last 30 days), consistent condom use with clients and husbands (last 30 days), and sexually transmitted infection (STI) symptoms (last 6 months).

RESULTS: The mean age among participants was 32, 22% reported being currently married, and 22% and 21% reported physical/sexual violence by clients and husbands, respectively. In adjusted logistic regression models, FSW who experienced client violence were more likely to report accepting more money for unprotected sex trades (adjusted OR (AOR)=1.7; 95% CI 1.4 to 2.2), less likely to report consistent condom use with clients (AOR=0.6; 95% CI 0.5 to 0.7) and more likely to report STI symptoms (AOR=3.5; 95% CI 2.6 to 4.6). Women who reported husband violence were more likely to report accepting more money for unprotected sex trades (AOR=2.1; 95% CI 1.2 to 3.7), less likely to report consistent condom use with clients (AOR=0.5; 95% CI 0.3 to 0.8) and more likely to report STI symptoms (AOR=2.6; 95% CI 1.6 to 4.1).

CONCLUSIONS: Among FSW, experiences of violence in work and personal contexts are associated with sexual HIV risk behaviours with clients as well as STI symptoms.

8. Hargreaves, J. R., et al. "**Cohort analysis of programme data to estimate HIV incidence and uptake of HIV-related services among female sex workers in Zimbabwe, 2009-14.**" *J Acquir Immune Defic Syndr* 2015.

BACKGROUND: HIV epidemiology and intervention uptake among female sex workers (FSW) in sub-Saharan Africa remain poorly understood. Data from outreach programmes are a neglected resource.

METHODS: Analysis of data from FSW consultations with Zimbabwe's National Sex Work programme, 2009-14. At each visit, data were collected on socio-demographic characteristics, HIV testing history, HIV tests conducted by the programme and antiretroviral (ARV) history. Characteristics at first visit and longitudinal data on programme engagement, repeat HIV testing and HIV sero-conversion were analysed using a cohort approach.

RESULTS: Data were available for 13360 women, 31389 visits, 14579 reported HIV tests, 2750 tests undertaken by the programme and 2387 reported ARV treatment initiations. At first visit, 72% of FSW had tested for HIV; 50% of these reported being HIV-positive. Among HIV-positive women, 41% reported being on ARV. 56% of FSW attended the programme only once. FSW who had not previously had an HIV positive test had been tested within the last 6 months 27% of the time during follow up. After testing HIV-positive, women started on ARV at a rate of 23 / 100 person years of follow-up. Among those with two or more HIV tests, the HIV sero-conversion rate was 9.8 / 100 person years of follow-up (95% confidence interval 7.1-15.9).

CONCLUSIONS: Individual-level outreach programme data can be used to estimate HIV incidence and intervention uptake among FSW in Zimbabwe. Current data suggest very high HIV prevalence and incidence among this group and help identify areas for programme improvement. Further methodological validation is required. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download, share, remix, transform, and build up the work provided it is properly cited. The work cannot be used commercially.

9. Bandewar, S. V., et al. **"Considering risk contexts in explaining the paradoxical HIV increase among female sex workers in Mumbai and Thane, India."** *BMC Public Health* 2016 16(1): 85.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4730760/pdf/12889_2016_Article_2737.pdf

BACKGROUND: The period 2006-2009 saw intensive scale-up of HIV prevention efforts and an increase in reported safer sex among brothel and street-based sex workers in Mumbai and Thane (Maharashtra, India). Yet during the same period, the prevalence of HIV increased in these groups. A better understanding of sex workers' risk environment is needed to explain this paradox.

METHODS: In this qualitative study we conducted 36 individual interviews, 9 joint interviews, and 10 focus group discussions with people associated with HIV interventions between March and May 2012.

RESULTS: Dramatic changes in Mumbai's urban landscape dominated participants' accounts, with dwindling sex worker numbers in traditional brothel areas attributed to urban restructuring. Gentrification and anti-trafficking efforts explained an escalation in police raids. This contributed to dispersal of sex work with the sex-trade management adapting by becoming more hidden and mobile, leading to increased vulnerability. Affordable mobile phone technology enabled independent sex workers to trade in more hidden ways and there was an increased dependence on lovers for support. The risk context has become ever more challenging, with animosity against sex work amplified since the scale up of targeted interventions. Focus on condom use with sex workers inadvertently contributed to the diversification of the sex trade as clients seek out women who are less visible. Sex workers and other marginalised women who sell sex all strictly prioritise anonymity. Power structures in the sex trade continue to pose insurmountable barriers to reaching young and new sex workers. Economic vulnerability shaped women's decisions to compromise on condom use. Surveys monitoring HIV prevalence among 'visible' street and brothel-based sex workers are increasingly unrepresentative of all women selling sex and self-reported condom use is no longer a valid measure of risk reduction.

CONCLUSIONS: Targeted harm reduction programmes with sex workers fail when implemented in complex urban environments that favour abolition. Increased stigmatisation and dispersal of risk can no longer be considered as unexpected. Reaching the increasing proportion of sex workers who intentionally avoid HIV prevention programmes has become the main challenge. Future evaluations need to incorporate building 'dark logic' models to predict potential harms.

10. Shokoohi, M., et al. **"Correlates of HIV Testing among Female Sex Workers in Iran: Findings of a National Bio-Behavioural Surveillance Survey."** *PLoS One* 2016 11(1): e0147587.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726705/pdf/pone.0147587.pdf>

INTRODUCTION: Female sex workers (FSWs) are the second most affected population by HIV in Iran. However, their HIV testing practices are poorly understood. The aim of this study was to investigate testing and its associated factors among HIV negative FSWs.

MATERIALS AND METHODS: Using facility based sampling, 1005 FSWs were recruited in 14 cities of Iran in 2010. Biological and survey data were collected through dried blood spot testing and standardized risk assessment questionnaire, respectively. In this paper, the prevalence of HIV testing and its correlates were explored among 714 HIV-negative FSWs using descriptive statistics and logistic regression models.

RESULTS: Overall 65.4% had not tested in the past year. Only 27.5% had tested in the past year and received their results. FSWs who perceived themselves at risk of HIV (Adjusted Odds Ratio (AOR) = 8.35, 95% CI: 1.46, 47.6), had received free condom during past year (AOR = 3.90, 95% CI: 1.67, 9.14), started sex work at an older age (AOR₁₈₋₂₄ = 2.83, 95% CI: 1.14, 7.0; AOR_{>24} = 2.76, 95% CI: 1.11, 6.84), and knew an HIV testing site (AOR = 5.67, 95% CI: 2.60, 12.4) had a significantly higher chance of having a recent HIV test result.

CONCLUSIONS: Less than one third of FSWs in Iran knew their recent HIV status. Interventions to help FSWs evaluate their potential risk for HIV and integrate HIV testing services in condom distribution programs, could be viable strategies in increasing HIV testing uptake among FSWs. Health policy makers should also try to de-stigmatize HIV testing, identify the barriers to HIV testing, and make HIV testing sites more visible to FSWs.

11. Thomas, B., et al. "**Development and Open Pilot Trial of an HIV-Prevention Intervention Integrating Mobile-Phone Technology for Male Sex Workers in Chennai, India.**" *Arch Sex Behav* 2015.
In India men who have sex with men and engage in sex work (i.e., male sex workers; MSW) have a high risk of transmitting HIV. Globally, sex workers have become more spatially mobile due to advances in mobile-phone technology. In 2012 in-depth qualitative feedback was garnered from 40 interviews with MSW and four focus groups with 35 key informants (KIs) who had expert knowledge of the local MSW community to inform the design of an HIV-prevention intervention among MSW in Chennai, India. All MSW were recruited during outreach by employees of a Chennai-based organization for MSM (men who have sex with men). The data were analyzed using a descriptive qualitative approach. MSW and KIs discussed the need for intervention content that went beyond basic HIV psychoeducation. They emphasized the importance of addressing psychological distress, alcohol-related risk, and sexual communication skills. Concerns were raised about confidentiality, privacy, and scheduling. Participants endorsed a combination of in-person and mobile-phone-delivered sessions as well as the integration of mobile-phone messaging. These findings served as the basis for the development of a theoretically driven, manual-based intervention incorporating mobile phones. An open pilot assessed the feasibility and acceptability of the intervention with eight MSW. Assessments and HIV testing were administered at baseline, 3, and 6 months post-baseline. Exit interviews were conducted at the conclusion of the intervention. Retention for session attendance and assessment follow-up was 100 %. There was a high level of acceptability for the format, structure, and content. These data show initial promise, feasibility, and acceptability of the intervention.
12. Liao, M., et al. "**Dual Epidemics of Drug Use and Syphilis Among Chinese Female Sex Workers: Results of Eight Consecutive Cross-Sectional Surveys from 2006 to 2013 in Qingdao, China.**" *AIDS Behav* 2015.
Eight consecutive annual cross-sectional surveys were conducted to examine the trend of the prevalence of HIV, syphilis, drug use and their correlates among female sex workers (FSWs) in Qingdao, China. Among sampled FSWs over the 8 years, a higher proportion of older, married or cohabited, higher education levels and more on-call FSWs were observed in recent years. The syphilis prevalence increased significantly from 1.0 % in 2006 to 13.5 % in 2013, with illicit drug use rate ranging from 21.8 % in 2007 to 55.5 % in 2010. Multivariate logistic regression analyses showed that drug use, syphilis and unprotected vaginal sex predicted each other. The dual epidemics of illicit drug use and syphilis among FSWs underscore the urgency to implement a tailored intervention to curb the dual epidemics while also preventing an HIV epidemic in the context of diversified commercial sex dynamic.
13. Prudden, H. J., et al. "**Factors Associated with Variations in Population HIV Prevalence across West Africa: Findings from an Ecological Analysis.**" *PLoS One* 2015 10(12): e0142601.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4689529/pdf/pone.0142601.pdf>
BACKGROUND: Population HIV prevalence across West Africa varies substantially. We assess the national epidemiological and behavioural factors associated with this.
METHODS: National, urban and rural data on HIV prevalence, the percentage of younger (15-24) and older (25-49) women and men reporting multiple (2+) partners in the past year, HIV prevalence among female sex

workers (FSWs), men who have bought sex in the past year (clients), and ART coverage, were compiled for 13 countries. An Ecological analysis using linear regression assessed which factors are associated with national variations in population female and male HIV prevalence, and with each other.

