



## Quarterly Research Digest on HIV and Key Populations

September 2015

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, transgender people, and young key populations). This quarterly digest includes articles published between June 1, 2015 and September 1, 2015. For open access articles, we include the link to the full text.

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### Key Populations General - 8

1. Mayer, K. H. and G. Ramjee (2015). "**The current status of the use of oral medication to prevent HIV transmission.**" [Curr Opin HIV AIDS](#) 10(4): 226-232.

**PURPOSE OF REVIEW:** This review was designed to evaluate the progress in studies of the use of oral and topical antiretroviral (ARV) medication for primary HIV prevention. **RECENT FINDINGS:** Nonhuman primate data have suggested that the administration of ARV medication before or after retroviral exposure can protect against the establishment of chronic infection. Over the past two decades, observational studies have demonstrated the safety of ARV agents for postexposure prophylaxis and more recent efficacy studies have demonstrated that tenofovir with or without emtricitabine can protect against HIV when used as preexposure prophylaxis (PrEP). Efficacy studies have been conducted in diverse populations, including men and transgender women who have sex with men, young African heterosexuals, and injection drug users. Three studies in African women evaluating oral and topical tenofovir-based regimens did not demonstrate efficacy, in large part because of suboptimal medication adherence. Further research is underway to determine the optimal ways to provide chemoprophylaxis, the optimal medications, and dosing regimens. **SUMMARY:** PrEP can be effective in decreasing HIV transmission to at-risk uninfected persons, but further research is needed to determine the optimal modes of delivery.

2. Johnston, L. G., et al. (2015). **"Estimating the Size of Hidden Populations Using Respondent-driven Sampling Data: Case Examples from Morocco."** Epidemiology.

BACKGROUND: Respondent-driven sampling is used worldwide to estimate the population prevalence of characteristics, such as HIV/AIDS and associated risk factors in hard-to-reach populations. Estimating the total size of these populations is of great interest to national and international organizations; however, reliable measures of population size often do not exist. METHODS: Successive sampling-population size estimation (SS-PSE) along with network size imputation allows population size estimates to be made without relying on separate studies or additional data (as in network scale-up, multiplier, and capture-recapture methods), which may be biased. RESULTS: Ten population size estimates were calculated for people who inject drugs, female sex workers, men who have sex with other men, and migrants from sub-Saharan Africa in six different cities in Morocco. SS-PSE estimates fell within or very close to the likely values provided by experts and the estimates from previous studies using other methods. CONCLUSIONS: SS-PSE is an effective method for estimating the size of hard-to-reach populations that leverages important information within respondent-driven sampling studies. The addition of a network size imputation method helps to smooth network sizes allowing for more accurate results. However, caution should be used particularly when there is reason to believe that clustered subgroups may exist within the population of interest or when the sample size is small in relation to the population.

3. Thepthien, B. O., et al. (2015). **"Factors Enabling Access to HIV Voluntary Counseling and Testing for Key Affected Populations in Thailand."** Asia Pac J Public Health.

The objective was to study the factors that enabled persons at risk of HIV to obtain voluntary counseling and testing (VCT) in Thailand. This research was a cross-sectional study and data were collected during May to July 2013 in 8, purposively selected provinces. The method for selecting respondents used time-location quota sampling to achieve a total sample of 751 persons. The proportion who had VCT in the year prior to the survey was 56%. The significant enabling factors associated with VCT were having someone encourage them to go for testing and receiving information about VCT. In addition, other significant factors for female sex workers were self-assessed risk for HIV and having had risk behavior, and for men who have sex with men the factors were awareness of eligibility for VCT. Thus, in order to achieve the VCT target for higher risk populations by 2016, there should be special mechanisms to inform the different groups, along with improvements in outreach services to make VCT more convenient for key affected populations.

4. Cakalo, J. I., et al. (2015). **"Misclassification of Men with Reported HIV Infection in Ukraine."** AIDS Behav.

We analyzed data on reported mode of transmission in case reports of HIV-infections among men in Ukraine. The number of men who were reported to have acquired HIV through heterosexual transmission increased substantially in 2006-2011. However, we estimate that up to 40 % of reported cases of heterosexual transmission among men may actually represent misclassified men who have sex with men or persons who inject drugs. These findings indicate a need to improve the quality of data on reported mode of HIV transmission. Accurate information has important public health implications in planning prevention and treatment services.

5. Bhattacharjee, P., et al. (2015). **"Monitoring HIV Prevention Programme Outcomes among Key Populations in Kenya: Findings from a National Survey."** PLoS One 10(8): e0137007.

Online at:

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0137007&representation=PDF>

In preparation for the implementation of the Kenya AIDS Strategic Framework 2014/15-2018/19, the Kenya National AIDS and STI Control Programme facilitated a national polling booth survey as part of a baseline assessment of HIV-related risk behaviours among FSWs, MSM, and PWID, and their utilization of existing preventive interventions, as well as structural factors that may influence KPs' vulnerability to HIV. The survey was conducted among "key populations" (female sex workers, men who have sex with men, and people who inject drugs) to understand current HIV risk and prevention behaviours, utilization of existing programmes and services, and experiences of violence. In total, 3,448 female sex workers, 1,308 men who have sex with men, and 690 people who inject drugs were randomly selected to participate in polling booth survey sessions from seven priority sites. Survey responses were aggregated and descriptive statistics derived. In general, reported condom use among all key populations was quite high with paying clients, and lower with regular, non-paying partners. Many participants reported unavailability of condoms or clean injecting equipment within the past month. Exposure to, and utilization of, existing HIV prevention services

varied significantly among the groups, and was reported least commonly by female sex workers. Encouragingly, approximately three-quarters of all key population members reported receiving an HIV test in the past three months. All key population groups reported experiencing high levels of physical and sexual violence from partners/clients, and/or arrest and violence by law enforcement officials. Although some of the findings are encouraging, there is room for improvement in HIV prevention programmes and services for key populations across Kenya.

6. Corneli, A., et al. (2015). "**Motivations for Reducing Other HIV Risk-Reduction Practices if Taking Pre-Exposure Prophylaxis: Findings from a Qualitative Study Among Women in Kenya and South Africa.**" AIDS Patient Care STDS 29(9): 503-509.

Findings from a survey conducted among women at high risk for HIV in Bondo, Kenya, and Pretoria, South Africa, demonstrated that a substantial proportion would be inclined to reduce their use of other HIV risk-reduction practices if they were taking pre-exposure prophylaxis (PrEP). To explore the motivations for their anticipated behavior change, we conducted qualitative interviews with 60 women whose survey responses suggested they would be more likely to reduce condom use or have sex with a new partner if they were taking PrEP compared to if they were not taking PrEP. Three interrelated themes were identified: (1) "PrEP protects"-PrEP was perceived as an effective HIV prevention method that replaced the need for condoms; (2) condoms were a source of conflict in relationships, and PrEP would provide an opportunity to resolve or avoid this conflict; and (3) having sex without a condom or having sex with a new partner was necessary for receiving material goods and financial assistance-PrEP would provide reassurance in these situations. Many believed that PrEP alone would be a sufficient HIV risk-reduction strategy. These findings suggest that participants' HIV risk-reduction intentions, if they were to use PrEP, were based predominately on their understanding of the high efficacy of PrEP and their experiences with the limitations of condoms. Enhanced counseling is needed to promote informed decision making and to ensure overall sexual health for women using PrEP for HIV prevention, particularly with respect to the prevention of pregnancy and other sexually transmitted infections when PrEP is used alone.

7. Ancker, S. and B. Rechel (2015). "**Policy responses to HIV/AIDS in Central Asia.**" Glob Public Health 10(7): 817-833.

The countries of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) are confronted with one of the fastest growing HIV/AIDS epidemics worldwide, largely driven through injecting drug use. This article, based on a review of academic and grey literature, explores how they have responded. We find major similarities and differences across the region. At one extreme is Turkmenistan, which denies that there is any problem, does not offer harm reduction services or HIV/AIDS treatment and does not report any meaningful data to the international community. Uzbekistan is also pretty closed to outside influences, has discontinued its opioid substitution project and shares with Turkmenistan the legal prohibition of male-to-male sex. Kyrgyzstan originally led many progressive approaches in the region and, like neighbouring Tajikistan, has received substantial assistance by international agencies, in particular the Global Fund. Kazakhstan, with a much higher gross domestic product per capita, has taken on the financing of harm reduction activities through its national budget and has liberalised its drug policies. Yet, across the region punitive approaches to injecting drug use and people living with HIV/AIDS persist as do stigma and discrimination, while coverage with harm reduction programmes and treatment services is still low although with substantial variation across countries.

8. Zajac, K., et al. (2015). "**A Systematic Review of the Effects of Behavioral Counseling on Sexual Risk Behaviors and HIV/STI Prevalence in Low- and Middle-Income Countries.**" AIDS Behav 19(7): 1178-1202.

The purpose of this study was to assess the effectiveness of behavioral counseling interventions in reducing sexual risk behaviors and HIV/STI prevalence in low- and middle-income countries. A systematic review of papers published between 1990 and 2011 was conducted, identifying studies that utilized either a multi-arm or pre-post design and presented post-intervention data. Standardized methods of searching and data abstraction were used, and 30 studies met inclusion criteria. Results are summarized by intervention groups: (a) people living with HIV; (b) people who use drugs and alcohol; (c) serodiscordant couples; (d) key populations for HIV prevention; and (e) people at low to moderate HIV risk. Evidence for the effectiveness of behavioral counseling was mixed, with more rigorously designed studies often showing modest or no effects. Recommendations about the use of behavioral counseling in developing countries are made based on study results and in light of the field's movement towards combination prevention programs.

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## People Who Inject Drugs - 19

1. Mwatelah, R. S., et al. (2015). "Co-Infection Burden of Hepatitis C Virus and Human Immunodeficiency Virus among Injecting Heroin Users at the Kenyan Coast." *PLoS One* 10(7): e0132287.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4514798/pdf/pone.0132287.pdf>

**BACKGROUND:** Injection drug use is steadily rising in Kenya. We assessed the prevalence of both human immunodeficiency virus type 1 (HIV-1) and hepatitis C virus (HCV) infections among injecting heroin users (IHUs) at the Kenyan Coast. **METHODS:** A total of 186 IHUs (mean age, 33 years) from the Omari rehabilitation center program in Malindi were consented and screened for HIV-1 and HCV by serology and PCR and their CD4 T-cells enumerated by FACS. **RESULTS:** Prevalence of HIV-1 was 87.5%, that of HCV was 16.4%, co-infection was 17.9% and 18/152 (11.8%) were uninfected. Only 5.26% of the HIV-1 negative injectors were HCV positive. Co-infection was higher among injectors aged 30 to 40 years (20.7%) and among males (22.1%) than comparable groups. About 35% of the injectors were receiving antiretroviral treatment (ART). Co-infection was highest among injectors receiving D4T (75%) compared to those receiving AZT (21.6%) or TDF (10.5%) or those not on ART (10.5%). Mean CD4 T-cells were 404 (95% CI, 365 - 443) cells/mm<sup>3</sup> overall, significantly lower for co-infected (mean, 146; 95% CI 114 - 179 cells/mm<sup>3</sup>) than HIV mono infected (mean, 437, 95% CI 386 - 487 cells/mm<sup>3</sup>,  $p < 0.001$ ) or uninfected (mean, 618, 95% CI 549 - 687 cells/mm<sup>3</sup>,  $p < 0.001$ ) injectors and lower for HIV mono-infected than uninfected injectors ( $p = 0.002$ ). By treatment arm, CD4 T-cells were lower for injectors receiving D4T (mean, 78; 95% CI, 0.4 - 156 cells/mm<sup>3</sup>) than TDF (mean 607, 95% CI, 196 - 1018 cells/mm<sup>3</sup>,  $p = 0.005$ ) or AZT (mean 474, 95% CI -377 - 571 cells/mm<sup>3</sup>,  $p = 0.004$ ). **CONCLUSION:** Mono and dual infections with HIV-1 and HCV is high among IHUs in Malindi, but ART coverage is low. The co-infected IHUs have elevated risk of immunodeficiency due to significantly depressed CD4 T-cell numbers. Coinfection screening, treatment-as-prevention for both HIV and HCV and harm reduction should be scaled up to alleviate infection burden.