FINDINGS: National population HIV prevalence varies between 0.4-2.9% for men and 0.4-5.6% for women. ART coverage ranges from 6-23%. National variations in HIV prevalence are not shown to be associated with variations in HIV prevalence among FSWs or clients. Instead they are associated with variations in the percentage of younger and older males and females reporting multiple partners. HIV prevalence is weakly negatively associated with ART coverage, implying it is not increased survival that is the cause of variations in HIV prevalence. FSWs and younger female HIV prevalence are associated with client population sizes, especially older men. Younger female HIV prevalence is strongly associated with older male and female HIV prevalence.

INTERPRETATION: In West Africa, population HIV prevalence is not significantly higher in countries with high FSW HIV prevalence. Our analysis suggests, higher prevalence occurs where more men buy sex, and where a higher percentage of younger women, and older men and women have multiple partnerships. If a sexual network between clients and young females exists, clients may potentially bridge infection to younger females. HIV prevention should focus both on commercial sex and transmission between clients and younger females with multiple partners.

14. Deschamps, M. M., et al. **"Feasibility of Identifying a Female Sex Worker Cohort at High Risk of HIV Infection in the Caribbean for HIV Vaccine Efficacy Trials: Longitudinal Results of HVTN 907."** *J Acquir Immune Defic Syndr* 2016 71(1): 70-7.

BACKGROUND: Identifying cohorts of Caribbean women with HIV infection rates sufficient for inclusion in HIV vaccine efficacy trials has been challenging. HVTN 907 determined the feasibility of identifying and retaining a cohort of women at high risk for HIV acquisition by focusing recruitment on female sex workers (FSWs).

METHODS: HIV uninfected FSWs, residing in Haiti, Dominican Republic, and Puerto Rico, who reported unprotected sex and met previously described more stringent site-specific eligibility criteria, were eligible. Behavioral risk assessment, HIV counseling and testing, and pregnancy testing were performed at baseline, 6, 12, and 18 months.

RESULTS: Among 799 FSWs (264 from Dominican Republic, 334 from Haiti, and 201 from Puerto Rico), the median age was 26 years, with 54% having less than a high school education and 45% having a monthly household income of less than \$US 100. Median number of male partners 6 months before screening was 200. Retention at 18 months was 93%. Twelve women became HIV infected, 9 from Haiti. The annualized HIV incidence was 1.07% (95% confidence interval: 0.55% to 1.87%). Pregnancy incidence was 22.5% (95% confidence interval: 21.9% to 29.5%). Statistically significant declines in risk behaviors occurred between screening and the 18-month visit assessment.

DISCUSSION: The HVTN 907 study identified a high-risk cohort of women with excellent retention for all 3 sites, despite major challenges especially in Haiti. These results show that a bridging study of a vaccine shown to be efficacious in other clade settings would be possible among FSWs in the region, particularly in Haiti.

15. Smith, A. D., et al. **"Heterosexual behaviours among men who sell sex to men in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S201-10.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706370/pdf/nihms748726.pdf>

OBJECTIVE: African men who have sex with men often sell sex to men, and MSM who sell sex (MSM-SW) often also have female partners. We compared sexual risk behaviour of MSM-SW who were sexually active with female partners (bisexual MSW) to MSM-SW with only male partners (exclusive MSW).

DESIGN: Descriptive behavioural study

METHODS: : A novel, validated daily event and partner diary self-completed by 82 MSM who sold sex over a follow-up period of 42 days with weekly review. Cumulative individual counts of sex and condomless sex were compiled by partner characteristics. The incidence of specific partnerships and sex acts were compared within and between bisexual and exclusive MSW.

RESULTS: Most (59%) MSM-SW reported female partners during follow-up. The majority of both male and female partners were cash-paying clients originating locally. Bisexual MSW reported a similar rate of condomless sex with male and female partners, but significantly fewer male partners than exclusive MSW. Bisexual MSW had lower HIV prevalence, were more likely to only report insertive anal sex roles, and reported lower frequencies of condomless receptive anal sex than exclusive MSW.

CONCLUSION: Bisexually active male sex workers in coastal Kenya create HIV and other sexually transmitted infection transmission pathways to partners and clients in both MSM and heterosexual networks, but differed from exclusive MSW in having lower HIV acquisition and transmission risks. Epidemiological projection methods are liable to overestimate bridging potential of MSM-SW and MSM populations without account for systematic differences in risk within these populations.

16. Weiss, H. A., et al. **"High Levels of Persistent Problem Drinking in Women at High Risk for HIV in Kampala, Uganda: A Prospective Cohort Study."** *Int J Environ Res Public Health* 2016 13(2).
Online at: <http://www.mdpi.com/1660-4601/13/2/153/pdf>

The aim of this study was to describe the epidemiology of problem drinking in a cohort of women at high-risk of HIV in Kampala, Uganda. Overall, 1027 women at high risk of HIV infection were followed from 2008 to 2013. The CAGE and AUDIT questionnaires were used to identify problem drinkers in the cohort. Interviewer-administered questionnaires were used to ascertain socio-demographic and behavioural factors. Blood and genital samples were tested for HIV and other sexually transmitted infections. At enrollment, most women (71%) reported using alcohol at least weekly and about a third reported having drunk alcohol daily for at least 2 weeks during the past 3 months. Over half (56%) were problem drinkers by CAGE at enrollment, and this was independently associated with vulnerability (being divorced/separated/widowed, less education, recruiting clients at bars/clubs, and forced sex at first sexual experience). Factors associated with problem drinking during follow-up included younger age, meeting clients in bars/clubs, number of clients, using drugs and HSV-2 infection. HIV prevalence was associated with drinking at enrollment, but not during follow-up. This longitudinal study found high levels of persistent problem drinking. Further research is needed to adapt and implement alcohol-focused interventions in vulnerable key populations in sub-Saharan Africa.

17. Lancaster, K. E., et al. **"The HIV Care Continuum among Female Sex Workers: A Key Population in Lilongwe, Malawi."** *PLoS One* 2016 11(1): e0147662.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726447/pdf/pone.0147662.pdf>

OBJECTIVE: The HIV care continuum among female sex workers (FSW), a key population, has not been well characterized, especially within the generalized epidemics of sub-Saharan Africa. This was the first study to characterize the HIV care continuum among FSW in Lilongwe, Malawi.

METHODS: From July through September 2014, we used venue-based sampling to enroll 200 adult FSW in Lilongwe, Malawi into a cross-sectional evaluation assessing HIV care continuum outcomes. Seropositive FSW, identified using HIV rapid testing, received rapid CD4 counts in addition to viral loads using dried blood spots. We calculated proportions of HIV-infected FSW who had history of care, were on ART, and had suppressed viral load and we used Poisson regression to estimate the associations of demographic characteristics and transmission risk behaviors with each outcome.

RESULTS: HIV seroprevalence was 69% (n = 138). Among all FSW the median age was 24 years (IQR: 22-28). Among the 20% who were newly diagnosed and reported previously testing negative, the median time since last HIV test was 11 months (interquartile range: 3-17). The majority (69%) of HIV-infected FSW had a history of HIV care, 52% reported current ART use, and 45% were virally suppressed. Of the FSW who reported current ART use, 86% were virally suppressed. Transmission risk behaviors were not associated with continuum outcomes.

CONCLUSIONS: FSW in Lilongwe were predominately young and have a high HIV prevalence. Only half of HIV-infected FSW reported current ART use, but the majority of those on ART were virally suppressed. To reduce ongoing transmission and improve health outcomes, increased HIV testing, care engagement, and ART coverage is urgently needed among FSW. Universal testing and treatment strategies for all FSW in Malawi must be strongly considered.

18. Traore, I. T., et al. "**HIV risk and behaviour among part-time versus professional FSW: baseline report of an interventional cohort in Burkina Faso.**" *Sex Transm Infect* 2016.