2. Alam-Mehrjerdi, Z., et al. (2015). "Drug use treatment and harm reduction programs in Iran: A unique model of health in the most populated Persian Gulf country." *Asian J Psychiatr.*

Because of the proximity of Persian Iran to Afghanistan, the main opium producer in the world, drug use especially opium use has a long history in Iran. Opium and its residues are the traditional drugs while heroin, heroin Kerack, norgesic, temgesic, and methamphetamine use and injection have emerged more recently. In recent decades, heroin smoking and injection have presented challenges to the Persian health policy makers to accept and develop the internationally-approved programs of drug use treatment and harm reduction. The current paper summarizes the overall picture of main drugs used and the history of establishing the nationwide movement of drug use treatment and harm reduction programs after the 1979 revolution until the end of 2014. The paper concludes that Persian Iran has a well-developed healthcare system in the provision of drug use treatment and harm reduction programs in the south-west of Asia especially the Persian Gulf region. These therapeutic and harm reduction-related programs are required to be strengthened by opium supply reduction and eradicating drug production in Afghanistan. The provision of prevention programs, drug education via mass-media, employment and inexpensive leisure activities are required in Iran. In addition, conducting household surveys of the prevalence of drug use and evaluating the clinical effectiveness and treatment outcomes of the provided drug treatment and harm reduction programs are required. National and regional collaborations are rigorously suggested to manage supply reduction along the borders and implement demand reduction inside the borders.

3. Syvertsen, J. L., et al. (2015). "Evidence of injection drug use in Kisumu, Kenya: Implications for HIV prevention." *Drug Alcohol Depend* 151: 262-266.

**BACKGROUND:** Injection drug use is increasingly contributing to the HIV epidemic across sub-Saharan Africa. This paper provides the first descriptive analysis of injection drug use in western Kenya, where HIV prevalence is already highest in the nation at 15.1%. **METHODS:** We draw on quantitative data from a study of injection drug use in Kisumu, Kenya. We generated descriptive statistics on socio-demographics, sexual characteristics, and drug-related behaviors. Logistic regression models were adjusted for sex to identify correlates of self-reported HIV positive status. **RESULTS:** Of 151 participants, mean age was 28.8 years, 84% ( $n = 127$ ) were male, and overall self-reported HIV prevalence reached 19.4%. Women had greater than four times the odds of being HIV positive relative to men (Odds Ratio [OR] 4.5, CI: 1.7, 11.8,  $p = .003$ ). Controlling for sex, ever experiencing STI symptoms (Adjusted Odds ratio [AOR] 4.6, 95% CI 1.7, 12.0,  $p = .002$ ) and sharing needles or syringes due to lack of access (AOR 3.6, 95% CI 1.2, 10.5,  $p = .02$ ) were significantly associated with HIV positive status. Lower education (AOR 2.3, 95% CI 0.9, 5.6,  $p = .08$ ), trading sex for drugs (AOR 2.8, 95% CI 0.9, 8.8,  $p = .08$ ), being injected by a peddler (AOR 2.9, 95% CI 1.0, 8.5,  $p = .05$ ), and injecting

heroin (AOR 2.3, 95% CI 1.0, 5.7,  $p = .06$ ), were marginally associated with HIV. CONCLUSIONS: This exploratory study identified patterns of unsafe drug injection and concurrent sexual risk in western Kenya, yet few resources are currently available to address addiction or injection-related harm. Expanded research, surveillance, and gender sensitive programming are needed.

4. Irwanto, et al. (2015). "Evidence-informed response to illicit drugs in Indonesia." *Lancet* 385(9984): 2249-2250.
5. Armstrong, G. and L. Samson (2015). "Extreme levels of suicidality among people who inject drugs in Delhi, India: a cause for reflection for HIV prevention interventions." *J Acquir Immune Defic Syndr*.
6. Mumtaz, G. R., et al. (2015). "Hepatitis C virus and HIV infections among people who inject drugs in the Middle East and North Africa: a neglected public health burden?" *J Int AIDS Soc* 18(1): 20582.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4518656/pdf/JIAS-18-20582.pdf>
7. Nadol, P., et al. (2015). "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*.

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.

8. Voon, P., et al. (2015). "High prevalence of syringe lending among HIV-positive people who inject drugs in Bangkok, Thailand." *Harm Reduct J* 12: 16.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456057/pdf/12954\\_2015\\_Article\\_50.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456057/pdf/12954_2015_Article_50.pdf)

BACKGROUND: Syringe sharing continues to be a major driver of the HIV pandemic. In light of efforts to enhance access to sterile syringes and promote secondary prevention among HIV-positive individuals, we sought to identify the prevalence and correlates of used syringe lending among self-reported HIV-positive people who inject drugs (PWID) in Bangkok, Thailand. FINDINGS: We used bivariable statistics to examine factors associated with self-reported syringe lending among self-reported HIV-positive PWID participating in the Mitsampan Community Research Project, a serial cross-sectional study of PWID in Bangkok, between June 2009 and October 2011. In total, 127 individuals were eligible for this analysis, including 25 (19.7%) women. Twenty-one (16.5%) participants reported syringe lending in the prior 6 months. Factors significantly associated with syringe lending included daily methamphetamine injection (odds ratio (OR) = 10.2, 95% CI, 2.1-53.6), daily midazolam injection (OR = 3.1, 95% CI, 1.1-8.7), use of drugs in combination (OR = 4.5, 95% CI, 1.0-41.6), injecting with others on a frequent basis (OR = 4.25, 95% CI, 1.3-18.3), and not receiving antiretroviral therapy (OR = 2.9, 95% CI, 1.1-7.9). CONCLUSIONS: A high prevalence of syringe lending was observed among self-reported HIV-positive PWID in Bangkok, which was associated with high intensity drug use, polysubstance use, and frequently injecting with others. It is particularly concerning that individuals who lent syringes were more likely to be untreated for HIV disease given the known benefits of antiretroviral provision on the prevention of HIV transmission. These findings underscore the need to expand access to sterile syringes and HIV treatment among HIV-positive PWID in Thailand.

9. Kurth, A. E., et al. (2015). ""HIV prevalence, estimated incidence, and risk behaviors among people who inject drugs in Kenya"." *J Acquir Immune Defic Syndr*.

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 (NSP). Our study undertook a baseline assessment as part of evaluating NSP in a seek, test, treat, and retain approach. METHODS: Participants enrolled May-December 2012 from 10 sites. Respondent-driven sampling was used to reach  $n=1,785$  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 10.8-18.2) and 20.5% in the Coast region (95% CI

17.3-23.6). Viral load (log<sub>10</sub> transformed) in Nairobi ranged from 1.71 to 6.12 (median 4.41; IQR 3.51-4.94) and in the Coast from 1.71 to 5.88 (median 4.01; IQR 3.44-4.72). Using log<sub>10</sub> 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 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. **CONCLUSION:** 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.

10. Ray Saraswati, L., et al. (2015). **"HIV, Hepatitis B and C among people who inject drugs: high prevalence of HIV and Hepatitis C RNA positive infections observed in Delhi, India."** *BMC Public Health* 15: 726.

Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4520270/pdf/12889\\_2015\\_Article\\_2003.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4520270/pdf/12889_2015_Article_2003.pdf)

**BACKGROUND:** India has large PWID (persons who inject drugs) population estimated at 177,000. PWIDs are at high risk for HIV, Hepatitis B (HBV) and Hepatitis C (HCV) infections. We report the prevalence of HIV, HBV and HCV infections and correlates of HIV-HCV co-infection among male PWIDs in Delhi. **METHODS:** 3748 male PWIDs were recruited for a longitudinal HIV incidence study. Participants were tested for HBV and HCV infections at their first follow-up visit (FV1) using serum HBV-surface antigen, and HCV-antibody tests followed by HCV RNA PCR, respectively. All PWIDs who were HIV-negative at enrollment, were re-tested for HIV at FV1. Multinomial logistic regression was employed to identify predictors of HIV, HCV and HIV-HCV co-infection. **RESULTS:** Overall prevalence of HIV, HBV and HCV among 2,292 participants tested at FV1 was 25.9%, 9.7% and 53.7%, respectively. 6.4% of the participants had HIV mono-infection, 34.1% had HCV mono-infection, and 19.6% had HIV-HCV co-infection. 26% of HIV-positive participants without HCV were HBsAg positive. In the regression model, having practiced at least one risky injection in the past month (relative risk ratio (RRR): 1.38; 95% CI: 1.01-1.89) and not knowing his own HIV status (RRR: 1.65, 95% CI: 1.25-2.17) were independent predictors for HIV-HCV co-infection. Longer duration of drug injections was associated with a higher likelihood of HCV mono-infection (2-5 years RRR: 2.13; 6-10 years RRR: 2.74;  $\geq 11$  years RRR: 3.14) and HIV-HCV co-infection (2-5 years RRR: 5.14; 6-10 years RRR: 8.53;  $\geq 11$  years RRR: 8.03). Higher frequency of injection days/month was associated with a higher likelihood of HCV mono-infection ( $\leq 10$  days/month RRR: 1.61; 11-20 days/month RRR: 3.15; 21-30 days/month RRR: 3.47) and HIV-HCV co-infections ( $\leq 10$  days/month RRR: 2.26; 11-20 days/month RRR: 3.46; 21-30 days/month RRR: 4.83). **CONCLUSIONS:** We report a high prevalence of HIV, HCV and HIV-HCV co-infection among male PWIDs in Delhi. A tenth of the participants were HBsAg positive. Targeted Intervention programs should make HBV/HCV testing, prevention and care more accessible for PWIDs.

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

**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).

12. Tran, O. C., et al. (2015). **"Implementation and Operational Research: Linkage to Care Among Methadone Clients Living With HIV in Dar es Salaam, Tanzania."** *J Acquir Immune Defic Syndr* 69(2): e43-48.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4435505/pdf/qai-69-e43.pdf>



**BACKGROUND:** The first methadone maintenance treatment clinic in Tanzania was launched in February 2011 to address an emerging HIV epidemic among people who inject drugs. We conducted a retrospective cohort study to understand factors associated with linkage to HIV care and explore how a methadone maintenance treatment clinic can serve as a platform for integrated HIV care and treatment. **METHODS:** This study used routine programmatic and clinical data on clients enrolled in methadone at Muhimbili National Hospital from February 2011 to January 2013. Multivariable proportional hazards regression model was used to examine time to initial CD4 count. **RESULTS:** Final analyses included 148 HIV-positive clients, contributing 31.7 person-years. At 30, 60, and 90 days, the probability of CD4 screening was 40% [95% confidence interval (CI): 32% to 48%], 55% (95% CI: 47% to 63%), and 63% (95% CI: 55% to 71%), respectively. Clients receiving high methadone doses ( $\geq 85$  mg/d) [adjusted hazard ratio (aHR): 1.68, 95% CI: 1.03 to 2.74] had higher likelihood of CD4 screening than those receiving low doses ( $<85$  mg/d). Clients with primary education or lower (aHR: 1.62, 95% CI: 1.05 to 2.51) and self-reported poor health (aHR: 1.96, 95% CI: 1.09 to 3.51) were also more likely to obtain CD4 counts. Clients with criminal arrest history (aHR: 0.56, 95% CI: 0.37 to 0.85) were less likely to be linked to care. Among 17 antiretroviral therapy eligible clients (CD4  $\leq 200$ ), 12 (71%) initiated treatment, of which 7 (41%) initiated within 90 days. **CONCLUSIONS:** Levels of CD4 screening and antiretroviral therapy initiation were similar to Sub-Saharan programs caring primarily for people who do not inject drugs. Adequate methadone dosing is important in retaining clients to maximize HIV treatment benefits and allow for successful linkage to services.

13. Cepeda, A., et al. (2015). "Injecting Drug Use Among Mexican Female Sex Workers on the US-Mexico Border." J Ethn Subst Abuse: 1-13.

Both injecting drug users (IDU) and sex workers are at great risk of contracting and transmitting HIV. Therefore, IDU sex workers could be at especially high risk. The recent increase of HIV infection in Mexico has caused increased attention to sex work. We identify the correlates of injecting drug use including socio-demographic, work history, and sexual and non-injecting drug use risk behaviors among Mexican female sex workers. There is a high risk profile for IDUs compared to never injectors including a high prevalence of lifetime STI infection (54.2%). Revealed is an environment composed of high-risk networks that may have serious binational public health implications.

14. Calabrese, S. K., et al. (2015). "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.

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.

15. Booth, R. E., et al. (2015). "Krokodile Injectors in Ukraine: Fueling the HIV Epidemic?" AIDS Behav.

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.

16. Tran, H. V., et al. (2015). **"Sampling Males Who Inject Drugs in Haiphong, Vietnam: Comparison of Time-Location and Respondent-Driven Sampling Methods."** *J Urban Health* 92(4): 744-757.

Accurate measurements of HIV prevalence and associated risk factors among hidden and high-risk groups are vital for program planning and implementation. However, only two sampling methods are purported to provide representative estimates for populations without sampling frames: time-location sampling (TLS) and respondent-driven sampling (RDS). Each method is subject to potential biases and questionable reliability. In this paper, we evaluate surveys designed to estimate HIV prevalence and associated risk factors among people who inject drugs (PWID) sampled through TLS versus RDS. In 2012, males aged  $\geq 16$  years who reported injecting drugs in the previous month and living in Haiphong, Vietnam, were sampled using TLS or RDS. Data from each survey were analyzed to compare HIV prevalence, related risk factors, socio-demographic characteristics, refusal estimates, and time and expenditures for field implementation. TLS ( $n = 432$ ) and RDS ( $n = 415$ ) produced similarly high estimates for HIV prevalence. Significantly lower proportions of PWID sampled through RDS received methadone treatment or met an outreach worker. Refusal estimates were lower for TLS than for RDS. Total expenditures per sample collected and number of person-days of staff effort were higher for TLS than for RDS. Both survey methods were successful in recruiting a diverse sample of PWID in Haiphong. In Vietnam, surveys of PWID are conducted throughout the country; although the refusal estimate was calculated to be much higher for RDS than TLS, RDS in Haiphong appeared to sample PWID with less exposure to services and required fewer financial and staff resources compared with TLS.

17. Friedman, S. R. and D. Rossi (2015). **"Some Musings About Big Events and the Past and Future of Drug Use and of HIV and Other Epidemics."** *Subst Use Misuse* 50(7): 899-902.

The term "Big Events" began as a way to help understand how wars, transitions and other crises shape long-term HIV epidemiology in affected areas. It directs attention to the roles of ordinary people in shaping these outcomes. Big Events themselves can take years, as in long-term armed struggles like those in Colombia and also long-term political and economic changes like the turn over the last 15 years of many Latin American countries away from neoliberalism and towards attempts to build solidarity economies of some form. The effects of Big Events on HIV epidemics, at least, may run in phases: In the short term, by creating vulnerability to epidemic outbreaks among existing Key Populations like people who inject drugs (PWID) or men who have sex with men (MSM); then, in their non-PWID (or non-MSM) risk networks; and perhaps, several years later, among youth who became involved in high-risk sexual or drug use networks and behaviors due to the social impacts of the Big Event. Issues of time loom large in other articles in this Special Issue as well. Some articles and commentaries in this issue point to another important phenomenon that should be studied more: The positive contributions that people who use drugs and other members of the population make towards helping other people in their communities during and after Big Events. Finally, this Commentary calls for more thought and research about an impending very Big Event, global climate change, and how it may exacerbate HIV, hepatitis C and other epidemics among people who use drugs and other members of their networks and communities.

18. Lunze, K., et al. (2015). **"Stigma and Human Rights Abuses against People Who Inject Drugs in Russia-A Qualitative Investigation to Inform Policy and Public Health Strategies."** *PLoS One* 10(8): e0136030.

Online at:

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0136030&representation=PDF>

**INTRODUCTION:** Drug policing practices in the Russian Federation (Russia) are often punitive and have been shown to be associated with HIV risk behaviors among people who inject drugs (PWID). Less is known about strategies to address the problem in that setting, where substance use stigma is highly persistent. A better understanding of forms, causes and consequences of drug policing in Russia could inform drug policy in a context of substantial policy resistance. This qualitative study's goal is to characterize the phenomenon of police involvement with Russian PWID and to explore strategies for drug policing in the Russian country context. **METHODS:** Using a semi-structured interview guide, we collected data from a purposive sample of 23 key informants including PWID, police officers, and experts from civil society and international organizations in Russia. We used a thematic analysis approach to inductively generate new insight into the phenomenon of police involvement and potential strategies to address it. **RESULTS:** Policing practices involving PWID include unjustified arrests, planting of false evidence and extrajudicial syringe confiscations, and often constitute human rights violations. Russian PWID personally experienced police violence as ubiquitous, taking on various forms such as beating, unjustified arrests, verbal harassment, and coercion.



The persistent societal stigma dehumanizes PWID, and such stigmatization facilitates police abuse. To address stigma and overcome the PWID-police adversity, study participants suggested fostering a mutual understanding between the police and public health sectors. **CONCLUSIONS:** Participants describe substantial human rights violations as part of policing illicit drug use in Russia. Police should include principles of effective prevention of substance use and HIV risk reduction in their trainings. Alignment of public safety and public health goals could address drug use-related risks and HIV prevention among key populations in Russia.

19. Dukhovlina, E., et al. (2015). **"Two Independent HIV Epidemics in Saint Petersburg, Russia Revealed by Molecular Epidemiology."** *AIDS Res Hum Retroviruses* 31(6): 608-614.

The HIV epidemic in Russia, one of the world's fastest growing, has been concentrated mostly among people who inject drugs (PWID). We sought to explore the epidemiology of the epidemic in St. Petersburg by sampling from the highest risk groups of PWID and men who have sex with men (MSM) and use viral sequencing data to better understand the nature of the city's epidemic. Serological testing confirmed an HIV prevalence among PWID in excess of 40%. All but 1 of 110 PWID whose blood samples were tested for genetic diversity were infected by subtype A virus, specifically by the AFSU strain. The remaining person was infected with a CRF-06cpx recombinant. Analysis of pairwise genetic distance among all PWID studied revealed an average of 3.1% sequence divergence, suggesting clonal introduction of the AFSU strain and/or constraints on sequence divergence. The HIV prevalence was less than 10% among MSM. All 17 sequences from HIV-infected MSM were found to be a clade B virus with a much higher average sequence diversity of 15.7%. These findings suggest two independent epidemics with little overlap between the two highest at-risk populations, which will require different HIV prevention approaches.

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## Men who have Sex with Men - 33

1. Magidson, J. F., et al. (2015). **"Antiretroviral Medication Adherence and Amplified HIV Transmission Risk Among Sexually Active HIV-Infected Individuals in Three Diverse International Settings."** *AIDS Behav.*

Successful biomedical prevention/treatment-as-prevention (TasP) requires identifying individuals at greatest risk for transmitting HIV, including those with antiretroviral therapy (ART) nonadherence and/or 'amplified HIV transmission risk,' defined as condomless sex with HIV-uninfected/unknown-status partners when infectious (i.e., with detectable viremia or STI diagnosis according to Swiss criteria for infectiousness). This study recruited sexually-active, HIV-infected patients in Brazil, Thailand, and Zambia to examine correlates of ART nonadherence and 'amplified HIV transmission risk'. Lower alcohol use (OR = .71,  $p < .01$ ) and higher health-related quality of life (OR = 1.10,  $p < .01$ ) were associated with greater odds of ART adherence over and above region. Of those with viral load data available (in Brazil and Thailand only), 40 % met Swiss criteria for infectiousness, and 29 % had 'amplified HIV transmission risk.' MSM had almost three-fold (OR = 2.89,  $p < .001$ ) increased odds of 'amplified HIV transmission risk' (vs. heterosexual men) over and above region. TasP efforts should consider psychosocial and contextual needs, particularly among MSM with detectable viremia.

2. McLean, S. A., et al. (2015). **"Association between sexual role and HIV status among Peruvian men who have sex with men seeking an HIV test: a cross-sectional analysis."** *Int J STD AIDS.*

**PURPOSE:** In Latin America, sexual role, sexual identity and sexual practices are intricately related; the roles activo, pasivo and moderno often encompass sexual identity and sexual practices. We aimed to understand the association between sexual role and HIV status in Peruvian men who have sex with men. **METHODS:** HIV-testing services at Epicentro Salud, a Peruvian gay men's health centre, were paired with clinic data on demographics and sexual behaviour. Bidirectional stepwise logistic regression was conducted to determine associations between sexual role and HIV status. **RESULTS:** Of 366 clients who underwent HIV testing, 86 (23.5%) tested positive. There was a strong association between sexual role ('activo' or typically insertive, 'pasivo' or typically receptive, 'moderno' or typically versatile) and a positive HIV test ( $p = 0.002$ ). Compared to clients with an activo role, those who reported a pasivo (OR = 6.14) and moderno (OR = 6.26) role were more likely to test positive for HIV. Sexual role was associated with sexual identity (gay, straight and bisexual) and gender of partners in the past six months. **CONCLUSIONS:** Self-reported

pasivo and moderno sexual roles were strongly associated with a positive HIV test result. Further research should examine differences in sexual practices between sexual role groups.