OBJECTIVE: To readjust HIV control programmes in Africa, we assessed the factors associated with high-risk behaviours and HIV infection among young female sex workers (FSW) in Burkina Faso.

METHODS: We carried out a cross-sectional study from September 2009 to September 2010 in Ouagadougou, the capital city. FSW were categorised as professionals and part-time sex workers (PTSW). After a face-to-face questionnaire, blood and urine samples were collected for HIV, HSV-2, genital infections and pregnancy. High-risk behaviour was defined as a recent unprotected sex with either casual clients, regular clients or regular partners.

RESULTS: We recruited 609 FSW including 188 (30.9%) professionals. Their median age was 21 years (IQR 19-23), and the prevalence of HIV was 10.3% among professionals and 6.5% among PTSW. Only 3 of 46 HIV-infected women were aware of their status. Overall, 277 (45.6%) women reported high-risk behaviours (41.2% among professionals and 47.5% among PTSW), which were driven mainly by non-systematic condom use with regular partners. In multivariable analysis, PTSW (adjusted OR (AOR)=1.89; 95% CI 1.27 to 2.82) and having a primary (AOR=1.75; 95% CI 1.15 to 2.67) or higher education level (AOR=1.80; 95% CI 1.13 to 2.89) remained associated with high-risk behaviours. HIV infection was associated with older age (AOR=1.44; 95% CI 1.22 to 1.71), with being married/cohabiting (AOR=2.70; 95% CI 1.21 to 6.04) and with *Trichomonas vaginalis* infection (AOR=9.63; 95% CI 2.93 to 31.59), while history of HIV testing was associated with a decreased risk (AOR=0.18; 95% CI 0.08 to 0.40).

CONCLUSIONS: This study highlights the need for targeted interventions among young FSW focusing particularly on PTSW, sexual behaviours with regular partners and regular HIV testing.

19. Brody, C., et al. "**HIV risk and psychological distress among female entertainment workers in Cambodia: a cross-sectional study.**" *BMC Public Health* 2016 16(1): 133.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4748631/pdf/12889_2016_Article_2814.pdf

BACKGROUND: In Cambodia, there has been an increase in entertainment work as a result of the breakdown of the traditional brothel-based sex industry, presenting new challenges to addressing the health issues and needs of people working in the entertainment industry. This study aims to identify factors associated with psychological distress among female entertainment workers (FEWs) in Cambodia.

METHODS: A two-stage cluster sampling method was used to randomly select 657 FEWs from entertainment establishments in Phnom Penh and Siem Reap in April and May 2014 for interviews using a structured questionnaire. Psychological distress was measured using the General Health Questionnaire (GHQ-12), and multivariate logistic regression analysis was conducted.

RESULTS: Almost half of FEWs (43.2 %) had a higher level of psychological distress (GHQ-12 > 3), while 19.5

% reported having suicidal thoughts, and 7.3 % reported having attempted to commit suicide in the past 3 months. Controlling for confounding factors, women with a higher level of psychological distress were significantly more likely to rate their overall health (AOR = 1.88, 95 % CI 1.20 to 2.94) and quality of life (AOR = 2.39, 95 % CI 1.47 to 3.87) as poor. They were also significantly more likely to have suicidal ideation (AOR = 2.41, 95 % CI 1.45 to 3.76), rate their HIV risk as higher than the general population (AOR = 0.48, 95 % CI 0.31 to 0.74), have been forced to drink at work (AOR = 1.77, 95 % CI 1.19 to 2.62), have had clients requesting not to use a condom (AOR = 3.48, 95 % CI 1.14 to 10.62), be not able to find condoms when they needed it (AOR = 0.64, 95 % CI 0.45 to 0.93), have had a family member who said hurtful things to them during childhood (AOR = 1.84, 95 % CI 1.24 to 2.75), and have had a parent or guardian who had been physically abused (AOR = 1.93, 95 % CI 1.34 to 2.82).

CONCLUSIONS: FEWs in Cambodia experience high levels of psychological distress, which likely stems from both past negative experiences and current working conditions. For women that are experiencing psychological distress, intervention programs aimed at improving mental health should specifically address substance use, condom availability and negotiation skills, and suicide risk.

20. Guida, J., et al. **"The Impact of Occupational Stigma on the Social Networks of Older Female Sex Workers: Results from a Three-Site Egocentric Network Study in China."** *AIDS Patient Care STDS* 2016 30(1): 1-3.

21. Omollo, K., et al. **"The impact of sex work interruption on blood-derived T cells in sex workers from Nairobi, Kenya."** *AIDS Res Hum Retroviruses* 2016.

Unprotected sexual intercourses expose the female genital tract (FGT) to semen-derived antigens. Post-coital inflammatory responses can lead to recruitment of activated T cells from the peripheral circulation to the FGT thereby increasing risk of HIV infection. To evaluate the impact of sex work on activation and memory phenotype of peripheral T cells among female sex workers (FSW) from Nairobi, Kenya. Thirty FSW were recruited Pumwani Sex Workers Cohort; 10 in each of the following groups: HIV-Exposed Seronegative (at least 7 years in active sex work), HIV-positive, and New Negative (HIV-negative, less than 3 years in active sex work). Blood was obtained at three different phases (active sex work, during a sex break and upon return to sex work). PBMCs were extracted and stained for phenotypic markers (CD3, CD4, CD8, and CD161), memory phenotype markers (CD45RA and CCR7), activation markers (CD69, HLA-DR, and CD95) and HIV co-receptor (CCR5). T cell populations were compared between groups. Our results showed that CD8+CCR5+ T cells declined while CD4+CD161+ T cells tended to increase during the sex break in HIV-positives. Naive CD8+ T cells decreased over time in New Negatives. All groups had similar pattern of response to interruption of sex work. HIV-positives had higher effector memory and CD8+CD95+ T cells and lower naive CD8+ T cells than other groups. In conclusion, interruption of sex work had subtle effects on systemic T cell activation and memory phenotypes. HESN, HIV-positive and New Negative sex workers have similar response to interruption of sex work.

22. Bui, T. C., et al. **"Intravaginal Practices in Female Sex Workers in Cambodia: A Qualitative Study."** *Arch Sex Behav* 2016.

Intravaginal practices (IVPs) are associated with several adverse health outcomes, including HIV infection. However, few studies have examined this topic in Asian cultures, particularly in female sex workers (FSWs). This theory-based qualitative study aimed to describe the IVPs and to identify salient determinants of these practices in FSWs in Phnom Penh, Cambodia. We conducted in-depth interviews using open-ended questions with 30 FSWs in July-August 2014. We analyzed data using thematic content analysis, with thematic codes based on the constructs of the theory of planned behavior. The results showed that the most common IVP was a combination of intravaginal washing and wiping, to which we refer as intravaginal cleansing. There was a clear and close connection between IVP and sex work. Perceived benefits of intravaginal cleansing were numerous, while the perceived risks were few. As a result, the attitude toward intravaginal cleansing was favorable. A common misperception of benefit was that intravaginal cleansing could prevent sexually transmitted infections. Local physicians considerably influenced the subjective norm

related to IVP. Intention to quit IVPs was suboptimal. In conclusion, the psychological factors associated with IVPs in FSWs were somewhat different from those in the general population of Cambodian women and women in other countries. Behavioral beliefs, attitude, and subjective norms appeared salient and important factors in IVPs. Interventions aimed at reducing IVPs should target these constructs as well as the sex-work-associated economic motives. Local physicians may be an agent to change IVP and an effective channel to deliver interventions.

23. George, P. E., et al. **"Is Intimate Partner and Client Violence Associated with Condomless Anal Intercourse and HIV Among Male Sex Workers in Lima, Peru?"** *AIDS Behav* 2016.

Violence experience can increase HIV risk behaviors; however, literature is scarce on violence among male sex workers (MSWs) globally. In 2014, 210 Peruvian MSWs (median age 24.9) were interviewed about their experience of physical, emotional, and sexual violence and condom use with non-paying intimate partners and clients and were tested for HIV. Multivariable models examined relationships between violence in the past 6 months, condomless anal intercourse (CLAI) in the past 3 months and HIV infection. HIV infection (24 %), CLAI (43 %), being a violence victim (42 %) and perpetrator (39 %) were common. In separate multivariable models, being a violence victim [adjusted prevalence ratio aPR = 1.49 (95 % CI 1.09-2.03)] and perpetrator [aPR = 1.39 (1.03-1.87)] were associated with CLAI. Further, being a victim [aPR = 1.65 (1.04-2.62)] was associated with HIV infection. Violence, which was significantly associated with CLAI and HIV infection, is common among Peruvian MSWs, reinforcing the importance of violence awareness and prevention as HIV risk-reduction strategies.

24. King, E. J., et al. **"Motivators and barriers to HIV testing among street-based female sex workers in St. Petersburg, Russia."** *Glob Public Health* 2015: 1-16.