3. Musinguzi, G., et al. (2015). **"Barriers to Condom Use among High Risk Men Who Have Sex with Men in Uganda: A Qualitative Study."** PLoS One 10(7): e0132297.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4501754/pdf/pone.0132297.pdf>

**BACKGROUND:** Unprotected sexual intercourse is a major risk factor for HIV transmission. Men who have sex with men (MSM) face challenges in accessing HIV prevention services, including condoms. However, there is limited in-depth assessment and documentation of the barriers to condom use among MSM in sub-Saharan Africa. In this paper, we examine the barriers to condom use among MSM in Uganda. **METHODS:** The data for this study were extracted from a larger qualitative study conducted among 85 self-identified adult (>18 years) MSM in 11 districts in Uganda between July and December 2013. Data on sexual behaviours and access and barriers to condom use were collected using semi-structured interviews. All interviews were audio-recorded and transcribed verbatim. This paper presents an analysis of data for 33 MSM who did not use condoms at last sex, with a focus on barriers to condom use. Analysis was conducted using the content analysis approach. **RESULTS:** Six major barriers to condom use were identified: Difficulties with using condoms, access challenges, lack of knowledge and misinformation about condom use, partner and relationship related issues, financial incentives and socio-economic vulnerability, and alcohol consumption. **CONCLUSION:** The findings suggest that several reasons account for lack of condom use among high-risk MSM. The findings are valuable to inform interventions needed to increase condom use among MSM.

4. Leung, K. Y. and M. Kretzschmar (2015). **"Concurrency can drive an HIV epidemic by moving  $R_0$  across the epidemic threshold."** Aids 29(9): 1097-1103.

The objective of this study is to investigate whether concurrency can drive an HIV epidemic by moving  $R_0$  across the epidemic threshold. **DESIGN AND METHODS:** We use a mathematical framework for a dynamic partnership network and the spread of a one-stage infection to study how concurrency is related to the basic reproduction number  $R_0$ . Two concurrency indices were used to measure the level of concurrency. The model allows varying the level of concurrency in the population, while other key network properties such as partnership duration and lifetime number of partners are kept fixed. In this way, the effect of concurrency on  $R_0$  is investigated as an isolated phenomenon. **RESULTS:** We find that an increase in concurrency is associated with an increase of  $R_0$ . For plausible parameter sets for MSM populations,  $R_0$  is always above the epidemic threshold of 1. For scenarios that are plausible for sub-Saharan African populations, we show that increasing the level of concurrency can lead to  $R_0$  crossing the epidemic threshold. This occurs already at low levels of concurrency. Only a slight shift of the network structure from a purely monogamous population to one wherein individuals are allowed to have at most two partners is enough for this to happen. **CONCLUSION:** Concurrency can be a driver of an HIV epidemic in sub-Saharan Africa for low levels of concurrency, although it is not decisive in MSM populations. A small increase in the level of concurrency can lead to  $R_0$  crossing the epidemic threshold in a sub-Saharan African setting.

5. Stahlman, S., et al. (2015). **"Depression and Social Stigma Among MSM in Lesotho: Implications for HIV and Sexually Transmitted Infection Prevention."** AIDS Behav 19(8): 1460-1469.

Social stigma is common among men who have sex with men (MSM) across Sub-Saharan Africa, and may influence risks for HIV and sexually transmitted infections (STIs) via its association with depression. We conducted a cross-sectional study of 530 MSM in Lesotho accrued via respondent-driven sampling. Using generalized structural equation models we examined associations between stigma, social capital, and depression with condom use and testing positive for HIV/STIs. Depression was positively associated with social stigma experienced or perceived as a result of being MSM. In contrast, increasing levels of social cohesion were negatively associated with depression. Social stigma was associated with testing positive for HIV; however, this association did not appear to be mediated by depression or condom use. These data suggest a need for integrated HIV and mental health care that addresses stigma and discrimination and facilitates positive social support for MSM.

6. Ross, A. G., et al. (2015). **"The dire sexual health crisis among MSM in the Philippines: an exploding HIV epidemic in the absence of essential health services."** Int J Infect Dis 37: 6-8.

The rate of HIV is exploding in the men who have sex with men (MSM) population in the Philippines. There is a paucity of information with respect to sexual behaviour, condom use, psychological health, and the prevalence of other STIs in the MSM subpopulation. At present there are no existing private or public clinical services in the country

that focus on health services of MSM. We discuss the current epidemic situation and the steps needed to further define the rapidly evolving epidemic among MSM.

7. Magidson, J. F., et al. (2015). **"Engagement in HIV care and sexual transmission risk behavior among men who have sex with men using online social/sexual networking in Latin America."** *AIDS Care* 27(8): 1055-1062.

HIV/AIDS in Latin America is concentrated among men who have sex with men (MSM). However, accurate estimates of engagement in HIV care in this population can be difficult to ascertain because many do not self-identify as MSM. Given evidence of decreased HIV transmissibility in the context of antiretroviral therapy (ART) adherence, identifying individuals not in care who are engaging in HIV transmission risk behavior is crucial for secondary prevention. Primary aims of this study were to examine engagement in care from testing to ART adherence among MSM using online social/sexual networking across Latin America, and whether individuals not in care at each step reported greater sexual transmission risk behavior than those in care. In the overall sample ( $n = 28,779$ ), approximately 75% reported ever being tested for HIV, and 9% reported having received an HIV diagnosis. Among known HIV-infected individuals, 20% reported not being in care, 30% reported not taking ART, and 55% reported less than 100% ART adherence. Over one-third of HIV-infected individuals reported sexual HIV transmission risk behavior, defined as unprotected anal intercourse (UAI) with a male partner of different/unknown HIV serostatus in the past three months. HIV-infected individuals not engaged in care more often reported UAI compared to those in care ( $OR = 1.29$ ; 95%  $CI = 1.01\text{--}1.66$ ). Although not statistically significant, HIV-infected individuals not on ART more often reported UAI compared to those on ART ( $OR = 1.18$ ; 95%  $CI = 0.94\text{--}1.47$ ). Individuals who reported less than 100% ART adherence more often reported UAI compared to individuals with 100% adherence ( $OR = 1.55$ ; 95%  $CI = 1.26\text{--}1.90$ ). Findings demonstrate that a substantial portion of HIV-infected MSM in Latin America who are likely not virologically suppressed from lack of ART use or adherence report sexual HIV transmission risk. Tailoring secondary HIV prevention for MSM in Latin America who are not in HIV care or adherent to ART may be warranted.

8. Caro-Vega, Y., et al. (2015). **"Estimating the Impact of Earlier ART Initiation and Increased Testing Coverage on HIV Transmission among Men Who Have Sex with Men in Mexico using a Mathematical Model."** *PLoS One* 10(8): e0136534.

Online at:

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0136534&representation=PDF>

**OBJECTIVE:** To estimate the impact of late ART initiation on HIV transmission among men who have sex with men (MSM) in Mexico. **METHODS:** An HIV transmission model was built to estimate the number of infections transmitted by HIV-infected men who have sex with men (MSM-HIV+) MSM-HIV+ in the short and long term. Sexual risk behavior data were estimated from a nationwide study of MSM. CD4+ counts at ART initiation from a representative national cohort were used to estimate time since infection. Number of MSM-HIV+ on treatment and suppressed were estimated from surveillance and government reports. Status quo scenario (SQ), and scenarios of early ART initiation and increased HIV testing were modeled. **RESULTS:** We estimated 14239 new HIV infections per year from MSM-HIV+ in Mexico. In SQ, MSM take an average 7.4 years since infection to initiate treatment with a median CD4+ count of 148 cells/mm<sup>3</sup> (25th-75th percentiles 52-266). In SQ, 68% of MSM-HIV+ are not aware of their HIV status and transmit 78% of new infections. Increasing the CD4+ count at ART initiation to 350 cells/mm<sup>3</sup> shortened the time since infection to 2.8 years. Increasing HIV testing to cover 80% of undiagnosed MSM resulted in a reduction of 70% in new infections in 20 years. Initiating ART at 500 cells/mm<sup>3</sup> and increasing HIV testing the reduction would be of 75% in 20 years. **CONCLUSION:** A substantial number of new HIV infections in Mexico are transmitted by undiagnosed and untreated MSM-HIV+. An aggressive increase in HIV testing coverage and initiating ART at a CD4 count of 500 cells/mm<sup>3</sup> in this population would significantly benefit individuals and decrease the number of new HIV infections in Mexico.

9. Yi, S., et al. (2015). **"Factors Associated with Inconsistent Condom Use among Men Who Have Sex with Men in Cambodia."** *PLoS One* 10(8): e0136114.

Online at:

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0136114&representation=PDF>

**BACKGROUND:** Compared to the general population, men who have sex with men (MSM) are at greater risk for HIV and less understood due to their more hidden and stigmatized nature. Moreover, the discrepancy in findings in the literature merits further investigations in MSM populations from different cultures and settings. We therefore conducted this study to explore factors associated with inconsistent condom use among high-risk MSM in Cambodia. **METHODS:** This cross-sectional study was conducted in 2014 among 367 MSM randomly selected from Battambang

and Siem Reap using a two-stage cluster sampling method. A structured questionnaire was used for face-to-face interviews to collect information on characteristics of respondents, HIV testing history, self-perception of HIV risk, substance use, sexual behaviors, mental disorders, and HIV knowledge. Multivariable logistic regression analysis was performed to identify factors independently associated with inconsistent condom use. RESULTS: On average, 62.3% of respondents reported that they always used condoms over the past three months. The rates varied with types of sexual partners; the proportion of respondents who reported always using condoms was 55.1%, 64.2%, 75.9%, 73.0%, 78.1%, and 70.3%, for sexual partners who were girlfriends, boyfriends, female sex workers, male sex workers, female clients, or male clients, respectively. After adjustment, inconsistent condom use was significantly associated with age of  $\geq 25$  (AOR = 1.77, 95% CI = 1.09-2.86), self-rated quality of life as good or very good (AOR = 4.37, 95% CI = 1.79-5.67), self-perception of higher HIV risk compared to the general population (AOR = 2.37, 95% CI = 1.35-4.17), illicit drug use in the past three months (AOR = 5.76, 95% CI = 1.65-10.09), and reported consistent lubricant use when selling anal sex to men in the past three months (AOR = 2.85, 95% CI = 1.07-8.12). CONCLUSIONS: We found risky sexual behaviors to be considerably high among MSM in this study, especially among those who used illicit drugs or were older than 25. HIV education and social marketing should be expanded and specifically designed for MSM to better educate on the increased risk of HIV with unprotected anal sex and illicit drug use as risk factors, and the importance of the use of both condoms and lubricant during anal intercourse.

10. Brito, A. M., et al. (2015). "Factors Associated with Low Levels of HIV Testing among Men Who Have Sex with Men (MSM) in Brazil." *PLoS One* 10(6): e0130445.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4476690/pdf/pone.0130445.pdf>

The aim of this study was to assess risk factors associated with low levels of HIV testing among MSM recruited through respondent driven sampling (RDS) in Brazil. Of 3,617 participants, 48.4% had never tested previously for HIV. A logistic model indicated that younger age, lower socioeconomic class, education, poor HIV/AIDS knowledge, no history of cruising, and having been tested during the study were characteristics independently associated with low levels of previous HIV testing. The HIV testing rate among MSM in Brazil is still low in spite of the availability of a large number services providing universal and free access to HIV/AIDS diagnosis and treatment. To respond to low utilization, the authors propose a higher priority for testing for key populations such as MSM, expanded education, expanding testing sites and a welcoming and nonjudgmental environment in health services.