Female sex workers are particularly susceptible to HIV-infection in Russia. However, a dearth of information exists on their utilisation of HIV services. A mixed-methods, cross-sectional study was conducted to examine motivators and barriers to HIV testing among street-based sex workers in St. Petersburg, Russia. The health belief model was the theoretical framework for the study. Twenty-nine sex workers participated in in-depth interviews, and 139 sex workers completed interviewer-administered surveys between February and September 2009. Barriers to getting an HIV test were fear of learning the results, worrying that other people would think they were sick, and the distance needed to travel to obtain services. Motivators for getting tested were protecting others from infection, wanting to know one's status and getting treatment if diagnosed. Logistic regression analysis demonstrated that knowing people living with HIV [aOR = 6.75, 95% CI (1.11, 41.10)] and length of time since start of injection drug use [aOR = 0.30, 95% CI (0.09, 0.97)] were significantly associated with recently getting tested. These results are important to consider when developing public health interventions to help female sex workers in Russia learn their HIV status and get linked to care and treatment services if needed.

25. Hail-Jares, K., et al. **"Occupational and demographic factors associated with drug use among female sex workers at the China-Myanmar border."** *Drug Alcohol Depend* 2016.

BACKGROUND: Within the last decade, the use of amphetamine type stimulants (ATS) has swelled in Myanmar. Regionally, female sex workers have reported turning to ATS for occupational reasons. In doing so, drug-using female sex workers (FSW) face compounded risks for HIV and other sexually transmitted infections (STI). Here, we examine the factors that impact FSW drug use in Muse, a town along the China-Myanmar border.

METHODS: In 2012, 101 FSW were recruited from entertainment venues and brothels along the Myanmar-Chinese border. Participants participated in a self-administered behavioral survey covering demographics, drug use, sex work, and risk behaviors. Bivariate and regression analyses were conducted in SPSS.

RESULTS: Thirty four percent of respondents indicated current drug use. ATS derivatives were the most commonly used drugs (87.5%) with injection drug use being nearly non-existent in the sample. Drug using

FSWs were older, had engaged in sex work longer, had more Chinese clients, and were more likely to have a previous boyfriend who had used drugs. They were also 3.5 times more likely to report a STI. Client condom use, HIV testing rates, and familiarity with public health resources did not statistically differ by drug use status.

CONCLUSION: More research is needed to examine how romantic and professional sexual relationships push-and-pull FSW into using drugs. Our results suggest that diverse safer sex strategies, beyond client condom use, should be promoted with drug using FSWs, including strategies that acknowledge the impact of ATS use.

26. Nouaman, M. N., et al. **"Oral health and HIV infection among female sex workers in Abidjan, Cote d'Ivoire."** *BMC Oral Health* 2015 15(1): 154.

Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4668627/pdf/12903_2015_Article_129.pdf

BACKGROUND: Worldwide, female sex workers (FSW) represent a vulnerable population for oral diseases due to many risk factors including HIV infection and drug abuse. In sub-Saharan Africa, little is known about the burden of oral diseases and their determinants in vulnerable populations. The aim of the study was to estimate the prevalence and associated factors of oral diseases among FSW.

METHODS: A cross sectional study was conducted among FSW who attended a dedicated non-profit clinic in Abidjan, Cote d'Ivoire from June to August 2013. Data about the presence of dental caries, periodontitis and oral-mucosal lesions were collected by a dentist during an oral examination. Behavioural information related to oral hygiene habits as well as tobacco and alcohol consumption were collected through a standardized questionnaire. Information related to HIV infection including HIV diagnosis, last known CD4 count and antiretroviral therapy were documented through a medical chart review. Logistic regression models were used to identify factors associated with oral diseases.

RESULTS: A total of 249 FSW with a median age of 29 years, [Inter Quartile Range (IQR) = 23-36] and a median duration of sex work of 24 months [IQR 9-60]) were included. Current tobacco use and hazardous alcohol use were reported in 21.7 % and 19.7 % of FSW, respectively. The estimated prevalence of HIV infection was 33.7 % [95 % confidence interval (CI); 27.8 - 39.6]) and 82.1 % of HIV-infected FSW were on antiretroviral therapy . The prevalence of dental caries, periodontitis and oral-mucosal lesions were 62.3 % [95 % CI 55.5 - 67.5], 14.5 % [95 % CI 10.2 - 18.9] and 8.2 % [95 % CI 4.8 - 11.5], respectively. In multivariate analysis, periodontitis, oral-mucosal lesions and HIV infection were associated with odds ratio of 2.6 [95 % CI, 1.2-5.8]) and 50.0 [95 % CI; 6.4-384.6].

CONCLUSIONS: This study showed a high prevalence of oral diseases among FSW in Abidjan. HIV infection was common and significantly associated with periodontal diseases and oral-mucosal lesions. There is a need to integrate regular screening and treatment of oral lesions into the medical follow-up of FSW along with strategies for HIV prevention.

27. Wand, H., et al. **"Prevalence and Correlates of HIV Infection Among Sex Workers in Papua New Guinea: First Results from the Papua New Guinea and Australia Sexual Health Improvement Project (PASHIP)."** *AIDS Behav* 2015 19(12): 2194-203.

The primary objective of this study was to estimate the individual and combined impacts of socio-demographic and sexual behaviours on HIV diagnosis among 523 female sex workers who participated in the Papua New Guinea and Australia Sexual Health Improvement Project. Logistic regression models were used to identify the factors associated with HIV positivity. We estimated their population level impacts in order to quantify the proportion of HIV seropositivity is attributed to these factors. Less than 40 % of women consented to get tested for HIV. HIV prevalence was 7 % (95 % CI 4-11 %); lack of education and knowledge/awareness of HIV accounted for ~70 % of the HIV diagnoses. A major obstacle is lack of interest for testing. Our study underscored the major challenges in this culturally, linguistically heterogeneous

country. The epidemic in Papua New Guinea requires targeted prevention interventions among those at highest risk of acquiring or transmitting infection.

28. Cowan, F. M., et al. **"Promise and pitfalls of pre-exposure prophylaxis for female sex workers."** *Curr Opin HIV AIDS* 2016 11(1): 27-34.

PURPOSE OF REVIEW: We explore the potential benefits of integrating preexposure prophylaxis (PrEP) into combination HIV prevention for female sex workers (FSWs) and the likely challenges to implementation.

RECENT FINDINGS: Evidence for the biological effectiveness of PrEP in women who can adhere to daily dosing is strong. FSWs in many countries bear the brunt of the HIV epidemic. Current combination prevention approaches enable many FSWs to remain HIV-free, but in some settings FSWs are unable to mitigate their risk. PrEP provides a new prevention tool for these women. To benefit, HIV-negative FSWs need to perceive that they are at risk, be motivated and able to take PrEP daily and to attend health services for prescription refill and clinical monitoring. FSWs face particular structural challenges to PrEP uptake and use, including stigmatizing health services; fear of disclosure to other FSWs and clients; fear of the authorities; lack of social support; substance use; unplanned travel and risk compensation many of which can be addressed through combination prevention approaches.

SUMMARY: For those FSWs who are unable to mitigate their HIV risk, PrEP, if adequately supported and integrated with combination prevention, may empower them to remain HIV-free.

29. McKinnon, L. R., et al. **"Risk Factors for HIV Acquisition in a Prospective Nairobi-Based Female Sex Worker Cohort."** *AIDS Behav* 2015 19(12): 2204-13.

With two million new HIV infections annually, ongoing investigations of risk factors for HIV acquisition is critical to guide ongoing HIV prevention efforts. We conducted a prospective cohort analysis of HIV uninfected female sex workers enrolled at an HIV prevention clinic in Nairobi (n = 1640). In the initially HIV uninfected cohort (70 %), we observed 34 HIV infections during 1514 person-years of follow-up, i.e. an annual incidence of 2.2 % (95 % CI 1.6-3.1 %). In multivariable Cox Proportional Hazard analysis, HIV acquisition was associated with a shorter baseline duration of sex work (aHR 0.76, 95 % CI 0.63-0.91), minimum charge/sex act (aHR 2.74, 0.82-9.15, for low vs. intermediate; aHR 5.70, 1.96-16.59, for high vs. intermediate), N. gonorrhoeae infection (aHR 5.89, 95 % CI 2.03-17.08), sex with casual clients during menses (aHR 6.19, 95 % CI 2.58-14.84), Depo Provera use (aHR 5.12, 95 % CI 1.98-13.22), and estimated number of annual unprotected regular partner contacts (aHR 1.004, 95 % CI 1.001-1.006). Risk profiling based on baseline predictors suggested that substantial heterogeneity in HIV risk is evident, even within a key population. These data highlight several risk factors for HIV acquisition that could help to re-focus HIV prevention messages.

30. Micheni, M., et al. **"Risk of sexual, physical and verbal assaults on men who have sex with men and female sex workers in coastal Kenya."** *AIDS* 2015 29 Suppl 3: S231-6.
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4706373/pdf/nihms748731.pdf>

BACKGROUND: Violence toward MSM and female sex workers (FSW) is associated with HIV risk, and its prevention is prioritized in international HIV/AIDS policy.

METHODS: Sociodemographic and behavioural data derived from HIV risk and follow-up cohorts including MSM and FSW in coastal Kenya between 2005 and 2014 was used to estimate the risk of rape, physical assault and verbal abuse, and to assess associations between first occurrence of assault with individual and recent behavioural factors.