11. Yi, S., et al. (2015). "Factors associated with recent HIV testing among high-risk men who have sex with men: a cross-sectional study in Cambodia." *BMC Public Health* 15(1): 743.

Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4522123/pdf/12889\\_2015\\_Article\\_2096.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4522123/pdf/12889_2015_Article_2096.pdf)

BACKGROUND: Despite remarkable success in the fight against HIV, HIV prevalence in many countries remains high among key populations including men who have sex with men (MSM), and HIV testing rates is relatively low among this hard-to-reach population. This cross-sectional study explores factors associated with recent HIV testing among MSM in Cambodia. METHODS: This study was conducted in 2014 and included 384 MSM randomly selected from two provinces of Battambang and Siem Reap, using a two-stage cluster sampling method. A structured questionnaire was used for face-to-face interviews to collect data on socio-demographic characteristics, HIV testing history, sexual behaviors, HIV testing attitudes, and HIV knowledge. Multivariate logistic regression analysis was performed to identify factors independently associated with recent HIV testing. RESULTS: Mean age of the participants was 23.4 (SD = 5.2). Of total, 83.6 % had been tested for HIV at least once in their lifetime, and 65.1 % had been tested for HIV in the past six months. After controlling for other covariates, MSM who had been tested for HIV in the past six months were significantly more likely to regard themselves as female (AOR = 2.29, 95 % CI = 1.06-5.37), have received some form of HIV education in the past six months (AOR = 3.97, 95 % CI = 1.91-8.26), perceive that they were at higher HIV risk compared to the general population (AOR = 2.48, 95 % CI = 1.14-4.86), have been diagnosed with an STI in the past six months (AOR = 3.19, 95 % CI = 1.02-9.24), report using a condom at last sexual intercourse with a man or woman (AOR = 2.24, 95 % CI = 1.06-3.13), and report using a condom at last sexual intercourse with a boyfriend (AOR = 2.17, 95 % CI = 1.04-5.31). CONCLUSIONS: This study highlights the common practices of risky sexual behaviors and relatively low rate of recent HIV testing among MSM in Cambodia. HIV education and social marketing should be expanded and tailored for MSM, specifically addressing the risk of unprotected anal intercourse and the importance of regular HIV testing for early enrolment in the care and treatment cascade.

12. Menacho, L. A., et al. (2015). "Feasibility of Recruiting Peer Educators to Promote HIV Testing Using Facebook Among Men Who have Sex with Men in Peru." *AIDS Behav* 19 Suppl 2: 123-129.

A peer leader-based intervention using social media can be an effective means to encourage Peruvian gay men to test for HIV. The objective was to explore the feasibility of recruiting and training leaders to deliver a peer intervention via Facebook to promote HIV testing. Training consisted of three sessions focused on HIV epidemiology, consequences of stigma associated with HIV, and ways to use Facebook. We performed pre- and post-training evaluations to assess HIV knowledge and comfort using Facebook. We trained 34 peer leaders. At baseline, the majority of peer leaders were already qualified and knowledgeable about HIV prevention and use of social media. We found a significant increase in proportion of peer leaders who were comfortable using social media to discuss about sexual partners and about STIs. It is feasible to recruit peer leaders who are qualified to conduct a social media based HIV prevention intervention in Peru.

13. Rubio Mendoza, M. L., et al. (2015). **"High HIV Burden in Men Who Have Sex with Men across Colombia's Largest Cities: Findings from an Integrated Biological and Behavioral Surveillance Study."** *PLoS One* 10(8): e0131040. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4529092/pdf/pone.0131040.pdf>

**BACKGROUND:** Among Latin America's concentrated HIV epidemics, little is known about men who have sex with men (MSM) in Colombia, the region's third largest country. To date, surveillance studies have been limited to Bogota, while 80% of HIV cases and deaths originate from Colombia's other cities and departments. The extent to which interventions should prioritize MSM outside of Bogota is unknown. **METHODS:** We recruited 2603 MSM using respondent-driven sampling from seven of Colombia's largest cities. HIV prevalence was estimated by site from dried blood spot samples. Behavioral data were collected through face-to-face interviews and risk factors for HIV infection analyzed using weighted, multi-level logistical regression models accounting for recruitment patterns. **RESULTS:** Across cities, HIV prevalence averaged 15%, varied from 6% to 24% and was highest in Cali, Bogota, and Barranquilla. In the past 12 months, 65% of MSM had  $\geq 5$  casual male partners and 23% had a female partner. Across partnerships (i.e., casual, stable, and commercial), the proportion of MSM engaging in unprotected sex was  $\geq 52\%$  with male partners and  $\geq 66\%$  with female partners. Self-reported history of STI (24%) and past-year illicit drug use (38%) were also common. In multivariate analysis, age  $\geq 35$  (adjusted odds ratio [AOR], 19.2) and 25-39 (AOR, 5.6) relative to  $< 18$ -24 years, identifying as homosexual relative to heterosexual (AOR 0.1), meeting casual partners on the Internet (adjusted odds ratio [AOR], 3.1) and age of sexual debut of  $< 13$  years (AOR, 3.1) predicted HIV infection. HIV testing and prevention messaging reached just 24% of MSM in the past year. **CONCLUSIONS:** Findings support consistently elevated HIV burden among MSM throughout Colombia's largest cities and a need for enhanced behavioral prevention and HIV testing, emphasizing men who use the Internet as well as physical venues to meet sex partners.

14. Mimiaga, M. J., et al. (2015). **"High Prevalence of Multiple Syndemic Conditions Associated with Sexual Risk Behavior and HIV Infection Among a Large Sample of Spanish- and Portuguese-Speaking Men Who Have Sex with Men in Latin America."** *Arch Sex Behav*.

The HIV epidemic in Latin America is highly concentrated in men who have sex with men (MSM). In the United States, multiple co-occurring psychosocial conditions have been shown to act as intertwined epidemics to potentiate HIV transmission among MSM. To date, no study has examined the role of syndemics and condomless sex among MSM in Latin America. In 2012, an online survey was conducted among members of the largest social/sexual networking website for MSM in Latin America. Participants were asked about demographics, sexual behaviors, HIV/STI diagnoses, and psychosocial well-being, including depression, suicidal ideation, hazardous alcohol use, hard drug use during sex, history of childhood/adolescent sexual abuse, intimate partner violence, and sexual compulsivity. Multivariable logistic generalized estimation equations were used to assess the relationship of syndemic factors and (1) engagement in higher risk condomless anal sex and (2) self-report of prior HIV diagnosis. Among 24,274 survey respondents, 74.6 % of the sample had at least one syndemic factor. In an additive model, syndemics were associated with increased odds of higher risk condomless anal sex, ranging from adjusted odds ratio of 1.31 (95 % CI 1.20, 1.43) for one syndemic factor to 4.06 (95 % CI 3.25, 5.09) for 6/7 syndemic factors. Similarly, syndemics were associated with increased odds of HIV infection ( $p < .0001$ ). This study provides initial evidence that intertwined syndemics increase HIV risk behavior and HIV infection among MSM in Latin America. In the Latin American context, comprehensive HIV prevention interventions for MSM should be developed and tested that simultaneously address co-occurring psychosocial conditions and HIV risk.

15. Castillo, R., et al. (2015). **"HIV and Sexually Transmitted Infection Incidence and Associated Risk Factors Among High-Risk MSM and Male-to-Female Transgender Women in Lima, Peru."** *JAIDS Journal of Acquired Immune Deficiency Syndromes* 69(5): 567-575.

Background: Men who have sex with men (MSM) and male-to-female transgender women (TW) are at increased risk of HIV and sexually transmitted infections (STIs). We evaluated factors associated with incidence of HIV, HSV-2, and chlamydia and gonorrhea (anal and pharyngeal). Methods: We used data from the Comunidades Positivas trial with MSM/TW who have sex with men in Lima, Peru. Participants were asked about sexual risk behaviors and underwent HIV/STI testing at baseline and 9- and 18-month follow-ups. We used discrete time proportional hazards regression to calculate hazard ratios for variables associated with incidence of each STI. Results: Among 718 MSM/TW, HIV incidence was 3.6 cases per 100 person-years. HIV incidence was associated with having an incident STI adjusted hazard ratio (aHR) of 3.73. Unprotected receptive anal intercourse was associated with incident anal chlamydia (aHR 2.20). An increased number of sexual partners increased incident HSV-2 (aHR 3.15 for 6–14 partners and 3.97 for 15–46 partners compared with 0–2 partners). The risk of anal gonorrhea decreased with each sexually active year (aHR 0.94) and increased for unprotected compensated sex (aHR 2.36). The risk of pharyngeal gonorrhea also decreased with each year since sexual debut (aHR 0.95). The risk of anal chlamydia decreased with each sexually active year (aHR 0.96); the risk increased with reports of unprotected sex work (aHR 1.61) and unprotected receptive anal sex (aHR 2.63). All aHRs have P values <0.05. Conclusions: MSM/TW experience high incidence of HIV. Up-to-date prevalence and incidence information and identifying factors associated with infection can help develop a more effective combination prevention response.

16. Jia, Z., et al. (2015). "HIV burden in men who have sex with men: a prospective cohort study 2007-2012." *Sci Rep* 5: 11205.

We conducted a prospective cohort study among HIV-negative MSM aged 18 years or older between 2007 and 2012 in Beijing, China to measure the rates of incident HIV and identify risk factors for infection. Among 5,800 participants evaluated at enrollment, we identified 486 prevalent cases of HIV (8.4%). Among the 3,625 enrollees who were HIV-negative at enrollment and completed at least one follow-up interview, we identified 440 incident cases of HIV in the follow up period: this constituted an HIV incidence rate of 7.1 per 100 person-years (95% CI: 6.4-7.7). Early treatment of syphilis may have significantly reduced risk of HIV infection (RR: 1.45, 95% CI: 1.11-1.93), while MSM presenting perfect compliance in the cohort did not show reduction in HIV infection. Our study suggested that HIV incidence has been remained high in this sample of Chinese MSM during the intensive preventive intervention, suggesting that we need to find new strategies to prevent HIV infection in this population.

17. Mehta, S. H., et al. (2015). "HIV Care Continuum among men who have sex with men and people who inject drugs in India: Barriers to successful engagement." *Clin Infect Dis*.

BACKGROUND: We characterize the HIV care continuum for men who have sex with men (MSM) and people who inject drugs (PWID) across India. METHODS: We recruited 12,022 MSM and 14,481 PWID across 26 Indian cities using respondent-driven sampling (9/2012-12/2013). Participants were  $\geq 18$  years and either 1) self-identified as male and reported sex with a man in the prior year (MSM); or 2) reported injection drug use in the prior 2 years (PWID). Correlates of awareness of HIV positive status were characterized using multi-level logistic regression. RESULTS: 1,146 MSM were HIV-infected of whom a median 30% were aware of their HIV positive status, 23% were linked to care, 22% were retained pre-ART, 16% initiated ART, 16% were currently on ART, and 10% had suppressed VL. There was site variability (awareness range: 0-90%; suppressed VL range: 0-58%). 2,906 PWID were HIV-infected of whom a median 41% were aware, 36% linked to care, 31% were retained pre-ART, 20% initiated ART, 18% were currently on ART, and 15% had suppressed VL. Similar site variability was observed (awareness range: 2-93%; suppressed VL range: 0-47%). Factors significantly associated with awareness were region, older age, being married (MSM) or female (PWID), other service utilization (PWID), more lifetime sexual partners (MSM) and needle sharing (PWID). Ongoing injection drug use (PWID) and alcohol (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.