RESULTS: Incidence of first reported rape was similar for MSM [3.9, confidence interval (CI) 3.1-5.0 per 100 person-years (pyrs)] and FSW (4.8 CI 3.5-6.4 per 100 pyrs), P = 0.22. Incidence of first reported physical and verbal assault was higher for FSW than MSM (21.1 versus 12.9 per 100 pyrs, P = 0.14 and 51.3 versus 30.9 per

100 pyrs, $P = 0.03$ respectively). Recent alcohol use was associated with reporting of all forms of assault by MSM [adjusted odds ratio (AOR) 1.8, CI 0.9-3.5] and FSW (AOR 4.4, CI 1.41-14.0), as was recent sale of sex for MSM (AOR 2.0, CI 1.1-3.8). Exclusive sex with men, active sex work, and group sex were also specifically associated with reporting rape for MSM. Perpetrators of sexual and verbal assault were usually unknown, whilst perpetrators of physical violence toward FSW were usually regular sexual partners.

CONCLUSION: MSM and FSW experienced a similarly high incidence of sexual assault in coastal Kenya, in addition to physical and verbal assault. Current national policies focus heavily on gender-based violence against women and young girls, but need to be inclusive of MSM and FSW.

31. Schulkind, J., et al. **"The social context of gender-based violence, alcohol use and HIV risk among women involved in high-risk sexual behaviour and their intimate partners in Kampala, Uganda."** *Cult Health Sex* 2016: 1-15.

This paper explores the interaction between gender-based violence and alcohol use and their links to vulnerability to HIV-infection in a population of women and their regular male partners in Kampala, Uganda. Data derive from 20 life history interviews (10 women and 10 men). Participants were drawn from a cohort of women at high risk of sexually transmitted infection (including HIV). Six of the women were current or former sex workers. Findings reveal that life histories are characterised by recurrent patterns of gender inequity related to violence, limited livelihood options and socioeconomic disadvantage. Overall, findings suggest women are able to negotiate safer sex and protect themselves better against abuse and violence from clients than from their intimate partners, although the status of men as 'client' or 'partner' is transitory and fluid. Among male respondents, alcohol led to intimate partner violence and high levels of sexual-risk taking, such as engagement with sex workers and reduced condom use. However, male partners are a heterogeneous group, with distinct and contrasting attitudes towards alcohol, condom use and violence. Actions to address gender-based violence need to be multi-pronged in order to respond to different needs and circumstances, of both women and men.

32. Inguane, C., et al. **"Socio-demographic, Behavioral and Health Characteristics of Underage Female Sex Workers in Mozambique: The Need to Protect a Generation from HIV Risk."** *AIDS Behav* 2015 19(12): 2184-93.

Characteristics, HIV risk, and program coverage for underage female sex workers (FSW) are rarely systematically described worldwide. We compared characteristics of underage (15-17 years old) and adult (≥ 18 years old) FSW in three main urban areas of Mozambique (Maputo, Beira and Nampula) using data from three respondent-driven sampling surveys implemented in 2011-2012. Among survey participants, 9.8 % (39/400) in Maputo, 17.0 % (70/411) in Beira and 25.6 % (110/429) in Nampula were underage. Over half reported performing sex work to afford daily living, and 29.7-50.0 % had unprotected sex with their last client. The proportion of underage FSW having accessed care and prevention services was lower compared to adult FSW. While HIV prevalence among underage FSW was lower than in adults, it increased markedly with age. Our results point to the urgency of expanding prevention and care programs geared towards underage FSW.

33. Hargreaves, J. R., et al. **"Statistical design and analysis plan for an impact evaluation of an HIV treatment and prevention intervention for female sex workers in Zimbabwe: a study protocol for a cluster randomised controlled trial."** *Trials* 2016 17(1): 6.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4700631/pdf/13063_2015_Article_1095.pdf

BACKGROUND: Pragmatic cluster-randomised trials should seek to make unbiased estimates of effect and be reported according to CONSORT principles, and the study population should be representative of the target population. This is challenging when conducting trials amongst 'hidden' populations without a sample frame. We describe a pair-matched cluster-randomised trial of a combination HIV-prevention intervention to reduce the proportion of female sex workers (FSW) with a detectable HIV viral load in Zimbabwe, recruiting via respondent driven sampling (RDS).

METHODS: We will cross-sectionally survey approximately 200 FSW at baseline and at endline to characterise each of 14 sites. RDS is a variant of chain referral sampling and has been adapted to approximate random sampling. Primary analysis will use the 'RDS-2' method to estimate cluster summaries and will adapt Hayes and Moulton's '2-step' method to adjust effect estimates for individual-level confounders and further adjust for cluster baseline prevalence. We will adapt CONSORT to accommodate RDS. In the absence of observable refusal rates, we will compare the recruitment process between matched pairs. We will need to investigate whether cluster-specific recruitment or the intervention itself affects the accuracy of the RDS estimation process, potentially causing differential biases. To do this, we will calculate RDS-diagnostic statistics for each cluster at each time point and compare these statistics within matched pairs and time points. Sensitivity analyses will assess the impact of potential biases arising from assumptions made by the RDS-2 estimation.

DISCUSSION: We are not aware of any other completed pragmatic cluster RCTs that are recruiting participants using RDS. Our statistical design and analysis approach seeks to transparently document participant recruitment and allow an assessment of the representativeness of the study to the target population, a key aspect of pragmatic trials. The challenges we have faced in the design of this trial are likely to be shared in other contexts aiming to serve the needs of legally and/or socially marginalised populations for which no sampling frame exists and especially when the social networks of participants are both the target of intervention and the means of recruitment. The trial was registered at Pan African Clinical Trials Registry (PACTR201312000722390) on 9 December 2013.

34. Sharma, M., et al. "**Systematic review and meta-analysis of community and facility-based HIV testing to address linkage to care gaps in sub-Saharan Africa.**" *Nature* 2015 528(7580): S77-85.
Online at: http://www.nature.com/nature/journal/v528/n7580_supp_custom/pdf/nature16044.pdf

HIV testing and counselling is the first crucial step for linkage to HIV treatment and prevention. However, despite high HIV burden in sub-Saharan Africa, testing coverage is low, particularly among young adults and men. Community-based HIV testing and counselling (testing outside of health facilities) has the potential to reduce coverage gaps, but the relative impact of different modalities is not well assessed. We conducted a systematic review of HIV testing modalities, characterizing community (home, mobile, index, key populations, campaign, workplace and self-testing) and facility approaches by population reached, HIV positivity, CD4 count at diagnosis and linkage. Of 2,520 abstracts screened, 126 met eligibility criteria. Community HIV testing and counselling had high coverage and uptake and identified HIV-positive people at higher CD4 counts than facility testing. Mobile HIV testing reached the highest proportion of men of all modalities examined (50%, 95% confidence interval (CI) = 47-54%) and home with self-testing reached the highest proportion of young adults (66%, 95% CI = 65-67%). Few studies evaluated HIV testing for key populations (commercial sex workers and men who have sex with men), but these interventions yielded high HIV positivity (38%, 95% CI = 19-62%) combined with the highest proportion of first-time testers (78%, 95% CI = 63-88%), indicating service gaps. Community testing with facilitated linkage (for example, counsellor follow-up to support linkage) achieved high linkage to care (95%, 95% CI = 87-98%) and antiretroviral initiation (75%, 95% CI = 68-82%). Expanding home and mobile testing, self-testing and outreach to key populations with facilitated linkage can increase the proportion of men, young adults and high-risk individuals linked to HIV treatment and prevention, and decrease HIV burden.

35. Muldoon, K. A. "**A systematic review of the clinical and social epidemiological research among sex workers in Uganda.**" *BMC Public Health* 2015 15(1): 1226.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4674940/pdf/12889_2015_Article_2553.pdf

BACKGROUND: In response to the high burden of disease among sex workers and their position as a population heavily affected by the HIV epidemic, there has been a growing body of literature investigating the prevalence and risk factors associated with HIV risk among sex workers. To contextualize and summarize the existing research evidence base, a systematic review was conducted to synthesize the epidemiological literature on sex workers in Uganda.

METHODS: Database selection and search strategy development followed the Cochrane Collaboration's standards for conducting systematic review searches. All studies that included sex workers as the primary research participants were included in the review. The search was then geographically restricted to the country of Uganda. Items were identified from 18 databases (grey and peer-review) on March 10-11, 2015.

RESULTS: A total of 484 articles were retrieved from the database search. After removal of duplicates, a total of 353 articles were screened for eligibility and 64 full-text articles were assessed. The final review included 24 studies with quantitative methodology conducted among sex workers in Uganda. The HIV prevalence among female sex workers ranged from 32.4-52.0 % and between 8.2-9.0 % had multiple HIV infections. Both multi-drug resistance to antiretroviral therapy (2.6 %) and antibiotics (83.1 %) were observed. Between 33.3-55.1 % reported inconsistent condom use in the past month. In the previous 6 months, over 80 % of sex workers experienced client-perpetrated violence and 18 % experienced intimate partner violence. Over 30 % had a history of extreme war-related trauma.