18. Wirtz, A. L., et al. (2015). "The HIV care continuum among men who have sex with men in Moscow, Russia: a cross-sectional study of infection awareness and engagement in care."

OBJECTIVES: Early diagnosis and treatment of HIV infection is critical to improving clinical outcomes for HIV-infected individuals. We sought to characterise the HIV care continuum and identify correlates of being unaware of one's HIV infection among men who have sex with men (MSM) in Moscow, Russia. METHODS: Participants (N=1376) were recruited via respondent-driven sampling and completed a sociobehavioural survey and HIV testing from 2010 to 2013. Sample and population estimates were calculated for key steps along the HIV care continuum for HIV-infected MSM and logistic regression methods were used to examine correlates of being unaware of one's HIV infection.



RESULTS: 15.6% (184/1177; population estimate: 11.6%; 95% CI 8.5% to 14.7%) of participants were HIV infected. Of these, only 23.4% (43/184; population estimate: 13.2; 95% CI 11.0 to 15.4) were previously aware of their infection, 8.7% (16/184 population estimate: 4.7; 95% CI 1.0 to 8.5) were on antiretroviral therapy (ART), and 4.4% (8/164; population estimate: 3.0; 95% CI 0.3 to 5.6) reported an undetectable viral load. Bisexual identity (reference: homosexual; adjusted odds ratio (AOR): 3.69; 95% CI 1.19 to 11.43), having  $\geq 5$  sexual partners in the last 6 months (reference:  $\leq 1$ ; AOR: 4.23; 95% CI 1.17 to 15.28), and employer HIV testing requirements (reference: no; AOR: 15.43; 95% CI 1.62 to 147.01) were associated with being unaware of one's HIV infection. HIV testing in a specialised facility (reference: private; AOR: 0.06; 95% CI 0.01 to 0.53) and testing  $\geq 2$  times in the last 12 months (reference: none; AOR: 0.17; 95% CI 0.04 to 0.73) were inversely associated with being unaware of HIV infection. CONCLUSIONS: There is a steep gradient along the HIV care continuum for Moscow-based MSM beginning with low awareness of HIV infection. Efforts that improve access to acceptable HIV testing strategies, such as alternative testing facilities, and linkage to care are needed for key populations.

19. Collins-Fairclough, A. M., et al. (2015). "HIV Drug Resistance Surveillance Among Jamaican Men Who Have Sex with Men Should Be Prioritized for Reducing HIV Transmission." *AIDS Res Hum Retroviruses* 31(8): 841-844.

The prevalence of human immunodeficiency virus type 1 (HIV-1) is highest among men who have sex with men (MSM) in Jamaica but no genotypic data are available on the virus strains that are responsible for the epidemic among this key population. HIV-1 polymerase (pol) genes from 65 MSM were sequenced and used to predict drug resistance mutations. An HIV drug resistance prevalence of 28% (minimum 13%) was observed among this cohort, with the most frequent mutations conferring resistance to efavirenz, nevirapine, and lamivudine. Phylogenetic analysis of the sequences revealed 10 times the number of linked HIV infections among this cohort than respondent reporting. HIV treatment and prevention efforts in Jamaica could benefit significantly from Pol genotyping of the HIV strains infecting socially vulnerable MSM prior to initiating antiretroviral therapy (ART), as this would guide suppressive ART and unearth HIV transmission clusters to enable more effective delivery of treatment and prevention programs.

20. Colby, D., et al. (2015). "HIV pre-exposure prophylaxis and health and community systems in the Global South: Thailand case study." *J Int AIDS Soc* 18(4 Suppl 3): 19953.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4509899/pdf/JIAS-18-19953.pdf>

INTRODUCTION: Pre-exposure prophylaxis (PrEP) is recommended by the World Health Organization as an effective method of HIV prevention for individuals at risk for infection. In this paper, we describe the unique role that Thailand has played in the global effort to combat the HIV epidemic, including its role in proving the efficacy of PrEP, and discuss the opportunities and challenges of implementing PrEP in a middle-income country. DISCUSSION: Thailand was one of the first countries in the world to successfully reverse a generalized HIV epidemic. Despite this early success, HIV prevalence has remained high among people who inject drugs and has surged among men who have sex with men (MSM) and transgender women (TGW). Two pivotal trials that showed that the use of oral antiretroviral medication as PrEP can reduce HIV transmission were conducted partially or entirely at Thai sites. Demonstration projects of PrEP, as well as clinical trials of alternative PrEP regimens, began or will begin in 2014-2015 in Thailand and will provide additional data and experience on how to best implement PrEP for high-risk individuals in the community. Financing of drug costs, the need for routine laboratory monitoring and lack of awareness about PrEP among at-risk groups all present challenges to the wider implementation of PrEP for HIV prevention in Thailand. CONCLUSIONS: Although significant challenges to wider use remain, PrEP holds promise as a safe and highly effective method to be used as part of a combined HIV prevention strategy for MSM and TGW in Thailand.

21. Schwartz, S. R., et al. (2015). "The immediate effect of the Same-Sex Marriage Prohibition Act on stigma, discrimination, and engagement on HIV prevention and treatment services in men who have sex with men in Nigeria: analysis of prospective data from the TRUST cohort." *Lancet HIV* 2(7): e299-e306.

In January, 2014, the Same-Sex Marriage Prohibition Act was signed into law in Nigeria, further criminalising same-sex sexual relationships. We aimed to assess the immediate effect of this prohibition act on stigma, discrimination, and engagement in HIV prevention and treatment services in men who have sex with men (MSM) in Nigeria. Methods The TRUST cohort study uses respondent-driven sampling to assess the feasibility and effectiveness of engagement of MSM in HIV prevention and treatment services at a clinical site located with a community-based organisation trusted by the MSM community. TRUST is a prospective implementation research cohort of MSM ( $\geq 16$  years) in Abuja, Nigeria. We compared HIV clinical outcomes and stigma, including fear and avoidance of health care, across baseline and quarterly visits before and after implementation of the the Same-Sex Marriage Prohibition Act. Outcomes

assessed were measures of stigma and discrimination, loss to follow-up, antiretroviral therapy status, and viral load. We compared outcomes before and after the legislation with  $\chi^2$  statistics, and estimated incident stigma-related events and loss to follow-up with Poisson regression. Findings Between March 19, 2013, and Aug 7, 2014, 707 MSM participated in baseline study procedures, contributing to 756 before legislation (prelaw) and 420 after legislation (postlaw) visits. Reported history of fear of seeking health care was significantly higher in postlaw visits than in prelaw visits ( $n=161$  [38%] vs  $n=187$  [25%];  $p<0.0001$ ), as was avoidance of health care ( $n=118$  [28%] vs  $n=151$  [20%];  $p=0.001$ ). In incidence analyses, of 192 MSM with follow-up data and no history of an event at baseline, reported fear of seeking health care was higher in the postlaw than the prelaw period ( $n=144$ ; incidence rate ratio 2.57, 95% CI 1.29–5.10;  $p=0.007$ ); loss to follow-up and incident health-care avoidance were similar across periods. Of the 161 (89%) of 181 HIV-infected MSM with HIV viral loads available, those who had disclosed sexual behaviour with a health-care provider were more often virally suppressed at baseline than those with no previous disclosure (18 [29%] of 62 vs 13 [13%] of 99 men;  $p=0.013$ ). Interpretation These analyses represent individual-level, quantitative, real-time prospective data for the health-related effects resulting from the enactment of legislation further criminalising same-sex practices. The negative effects of HIV treatment and care in MSM reinforce the unintended consequences of such legislation on global goals of HIV eradication. Strategies to reach MSM less likely to engage in HIV testing and care in highly stigmatised environments are needed to reduce time to HIV diagnosis and treatment. Funding National Institutes of Health.

22. Wong, N. S., et al. (2015). **"Incorporation of Estimated Community Viral Load Before HIV Diagnosis for Enhancing Epidemiologic Investigations: A Comparison Between Men Who Have Sex With Men and Heterosexual Men in Hong Kong."** *Asia Pac J Public Health*.

Currently, no studies have specifically incorporated population-level viral load measures for analyzing temporal trends of HIV infection in the Asia Pacific. With the use of longitudinal data from 950 HIV-infected heterosexual male and 1331 men who have sex with men managed at a major HIV clinic in Hong Kong between 1985 and 2012, viral load changes at population levels were compared. We back-calculated seroconversion year of each diagnosed patient and estimated the population-level viral load under the framework recommended by the Centers for Disease Control and Prevention. Full community viral load, a newly designed measure incorporating diagnosed and undiagnosed HIV-infected patients, was 3 to 8 times higher than community viral load derived from diagnosed patients only. The growth curve of full community viral load was 5 years ahead of other viral load measures, the shape of which lent support to the phenomenon of local transmission of men who have sex with men but not among heterosexual male in the predominantly Chinese HIV community in Hong Kong.

23. Cange, C. W., et al. (2015). **"Influence of stigma and homophobia on mental health and on the uptake of HIV/sexually transmissible infection services for Cameroonian men who have sex with men."** *Sex Health*.

Background: Men who have sex with men (MSM) in Cameroon consistently face significant stigma and discrimination. The urban HIV prevalence in MSM is estimated at 35%. This study investigates the effect of stigma, discrimination and alienation on Cameroonian MSM's engagement of the HIV treatment cascade. Methods: Qualitative interviews were semi-structured using a guide. Participants in Douala, Ngaoundere, Bamenda, Bertoua and Yaounde were asked to describe the MSM social and structural context, MSM knowledge of existing HIV-related services in public and MSM-focussed non-governmental organisation (NGO) clinics. Using a codebook, coded text was extracted from 40 transcripts with Microsoft Word Macros. These texts were analysed for recurring themes that were developed into results. Results: There were three main themes that emerged. First, among those MSM participants seeking HIV services, many commonly reported experiences of discrimination and physical violence outside the healthcare setting. Second, a few respondents used services provided by the Ministry of Health and local NGOs. However, most participants observed limited clinical and cultural competency of public clinic staff. Third, MSM declared that lack of social support and healthcare access caused them much stress. Several individuals recounted their alienation greatly discouraged them from seeking HIV prevention, treatment and care services. Conclusions: Community-level and public healthcare-related stigma impacts the mental wellbeing of Cameroonian MSM. Alienation among MSM also represents a common obstacle to the uptake of MSM-oriented HIV/AIDS services. Improving provider cultural and clinical competency among Cameroonian health care workers combined with a broader stigma-reduction intervention for Cameroonian healthcare may increase the uptake of HIV prevention, treatment and care among MSM.

24. Davis, A., et al. (2015). **"Intimate Partner Violence and Correlates With Risk Behaviors and HIV/STI Diagnoses Among Men Who Have Sex With Men and Men Who Have Sex With Men and Women in China: A Hidden Epidemic."** *Sex Transm Dis* 42(7): 387-392.