CONCLUSIONS: There was limited information on socio-structural factors that affect sex workers' commercial working environments in Uganda, including the role of policing and criminalization, as well as the prevalence and factors associated with violence. The majority of the existing evidence is based in Kampala, highlighting a need for information on sex work in other regions of Uganda. Additionally, there is limited information on features of the non-commercial components of sex workers' lives as well as the services needed to reduce risks outside of the sex industry.

36. Oldenburg, C. E., et al. **"Transactional Sex and the HIV Epidemic Among Men Who have Sex with Men (MSM): Results From a Systematic Review and Meta-analysis."** *AIDS Behav* 2015 19(12): 2177-83.

Engagement in transactional sex has been hypothesized to increase risk of HIV among MSM, however conflicting evidence exists. We conducted a systematic review and meta-analysis comparing HIV prevalence among MSM who engaged in transactional sex to those who did not (33 studies in 17 countries; n = 78,112 MSM). Overall, transactional sex was associated with a significant elevation in HIV prevalence (OR 1.34, 95 % CI 1.11-1.62). Latin America (OR 2.28, 95 % CI 1.87-2.78) and Sub-Saharan Africa (OR 1.72, 95 % CI 1.02-2.91) were the only regions where this elevation was noted. Further research is needed to understand factors associated with sex work and subsequent HIV risk in Latin America and Sub-Saharan Africa.

37. Goldenberg, S. M., et al. **"Work environments and HIV prevention: a qualitative review and meta-synthesis of sex worker narratives."** *BMC Public Health* 2015 15: 1241.
Online at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4681074/pdf/12889_2015_Article_2491.pdf

BACKGROUND: Sex workers (SWs) experience a disproportionately high burden of HIV, with evidence indicating that complex and dynamic factors within work environments play a critical role in mitigating or producing HIV risks in sex work. In light of sweeping policy efforts to further criminalize sex work globally, coupled with emerging calls for structural responses situated in labour and human-rights frameworks, this meta-synthesis of the qualitative and ethnographic literature sought to examine SWs' narratives to elucidate the ways in which physical, social and policy features of diverse work environments influence SWs' agency to engage in HIV prevention.

METHODS: We conducted a meta-synthesis of qualitative and ethnographic studies published from 2008 to 2014 to elucidate SWs' narratives and lived experiences of the complex and nuanced ways in which physical, social, and policy features of indoor and outdoor work environments shape HIV prevention in the sex industry.

RESULTS: Twenty-four qualitative and/or ethnographic studies were included in this meta-synthesis. SWs' narratives revealed the nuanced ways that physical, social, and policy features of work environments shaped HIV risk and interacted with macrostructural constraints (e.g., criminalization, stigma) and community determinants (e.g., sex worker empowerment initiatives) to shape SWs' agency in negotiating condom use. SWs' narratives revealed the ways in which the existence of occupational health and safety standards in

indoor establishments, as well as protective practices of third parties (e.g., condom promotion) and other SWs/peers were critical ways of enhancing safety and sexual risk negotiation within indoor work environments. Additionally, working in settings where negative interactions with law enforcement were minimized (e.g., working in decriminalized contexts or environments in which peers/managers successfully deterred unjust policing practices) was critical for supporting SWs' agency to negotiate HIV prevention.

CONCLUSIONS: Policy reforms to remove punitive approaches to sex work, ensure supportive workplace standards and policies, and foster SWs' ability to work collectively are recommended to foster the realization of SWs' health and human rights across diverse settings. Future qualitative and mixed-methods research is recommended to ensure that HIV policies and programmes are grounded in SWs' voices and realities, particularly in more under-represented regions such as Eastern Europe and Sub-Saharan Africa.

[Back to top](#)

Transgender People - 10

1. Perez-Brumer, A. G., et al. "**Anonymous partnerships among MSM and transgender women (TW) recently diagnosed with HIV and other STIs in Lima, Peru: an individual-level and dyad-level analysis.**" *Sex Transm Infect* 2016.

OBJECTIVES: Partner notification (PN) following sexually transmitted disease (STI) diagnosis is a key strategy for controlling HIV/STI transmission. Anonymous partnerships are an important barrier to PN and often associated with high-risk sexual behaviour. Limited research has examined the profile of men who have sex with men (MSM) and transgender women (TW) who engage in anonymous sex. To better understand anonymous partnership practices in Lima, Peru, we assessed participant-level and partnership-level characteristics associated with anonymous sex among a sample of MSM and TW recently diagnosed with HIV/STI.

METHODS: MSM and TW diagnosed with HIV/STI within the past month completed a cross-sectional survey regarding anticipated PN practices. Participants reported sexual partnership types and characteristics of up to three of their most recent partners. Using a Poisson generalised estimating equation model, we assessed participant-level and partnership-level characteristics associated with anonymous partnerships.

RESULTS: Among 395 MSM and TW with HIV/STI, 36.0% reported at least one anonymous sexual partner in the past 3 months (mean of 8.6 anonymous partners per participant; SD 17.0). Of the 971 partnerships reported, 118 (12.2%) were anonymous and the majority (84.8%) were with male partners, followed by 11.0% with female partners and 4.2% with transgender/travesti partners. Partner-level characteristics associated with increased likelihood of having an anonymous partner included female (adjusted prevalence ratio (aPR) 2.28, 95% CI 1.05 to 4.95, p=0.04) or transgender/travesti (aPR 4.03, 95% CI 1.51 to 10.78, p=0.006) partner gender.

CONCLUSIONS: By assessing both individual-level and dyadic-level factors, these results represent an important step in understanding the complexity of partnership interactions and developing alternative PN strategies for Latin America.

2. Rhodes, S. D., et al. "**The ecology of sexual health of sexual minorities in Guatemala City.**" *Health Promot Int* 2015 30(4): 832-42.

Guatemalan gay and bisexual men, men who have sex with men (MSM), and transgender persons carry disproportionate burden of HIV and other sexually transmitted infections compared with other Guatemalan subgroups. However, little is known about the determinants of sexual health to inform health promotion and disease prevention interventions among these sexual minorities. We sought to explore sexual health and HIV risk among Guatemalan sexual minorities, using a community-based participatory research approach. We conducted 8 focus groups (n = 87 participants total) and 10 individual in-depth interviews with gay and bisexual men, MSM, and transgender persons. Using constant comparison, an approach to grounded theory, we analyzed verbatim transcripts and identified 24 themes that we organized into five ecological factors influencing sexual health: intrapersonal (e.g. misconceptions about HIV transmission, low perceived susceptibility and lack of condoms use skills); interpersonal (e.g. family rejection and condom use as a barrier to intimacy); community (e.g. discrimination and stigma); institutional (e.g. limited access to health promotion resources); and public policy (e.g. perceived lack of provider confidentiality and anti-gay rhetoric). There is profound need for multiple-level interventions to ensure that Guatemalan sexual minorities have the knowledge and skills needed to reduce sexual risk. Interventions are warranted to increase social support among sexual minorities, reduce negative perspectives about sexual minorities, develop institutional resources to meet the needs of sexual minorities and reduce harmful anti-gay rhetoric. Understanding and intervening on the identified factors is especially important given that the health of Guatemalan sexual minorities has been to-date neglected.

3. Rana, A. K., et al. **"Effects of In-country and Cross-Border Mobility on Condom Use Among Transgender Women (hijras) in Bangladesh: A Cross-Sectional Study."** *AIDS Behav* 2016.

In Bangladesh transgender women (hijras) are thought to be highly mobile that may be an impediment to condom use. This cross-sectional study was conducted to determine the extent of mobility of hijras, in-country and cross-border, and whether mobility affects condom use in anal intercourse. Hijras ≥ 15 years of age, receiving services from the Global Fund supported HIV prevention program were enrolled. A behavioral questionnaire was administered and blood was tested for antibodies to HIV and syphilis. Of 889 hijras sampled, 41.3 % never traveled, 26.4 % traveled in-country and 32.3 % crossed the border in the last year. HIV and active syphilis was at 0.8 and 1.8 % respectively. Among hijras who crossed the border condom use was less likely in last anal intercourse (AOR 0.68; 95 % CI 0.48-0.96), and consistently with new (AOR 0.59; 95 % CI 0.34-1.01) and regular clients (AOR 0.45; 95 % CI 0.27-0.76) in the last week. This study concludes that in Bangladesh hijras are highly mobile and cross-border mobility negatively affects condom use.

4. Gibson, B. A., et al. **"Gender identity, healthcare access, and risk reduction among Malaysia's mak nyah community."** *Glob Public Health* 2016: 1-16.

Transgender women (TGW) face compounded levels of stigma and discrimination, resulting in multiple health risks and poor health outcomes. TGW identities are erased by forcing them into binary sex categories in society or treating them as men who have sex with men (MSM). In Malaysia, where both civil and religious law criminalise them for their identities, many TGW turn to sex work with inconsistent prevention methods, which increases their health risks. This qualitative study aims to understand how the identities of TGW sex workers shapes their healthcare utilisation patterns and harm reduction behaviours. In-depth, semi-structured interviews were conducted with 21 male-to-female transgender (mak nyah) sex workers in Malaysia. Interviews were transcribed, translated into English, and analysed using thematic coding. Results suggest that TGW identity is shaped at an early age followed by incorporation into the mak nyah community where TGW were assisted in gender transition and introduced to sex work. While healthcare was accessible, it failed to address the multiple healthcare needs of TGW. Pressure for gender-affirming health procedures and fear of HIV and sexually transmitted infection screening led to potentially hazardous health behaviours. These findings have implications for developing holistic, culturally sensitive prevention and healthcare services for TGW.

5. Reisner, S. L., et al. **"A global research synthesis of HIV and STI biobehavioural risks in female-to-male transgender adults."** *Glob Public Health* 2016: 1-22.

There is a growing interest in HIV infection and sexually transmitted infection (STI) disease burden and risk among transgender people globally; however, the majority of work has been conducted with male-to-female transgender populations. This research synthesis comprehensively reviews HIV and STI research in female-to-male (FTM) transgender adults. A paucity of research exists about HIV and STIs in FTMs. Only 25 peer-reviewed papers (18 quantitative, 7 qualitative) and 11 'grey literature' reports were identified, most in the US or Canada, that include data identifying HIV and STI risks in FTMs (five with fully laboratory-confirmed HIV and/or STIs, and five with partial laboratory confirmation). Little is known about the sexual and drug use risk behaviours contributing to HIV and STIs in FTMs. Future directions are suggested, including the need for routine surveillance and monitoring of HIV and STIs globally by transgender identity, more standardised sexual risk assessment measures, targeted data collection in lower- and middle-income countries, and explicit consideration of the rationale for inclusion/exclusion of FTMs in category-based prevention approaches with MSM and transgender people. Implications for research, policy, programming, and interventions are discussed, including the need to address diverse sexual identities, attractions, and behaviours and engage local FTM communities.

6. Bustamante, M. J., et al. **"HIV self-testing in Peru: questionable availability, high acceptability but potential low linkage to care among men who have sex with men and transgender women."** *Int J STD AIDS* 2016.

HIV status awareness is key to prevention, linkage-to-care and treatment. Our study evaluated the accessibility and potential willingness of HIV self-testing among men who have sex with men (MSM) and transgender women in Peru. We surveyed four pharmacy chains in Peru to ascertain the commercial availability of the oral HIV self-test. The pharmacies surveyed confirmed that HIV self-test kits were available; however, those available were not intended for individual use, but for clinician use. We interviewed 147 MSM and 45 transgender women; nearly all (82%) reported willingness to perform the oral HIV self-test. However, only 55% of participants would definitely seek a confirmatory test in a clinic after an HIV-positive test result. Further, price may be a barrier, as HIV self-test kits were available for 18 USD, and MSM and transgender women were only willing to pay an average of 5 USD. HIV self-testing may facilitate increased access to HIV testing among some MSM/transgender women in Peru. However, price may prevent use, and poor uptake of confirmatory testing may limit linkage to HIV treatment and care.

7. Herrera, M. C., et al. **"Impact of alcohol use on sexual behavior among men who have sex with men and transgender women in Lima, Peru."** *Drug Alcohol Depend* 2016.

BACKGROUND: Alcohol use disorders (AUDs) may enhance the likelihood of risky sexual behaviors and the acquisition of sexually transmitted infections (STIs). Associations between AUDs with condomless anal intercourse (CAI) and STI/HIV prevalence were assessed among men who have sex with men (MSM) and transgender women (TW) in Lima, Peru.

METHODS: MSM and TW were eligible to participate based on a set of inclusion criteria which characterized them as high-risk. Participants completed a bio-behavioral survey. An AUDIT score ≥ 8 determined AUD presence. Recent STI diagnosis included rectal gonorrhoea/chlamydia, syphilis, and/or new HIV infection within 6 months. Prevalence ratios (PR) were calculated using Poisson regression.

RESULTS: Among 312 MSM and 89 TW, 45% (181/401) had an AUD. Among those with an AUD, 164 (91%) were hazardous/harmful drinkers, and 17 (9%) had alcohol dependence. Higher CAI was reported by participants with an AUD vs. without, (82% vs. 72% albeit not significant). Reporting anal sex in two or more risky venues was associated with screening AUD positive vs. not (24% vs. 15%, $p=0.001$). There was no difference in recent STI/HIV prevalence by AUD status (32% overall). In multivariable analysis, screening AUD positive was not associated with CAI or recent STI/HIV infection.

CONCLUSIONS: In our sample AUDs were not associated with CAI or new HIV infection/recent STI. However

higher prevalence of CAI, alcohol use at last sex, and anal sex in risky venues among those with AUDs suggests that interventions to reduce the harms of alcohol should be aimed toward specific contexts.

8. Pinheiro Junior, F. M., et al. **"Risk factors associated with resistance to HIV testing among transwomen in Brazil."** *AIDS Care* 2016 28(1): 92-7.

Transwomen are a high-risk population for HIV/AIDS worldwide. However, many transwomen do not test for HIV. This study aimed to identify factors associated with resistance to HIV testing among transwomen in Fortaleza/CE. A cross-sectional study was conducted between August and December 2008 with a sample of 304 transwomen recruited through respondent-driven sampling. Data analysis utilized Respondent-Driven Sampling Analysis Tool and SPSS 11.0. Univariate, bivariate, and multivariate analyses examined risk factors associated with resistance to HIV testing. Less than 18 years of age (OR = 4.221; CI = 2.419-7.364), sexual debut before 10 years of age (OR = 6.760; CI = 2.996-15.256), using illegal drugs during sex (OR = 2.384; CI = 1.310-4.339), experience of discrimination (OR = 3.962; CI = 1.540-10.195) and a belief that the test results were not confidential (OR = 3.763; CI = 2.118-6.688) are independently associated with resistance to testing. Intersectoral and targeted strategies aimed at encouraging the adoption of safer sexual behaviors and testing for HIV among transwomen are required.

9. Blair, C. S., et al. **"Sexual Orientation, Gender Identity and Perceived Source of Infection Among Men Who Have Sex with Men (MSM) and Transgender Women (TW) Recently Diagnosed with HIV and/or STI in Lima, Peru."** *AIDS Behav* 2016.

Risk perception and health behaviors result from individual-level factors influenced by specific partnership contexts. We explored individual- and partner-level factors associated with partner-specific perceptions of HIV/STI risk among 372 HIV/STI-positive MSM and transgender women (TW) in Lima, Peru. Generalized estimating equations explored participants' perception of their three most recent partner(s) as a likely source of their HIV/STI diagnosis. Homosexual/gay (PR = 2.07; 95 % CI 1.19-3.61) or transgender (PR = 2.84; 95 % CI 1.48-5.44) partners were more likely to be considered a source of infection than heterosexual partners. Compared to heterosexual respondents, gay and TW respondents were less likely to associate their partner with HIV/STI infection, suggesting a cultural link between gay or TW identity and perceived HIV/STI risk. Our findings demonstrate a need for health promotion messages tailored to high-risk MSM partnerships addressing how perceived HIV/STI risk aligns or conflicts with actual transmission risks in sexual partnerships and networks.

10. Minor Peters, M. **"They wrote 'gay' on her file': transgender Ugandans in HIV prevention and treatment."** *Cult Health Sex* 2016 18(1): 84-98.

This paper examines the ways in which HIV-related programmes for heterosexual Ugandans and also for men who have sex with men work to deny healthcare services to transgender people in Uganda. Contrary to current conventional wisdom, the study found that the widespread use of the term 'men who have sex with men' produces greater barriers to healthcare for queer Ugandans than identity categories such as 'lesbian' or 'transgender'. Interventions for men who have sex with men assume a male-identified sexual subject with agency over sexual practices, such as frequency of condom use. Based on two years of ethnographic research in Kampala, I suggest that the focus on individual sexual practices harms transgender people in two ways. First, current HIV prevention and treatment programmes fail to account for risk factors that accrue to both male and female transgender Ugandans due to the social enforcement of gender norms. Second, the term men who have sex with men directs attention towards stigmatised sexual practices, producing the neglect and abuse of non-heteronormative individuals. In the context of Ugandan healthcare, terms such as 'transgender' and kuchu instead focus attention on the dignity and humanity of the rights-bearing person. These findings emphasise how health practitioners must pay attention to emic categories in order to address the ways in which vulnerability is distributed along social vectors of difference.

[Back to top](#)

Young Key Populations - 7

1. Newman, P. A., et al. **"Acceptability and Preferences for Hypothetical Rectal Microbicides among a Community Sample of Young Men Who Have Sex with Men and Transgender Women in Thailand: A Discrete Choice Experiment."** *AIDS Behav* 2015.

Rectal microbicides (RMs) may offer substantial benefits in expanding HIV prevention options for key populations. From April to August 2013, we conducted Tablet-Assisted Survey Interviewing, including a discrete choice experiment, with participants recruited from gay entertainment venues and community-based organizations in Chiang Mai and Pattaya, Thailand. Among 408 participants, 74.5 % were young men who have sex with men, 25.5 % transgender women, with mean age = 24.3 years. One-third (35.5 %) had \leq 9th grade education; 63.4 % engaged in sex work. Overall, 83.4 % reported they would definitely use a RM, with more than 2-fold higher odds of choice of a RM with 99 versus 50 % efficacy, and significantly higher odds of choosing gel versus suppository, intermittent versus daily dosing, and prescription versus over-the-counter. Sex workers were significantly more likely to use a RM immediately upon availability, with greater tolerance for moderate efficacy and daily dosing. Engaging key populations in assessing RM preferences may support biomedical research and evidence-informed interventions to optimize the effectiveness of RMs in HIV prevention.