**BACKGROUND:** Intimate partner violence (IPV) research has primarily focused on heterosexual couples but has largely ignored IPV among men who have sex with men (MSM). We examined IPV prevalence among MSM and men who have sex with men and women (MSMW) in China. **METHODS:** Men who have sex with men older than 16 years were recruited through 3 MSM-focused Web sites in China. An online survey containing items on sociodemographics, risk behaviors, IPV, and self-reported HIV or sexually transmitted infection diagnosis was completed. Multivariate regression was used to examine associations between IPV and risk behaviors and an HIV or sexually transmitted infection diagnosis. **RESULTS:** Among 610 participants, 182 (29.8%) reported experiencing at least 1 type of IPV. Men who have sex with both men and women were at significantly greater risk for IPV (adjusted odds ratio [AOR], 1.65; 95% confidence interval [CI], 1.08-2.53) compared with MSM. Men who had experienced IPV were more likely to have participated in group sex (AOR, 1.86; 95% CI, 1.08-3.21), to have had sex in exchange for gifts or money (AOR, 5.06; 95% CI, 2.47-10.35), and to report a positive HIV diagnosis (AOR, 2.59; 95% CI, 1.22-5.51). **CONCLUSIONS:** There is a hidden epidemic of IPV among MSM in China, especially among MSMW. The hidden nature of MSM and MSMW suggests the need for a clinical environment more conducive to disclosure. Research is needed to understand the pathways linking IPV and HIV risk among MSM to optimize the design of effective interventions.

25. Bowring, A. L., et al. (2015). **"It goes both ways: a cross-sectional study of buying and selling sex among young behaviourally bisexual men in Vientiane, Laos."** Sex Health.

**Background:** Transactional sex may increase risk of HIV and sexually transmissible infections (STIs). In Laos, men who have sex with men are disproportionately affected by HIV, and bisexual behaviour among men is relatively common. The occurrence of transactional sex among behaviourally bisexual men in Vientiane, Laos was explored. **Methods:** In 2010, behaviourally bisexual men were recruited through enhanced snowball sampling to complete a behavioural survey. Reports of transactional sex partners (anal/vaginal sex) in the previous year, by direction of payment and partner gender, is described. **Results:** Of 88 participating behaviourally bisexual men (median age 22 years), 17 (19%) reported only selling sex, eight (9%) reported only paying for sex and nine (10%) reported both selling and paying for sex. Men reporting any transactional sex reported a median of four transactional sex partners and reported a higher number of total sex partners in the previous 12 months (median: 18.5 partners) than men reporting no transactional sex partners (median: 6 partners). Of 26 men who reported selling sex, 15 (58%) were paid by females, 15 (58%) were paid by males and 14 (55%) were paid by transgender sex partner(s); 11 (42%) reported consistent condom use (CCU) when selling sex. Of 17 men who reported paying for sex, 13 (76%) paid females, six (35%) paid males and two (12%) paid transgender partner(s); eight (47%) reported CCU when paying for sex. **Conclusions:** Young behaviourally bisexual men engaging in transactional sex may be at increased risk of HIV and STIs. Prevention interventions should consider the transient and informal nature of transactional sex in this population.

26. Aggleton, P. and R. Parker (2015). **"Moving Beyond Biomedicalization in the HIV Response: Implications for Community Involvement and Community Leadership Among Men Who Have Sex with Men and Transgender People."** Am J Public Health 105(8): 1552-1558.

As the world enjoys the promise of biomedical advances against HIV, numerous challenges remain. Some of these are connected to politics, others are connected to resource constraints. Other barriers are linked to the need to ensure that the concepts used to think about HIV remain current. Terms such as "MSM" (men who have sex with men) and "community" require critical interrogation at a moment when their political origins seem forgotten. Likewise, struggles between groups most affected by HIV and scientists and policymakers (an enduring feature of the epidemic) remain a key aspect of the response. The dangers of co-option and distraction remain real. In this context, it is vital to promote community ownership, political commitment, solidarity, and respect for differences, not as competing values, but as part of the ultimate solution to HIV.

27. Seale, A. (2015). **"Nigeria, MSM, and the law: from evidence to strategy."** Lancet HIV 2(7): e267-e268.

28. Liu, Y., et al. (2015). **"Qualitative Assessment of Barriers and Facilitators of Access to HIV Testing Among Men Who Have Sex with Men in China."** AIDS Patient Care STDS 29(9): 481-489.

Diagnosis of HIV is the entry point into the continuum of HIV care; a well-recognized necessary condition for the ultimate prevention of onward transmission. In China, HIV testing rates among men who have sex with men (MSM) are low compared to other high risk subgroups, yet experiences with HIV testing among MSM in China are not well understood. To address this gap and prepare for intervention development to promote HIV testing and rapid linkage to treatment, six focus groups (FGs) were conducted with MSM in Beijing (40 HIV-positive MSM participated in one of four FGs and 20 HIV-negative or status unknown MSM participated in one of two FGs). Major themes reported as

challenges to HIV testing included stigma and discrimination related to HIV and homosexuality, limited HIV knowledge, inconvenient clinic times, not knowing where to get a free test, fear of positive diagnosis or nosocomial infection, perceived low service quality, and concerns/doubts about HIV services. Key facilitators included compensation, peer support, professionalism, comfortable testing locations, rapid testing, referral and support after diagnosis, heightened sense of risk through engagement in high-risk behaviors, sense of responsibility to protect self, family and partner support, and publicity via social media. Themes and recommendations were generally consistent across HIV-positive and negative/status unknown groups, although examples of enacted stigma were more prevalent in the HIV-positive groups. Findings from our study provide policy suggestions for how to bolster current HIV prevention intervention efforts to enhance 'test-and-treat' strategies for Chinese MSM.

29. Davis, A., et al. (2015). **"Risk behaviours, HIV/STI testing and HIV/STI prevalence between men who have sex with men and men who have sex with both men and women in China."** *Int J STD AIDS*.

**BACKGROUND:** Differences in risk behaviours between men who have sex with men and men who have sex with both men and women have important implications for HIV and STI transmission. We examined differences in risk behaviours, HIV/STI testing, self-reported HIV/STI diagnoses, and linkage to HIV care between men who have sex with men and men who have sex with both men and women across China. **METHODS:** Participants were recruited through three men who have sex with men-focused websites in China. An online survey containing items on socio-demographics, risk behaviours, testing history, self-reported HIV/STI diagnosis, and linkage to and retention in HIV care was completed from September to October 2014. Chi square tests and logistic regression analyses were conducted. **RESULTS:** Men who have sex with both men and women were less likely to use a condom during last anal sex ( $p \leq 0.01$ ) and more likely to engage in group sex ( $p \leq 0.01$ ) and transactional sex ( $p \leq 0.01$ ) compared to men who have sex with men. Self-reported HIV/STI testing and positivity rates between men who have sex with men and men who have sex with both men and women were similar. Among HIV-infected men who have sex with men, there was no difference in rates of linkage to or retention in antiretroviral therapy when comparing men who have sex with men and men who have sex with both men and women. **CONCLUSIONS:** Chinese men who have sex with men and men who have sex with both men and women may benefit from different HIV and STI intervention and prevention strategies. Achieving a successful decrease in HIV/STI epidemics among Chinese men who have sex with men and men who have sex with both men and women will depend on the ability of targeted and culturally congruent HIV/STI control programmes to facilitate a reduction in risk behaviours.

30. Rangsri, R., et al. (2015). **"Risk Factors for HIV Infection among Young Thai Men during 2005-2009."** *PLoS One* 10(8): e0136555.  
Online at:  
<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0136555&representation=PDF>

**BACKGROUND:** Thailand is one of several countries with a continuing generalized HIV epidemic. We evaluated the risk factors for HIV prevalence among 17-29 year old men conscripted by a random process into the Royal Thai Army (RTA) in 8 cohorts from 2005-2009. **METHODS:** A series of case-cohort studies were conducted among the male RTA conscripts who had been tested for HIV seroprevalence after they were inducted. Men who were HIV positive were compared with a systematic random sample (1 in 30-40) of men from the total population of new conscripts. Each subject completed a detailed risk factor questionnaire. **RESULTS:** A total of 240,039 young Thai men were conscripted into the RTA and were screened for HIV seroprevalence between November 2005 and May 2009. Of 1,208 (0.5%) HIV positive cases, 584 (48.3%) men were enrolled into the study. There were 7,396 men who were enrolled as a comparison group. Among conscripts who had an education lower than a college-level, the independent risk factors for HIV infection were age in years (AOR 1.38, 95% CI 1.28-1.48), a history of sex with another man (AOR 3.73, 95% CI 2.70-5.13), HCV infection (AOR 3.89, 95% CI 2.56-5.90), and a history of sex with a female sex worker (FSW) (AOR 1.35, 95% CI 1.10-1.66). Among conscripts who had a college degree, the independent risk factor for HIV infection was a history of sex with another man (AOR 23.04, 95% CI 10.23-51.90). Numbers of sexual partners increased and the age at first sex, as well as the use of condoms for sex with a FSW decreased in successive cohorts. **CONCLUSION:** The HIV seroprevalence among cohorts of 17-29 years old men has remained at about 0.5% overall during 2005-2009. The most significant behavior associated with HIV prevalence was a history of sex with another man. Our data indicate continuing acquisition of HIV among young men in Thailand in recent years, especially among men with a history of same sex behavior.

31. Dukhovlinova, E., et al. (2015). **"Two Independent HIV Epidemics in Saint Petersburg, Russia Revealed by Molecular Epidemiology."** *AIDS Res Hum Retroviruses* 31(6): 608-614.

The HIV epidemic in Russia, one of the world's fastest growing, has been concentrated mostly among people who inject drugs (PWID). We sought to explore the epidemiology of the epidemic in St. Petersburg by sampling from the highest risk groups of PWID and men who have sex with men (MSM) and use viral sequencing data to better understand the nature of the city's epidemic. Serological testing confirmed an HIV prevalence among PWID in excess of 40%. All but 1 of 110 PWID whose blood samples were tested for genetic diversity were infected by subtype A virus, specifically by the AFSU strain. The remaining person was infected with a CRF-06cpx recombinant. Analysis of pairwise genetic distance among all PWID studied revealed an average of 3.1% sequence divergence, suggesting clonal introduction of the AFSU strain and/or constraints on sequence divergence. The HIV prevalence was less than 10% among MSM. All 17 sequences from HIV-infected MSM were found to be a clade B virus with a much higher average sequence diversity of 15.7%. These findings suggest two independent epidemics with little overlap between the two highest at-risk populations, which will require different HIV prevention approaches.