2. Veinot, T. C., et al. **"HIV Testing Behavior and Social Network Characteristics and Functions Among Young Men Who have Sex with Men (YMSM) in Metropolitan Detroit."** *AIDS Behav* 2016.

HIV testing promotion is a critical HIV prevention strategy, especially among at-risk groups such as young men who have sex with men (YMSM). Based on a web survey of 194 YMSM (18-24), we examine the association of social network characteristics and functions, and of individual-level characteristics, with three HIV testing behaviors (ever, repeat, and recent testing). Network homophily was associated with recent testing in multivariable models. The network function of information acquisition was associated with ever testing and repeat testing. Perceived stigma regarding HIV-related help-seeking was negatively related to recent testing. Individual characteristics were associated with testing outcomes in all models; age, perceived behavioral control, and positive attitudes had the greatest influence. Individual characteristics had a stronger association with ever testing and repeat testing than network characteristics and functions; however, this relationship was reversed for recent testing. Findings support the value of multi-level and network-focused interventions for promoting HIV testing among YMSM.

3. Logie, C. H., et al. **"HIV-Related Stigma and HIV Prevention Uptake Among Young Men Who Have Sex with Men and Transgender Women in Thailand."** *AIDS Patient Care STDS* 2016 30(2): 92-100.

HIV-related stigma is a pervasive structural driver of HIV. With an HIV epidemic among young men who have sex with men (MSM) and transgender women (TG) in Thailand characterized as explosive, we conducted a cross-sectional survey among MSM and TG aged 18-30 years. From April-August 2013, participants recruited using venue-based sampling from gay entertainment sites and community-based organizations completed a tablet-assisted survey interview in Thai language. We conducted multiple logistic regression to assess correlations between HIV-related stigma (felt-normative, vicarious domains) and socio-demographic variables, HIV vulnerabilities (gay entertainment employment, sex work, forced sex history), and HIV prevention uptake (condom use, HIV testing, rectal microbicide acceptability). Among participants (n = 408), 54% identified as gay, 25% transgender, and 21% heterosexual. Two-thirds (65.7%) were employed at gay entertainment venues, 67.0% had more than three male partners (past month), 55.6% had been paid for sex, and 4.5% were HIV-positive. One-fifth (21.3%) reported forced sex. Most participants reported experiencing felt-normative and vicarious HIV-related stigma. Adjusting for socio-demographics, participants with higher

total HIV-related stigma scores had significantly lower odds of HIV testing and rectal microbicide acceptability, and higher odds of having experienced forced sex. Both vicarious and felt-normative dimensions of HIV-related stigma were inversely associated with HIV testing and rectal microbicide acceptability. Our findings suggest that HIV-related stigma harms the health of HIV-negative MSM and TG at high risk for HIV infection. HIV-related interventions and research among young MSM and TG in Thailand should address multiple dimensions of HIV-related stigma as a correlate of risk and a barrier to accessing prevention.

4. Stults, C. B., et al. "**Intimate Partner Violence and Sex Among Young Men Who Have Sex With Men.**" *J Adolesc Health* 2016 58(2): 215-22.

PURPOSE: Among young men who have sex with men (YMSM) few studies have examined the relationship between intimate partner violence (IPV) perpetration versus victimization and sexual behaviors.

METHODS: Using data from n = 528 urban YMSM, multinomial logistic regression models were built to examine the distinct relationships between any IPV, victimization, and perpetration with condomless sex in the previous 30 days, controlling for key sociodemographic characteristics.

RESULTS: In this sample of YMSM, lifetime experience of any IPV was associated with increased odds of recent condomless oral (adjusted odds ratio [AOR] = 1.81, 95% confidence interval [CI] = 1.21-2.72) and anal receptive sex (AOR= 2.29, 95% CI = 1.22-4.31). IPV victimization was associated with a greater likelihood of condomless receptive anal sex (AOR= 2.12, 95% CI = 1.15-3.93) whereas IPV perpetration was associated with increased odds of condomless receptive (AOR= 2.11, 95% CI = 1.14-3.91) and insertive (AOR= 2.21, 95% CI = 1.06-4.59) anal sex.

CONCLUSIONS: Among YMSM, reports of both IPV perpetration and victimization were associated with increased odds of recent condomless sex. These findings indicate that the need for IPV prevention and intervention programs for this new generation of YMSM is highly warranted.

5. Myers, B., et al. "**Not on the agenda": A qualitative study of influences on health services use among poor young women who use drugs in Cape Town, South Africa.**" *Int J Drug Policy* 2015.

BACKGROUND: Poor young women who use alcohol and other drugs (AODs) in Cape Town, South Africa, need access to health services to prevent HIV. Efforts to link young women to services are hampered by limited information on what influences service initiation. We explored perceptions of factors that influence poor AOD-using young women's use of health services.

METHODS: We conducted four focus groups with young women (aged 16-21) who used AODs and were recruited from two township communities in Cape Town. We also conducted 14 in-depth interviews with health and social welfare service planners and providers. Discussion topics included young women's use of health services and perceived influences on service use. Qualitative data were analysed using a framework approach.

RESULTS: The findings highlighted structural, contextual, and systemic influences on the use of health services by young women who use AODs. First, young women were absent from the health agenda, which had an impact on the provision of women-specific services. Resource constraints and gender inequality were thought to contribute to this absence. Second, gender inequality and stigma toward young women who used AODs led to their social exclusion from education and employment opportunities and health care. Third, community poverty resulted in the emergence of perverse social capital and social disorder that limited social support for treatment. Fourth, the health care system was unresponsive to the multiple service needs of these young women.

CONCLUSION: To reach young women who use AODs, interventions need to take cognisance of young

women's risk environment and health systems need to adapt to respond better to their needs. For these interventions to be effective, gender must be placed on the policy agenda.

6. Johnston, L. G., et al. **"Recent HIV Testing Among Young Men Who Have Sex with Men in Bangkok and Chiang Mai: HIV Testing and Prevention Strategies Must Be Enhanced in Thailand."** *AIDS Behav* 2016.

HIV infection among men who have sex with men, particularly in Thai urban settings and among younger cohorts, is escalating. HIV testing and counseling (HTC) are important for prevention and obtaining treatment and care. We examine data from a 2013 survey of males, 15-24 years, reporting past-year sex with a male and living in Bangkok or Chiang Mai. Almost three quarters of young MSM (YMSM) in Bangkok and only 27 % in Chiang Mai had an HIV test in the previous year. Associations for HIV testing varied between cities, although having employment increased the odds of HIV testing for both cities. In Bangkok, family knowledge of same sex attraction and talking to parents/guardians about HIV/AIDS had higher odds of HIV testing. Expanded HTC coverage is needed for YMSM in Chiang Mai. All health centers providing HTC, including those targeting MSM, need to address the specific needs of younger cohorts.

7. Harper, G. W., et al. **"Resilience among gay/bisexual young men in Western Kenya: psychosocial and sexual health outcomes."** *AIDS* 2015 29 Suppl 3: S261-9.

OBJECTIVE: To explore associations between intrapersonal and interpersonal factors and both sexual and psychosocial resilient outcomes among young gay, bisexual, and other men who have sex with men (GBMSM) in Western Kenya. **DESIGN:** Cross-sectional observational study.

METHODS: Five hundred and eleven GBMSM ages 18-29 were recruited from nine communities in Western Kenya using community-based mobilization strategies. Participants completed an audio computer-assisted self-interview survey in English or Duhluo. We estimated four three-step hierarchical linear regression models to examine associations between predictors (intrapersonal and interpersonal factors) and four resilient outcomes (psychological well-being, self-esteem, condom use, HIV testing).

RESULTS: Psychosocial well-being model (modeled conversely as depression/anxiety) was significant ($F(13,424) = 106.41, P < 0.001, R = 0.765$) with loneliness, lesbian/gay/bisexual (LGB) difficult process, LGB identity superiority, and reactions to trauma as predictors. Self-esteem model was significant ($F(12,425) = 6.40, P < 0.001, R = 0.153$) with known HIV-seropositivity, perceived social support, internalized homonegativity, and LGB difficult process as predictors. Condom use model was significant ($F(13,379) = 4.30, P < 0.001, R = 0.128$) with perceived social support, self-esteem, and reactions to trauma as predictors. HIV testing model was significant ($F(12,377) = 4.75, P < 0.001, R = 0.131$) with loneliness, LGB identity uncertainty, LGB difficult process, and LGB identity superiority as predictors.

CONCLUSION: This study demonstrates the variety of ways in which intrapersonal and interpersonal factors are associated with HIV-related resilient outcomes for young GBMSM in Western Kenya. HIV prevention programs for this population should be developed in collaboration with GBMSM and include intervention components that promote resilience.

[Back to top](#)