32. Vagenas, P., et al. (2015). **"Validation of the 'drinking expectancy questionnaire for men who have sex with men' in Peru."** *Drug Alcohol Rev.*

**INTRODUCTION AND AIMS:** Alcohol use disorders are highly prevalent among men who have sex with men (MSM) in Peru, where the HIV epidemic is concentrated 100-fold greater among MSM than in the general population. Drinking expectancies have been associated with the intent to drink and engage in high-risk behaviours. Assessing them in this population may uncover attractive intervention targets that in turn can be used to reduce problematic drinking and risky sexual behaviours. The drinking expectancy questionnaire for MSM (DEQ-MSM) was developed to accurately measure drinking expectancies, specifically among MSM. This study aimed to validate this instrument for the first time in Spanish, in South America and among MSM in Peru. **DESIGN AND METHODS:** To validate the DEQ-MSM among Spanish-speaking MSM in Peru, we used exploratory and confirmatory factor analysis in a sample of 5148 MSM, including 700 transgender women (TGW). **RESULTS:** Exploratory factor analysis showed a two-factor structure to the Spanish version of the DEQ-MSM (DEQ-MSM-S), which was similar for MSM and TGW. The reliability of the translated DEQ-MSM was excellent ( $\alpha = 0.91$ ). **DISCUSSION AND CONCLUSIONS:** The DEQ-MSM-S was shown to be highly reliable in a large population of Peruvian MSM and TGW. This short instrument can be effectively integrated into research or clinical practice, in order to identify alcohol-consuming, high-risk MSM, who can then be directed for further screening and/or intervention. Future research should aim to associate the Spanish version of the DEQ-MSM with risky sexual behaviours among this population, in order to identify potential intervention targets. [Vagenas P, Wickersham JA, Calabrese SK, Lama JR, Benites CM, Pun M, Sanchez J, Altice FL. Validation of the 'drinking expectancy questionnaire for men who have sex with men' in Peru. *Drug Alcohol Rev* 2015].

33. Satyanarayan, S., et al. (2015). **"Women Connected to at Risk Indian Men Who Have Sex with Men: An Unexplored Network."** *AIDS Behav* 19(6): 1031-1036.

Little is known about the women connected to Indian MSM and their impact on HIV risk. We surveyed 240 Indian MSM, who identified their social networks ( $n = 7,092$ ). Women ( $n = 1,321$ ) comprised 16.7 % of the network, with 94.7 % representing non-sexual connections. MSM were classified as having low, moderate, or high female network proportion. MSM with moderate female network proportion (8-24 % total network) had significantly lowered odds of HIV seropositivity (AOR = 0.24, 95 % CI = 0.1-0.6). This suggests moderate proportions of female connections could mediate HIV risk. HIV prevention interventions in India could consider the greater involvement of women among their target audiences

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## Sex Workers - 40

1. Wang, J., et al. (2015). **"Analysis of HIV Correlated Factors in Chinese and Vietnamese Female Sex Workers in Hekou, Yunnan Province, a Chinese Border Region."** *PLoS One* 10(6): e0129430.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4459989/pdf/pone.0129430.pdf>

**OBJECTIVES:** To assess the prevalence and correlated factors of HIV-1 among Chinese and Vietnamese female sex workers (FSW) in the border county of Hekou, Yunnan province, China. **METHODS:** A cross-sectional survey was conducted collecting information on demographics, sexual behavior, medical history, and drug use. Blood samples were obtained to test for HIV/STIs. Multivariate logistic regression model was used to examine associations between

factors and HIV-1 infection. RESULTS: Of 345 FSWs who participated in this study, 112 (32.5%) were Chinese and 233 (67.5) were Vietnamese. Vietnamese FSWs were significantly more likely to be HIV-1 positive (7.7%) compared with Chinese FSWs (0.9%) ( $p = 0.009$ ). In multivariate analysis, sexual debut at age  $\leq 16$  (OR 3.8; 95% CI: 1.4, 10.6), last client's payment  $<150$  RMB (\$22 USD) (OR: 5.2, 95% CI: 1.7, 16.6), and HSV-2 (OR: 12.3; 95% CI: 1.6, 94.8) were significant for HIV-1 infection. CONCLUSIONS: Differences in HIV prevalence in Vietnamese and Chinese FSWs may be indicative of differential risk. It is important to characterize the nature of trans-border transmission in order to gain a better understanding of the potential impact on the international HIV epidemic. Understanding the correlated factors for HIV in Vietnamese and Chinese FSWs is important for designing interventions for this vulnerable population.

2. Girchenko, P., et al. (2015). "Association between Pregnancy and Active Injection Drug Use and Sex Work among Women Injection Drug Users in Saint Petersburg, Russia." *J Urban Health* 92(3): 548-558.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456481/pdf/11524\\_2015\\_Article\\_9954.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456481/pdf/11524_2015_Article_9954.pdf)

Widespread use of unsafe sexual practices among women injecting drugs both practicing and not practicing sex work leads to high levels of unplanned pregnancies in this population. The goal of this study was to investigate the association between pregnancy and active drug use and sex work. Data were collected using a convenience sample of 500 women in Saint Petersburg, Russia, in 2013. All women had recent experience of drug use, of which 200 were pregnant at the time of the study. The study consisted of a structured interview followed by a rapid HIV test. Pregnancy was protective against both active drug use and sex work. For HIV-positive women, these associations were stronger than for HIV-negative women: drug use prevalence ratio (PR) was 0.59 vs 0.85; for sex work, the PRs were 0.36 vs 0.64. Higher levels of education were associated with a lower prevalence ratio for active drug use and sex work in all models. Having children was not associated with active drug use or sex work. Pregnancy might be an optimal time for conducting interventions aimed at cessation of drug use and sex work among women injecting drugs.

3. Ameyan, W., et al. (2015). "Attracting female sex workers to HIV testing and counselling in Ethiopia: a qualitative study with sex workers in Addis Ababa." *Afr J AIDS Res* 14(2): 137-144.

Despite growing efforts to increase HIV testing and counselling (HTC) services for most at risk populations in Ethiopia, the use of these services by female sex workers (FSWs) remains low. With rising numbers of FSWs in Addis Ketema and concerns about their high risk behaviours, exploring and addressing the barriers to uptake is crucial. This qualitative study explores the barriers to utilising HTC facilities and identifies the motives and motivations of FSWs who seek HTC through in-depth and semi-structured interviews with female sex workers, healthcare workers and key informants. Results indicate that FSWs face numerous barriers including inability to seek treatment if found to be positive due to the requirement of an identity (ID) card many do not own. Many FSWs reported discriminatory behaviour from healthcare workers and a lack of dedicated services. What is clear from the findings is that distinct strategies, which differ from those of the broader population, are required to attract FSWs - strategies which take into account the barriers and maximise the reported motives and motivations for testing.

4. Francis, S. C., et al. (2015). "Bacterial vaginosis among women at high risk for HIV in Uganda: high rate of recurrent diagnosis despite treatment." *Sex Transm Infect.*

OBJECTIVES: Bacterial vaginosis (BV) is associated with increased risk for sexually transmitted infections (STIs) and HIV acquisition. This study describes the epidemiology of BV in a cohort of women at high risk for STI/HIV in Uganda over 2 years of follow-up between 2008-2011. METHODS: 1027 sex workers or bar workers were enrolled and asked to attend 3-monthly follow-up visits. Factors associated with prevalent BV were analysed using multivariate random-effects logistic regression. The effect of treatment on subsequent episodes of BV was evaluated with survival analysis. RESULTS: Prevalences of BV and HIV at enrolment were 56% (573/1027) and 37% (382/1027), respectively. Overall, 905 (88%) women tested positive for BV at least once in the study, over a median of four visits. Younger age, a higher number of previous sexual partners and current alcohol use were independently associated with prevalent BV. BV was associated with STIs, including HIV. Hormonal contraception and condom use were protective against BV. Among 853 treated BV cases, 72% tested positive again within 3 months. There was no difference in time to subsequent BV diagnosis between treated and untreated women. CONCLUSIONS: BV was highly prevalent and persistent in this cohort despite treatment. More effective treatment strategies are urgently needed.

5. Chow, E. P., et al. (2015). "Behavioral Interventions Improve Condom Use and HIV Testing Uptake Among Female Sex Workers in China: A Systematic Review and Meta-Analysis." *AIDS Patient Care STDS* 29(8): 454-460.



Condomless commercial sex work is a common mode of HIV transmission in China. This study systematically reviews the impacts of behavioral interventions on condom use and HIV testing uptake among female sex workers (FSW) in China. Chinese and English language peer-reviewed articles published between January 2000 and December 2013 were searched in five electronic databases. Odds ratios (OR) were calculated by comparing the levels of improvements in condom use and HIV testing uptake by various intervention strategies. Study quality was assessed for included studies. This review followed the PRISMA guidelines and was registered in PROSPERO. One hundred and twenty-eight studies met inclusion criteria. Meta-analyses indicated that FSW in the post-intervention period were 2.3-5.0 times more likely to use condoms with male clients in their last sexual act and 2.3-3.4 times more likely to use condoms consistently in the last month than in the pre-intervention period. In particular, multiple session intervention were more effective in improving condom use among FSW with male clients (OR=5.6, [4.0-7.8]) than a single session intervention (OR=3.3, [2.8-3.8]). Behavioral interventions also improved past-12-month HIV testing uptake 4.6-fold (95% CI, 2.9-7.4). Comprehensive intervention programs were more effective (OR=8.1, [4.0-16.7]) in improving HIV testing uptake compared with health education only programs (OR=2.7, [1.6-4.5]). Longer intervention duration (>12 months) did not increase effectiveness in improving condom use or HIV testing rate among Chinese FSWs. Behavioral interventions are effective in improving condom use and HIV testing uptake among Chinese FSW. This review highlights both the potentials and limitations of condom promotion interventions targeting female sex workers.

6. Erausquin, J. T., et al. (2015). **"Change over Time in Police Interactions and HIV Risk Behavior Among Female Sex Workers in Andhra Pradesh, India."** *AIDS Behav* 19(6): 1108-1115.

Little is known about the effectiveness of intervening to change interactions between female sex workers (FSWs) and police in order to reduce HIV risk. Using data collected in the context of a HIV prevention intervention that included components to change policing practices (n = 1,680), we examine the association of FSWs' reports of negative police interactions and HIV risk behaviors and whether these associations varied over time. Results show negative police interactions declined significantly over time. FSWs who had more than one negative police interaction were more likely to experience STI symptoms (AOR 2.97 [95 % CI 2.27-3.89]), inconsistently use condoms with their clients (AOR 1.36 [95 % CI 1.03-1.79]), and accept more money for condomless sex (AOR 2.37 [95 % CI 1.76-3.21]). Over time, these associations were stable or increased. Even where interventions have reduced the number of police incidents experienced by FSWs, stakeholders in HIV prevention must remain vigilant in challenging these incidents.

7. Vejella, S., et al. (2015). **"Community Collectivization and Consistent Condom Use Among Female Sex Workers in Southern India: Evidence from Two Rounds of Behavioral Tracking Surveys."** *AIDS Behav.*

Community collectivization is an integral part of condom use and HIV risk reduction interventions among key population. This study assesses community collectivization among female sex workers (FSWs), and explores its relationship with sex workers' consistent condom use (CCU) with different partners considering the interaction effect of time and collectivization. Data were drawn from two rounds of cross-sectional surveys collected during 2010 (N1 = 1986) and 2012 (N2 = 1973) among FSWs in Andhra Pradesh, India. Results of the multiple logistic regression analysis show that, CCU with regular and occasional clients increased over the inter-survey period among FSWs with a high collective efficacy (AOR 2.9 and 6.1) and collective agency (AOR 14.4 and 19.0) respectively. The association of high levels of collectivization with CCU and self-efficacy for condom use are central to improve the usefulness and sustainability of HIV prevention programs worldwide.

8. Mtetwa, S., et al. (2015). **"Competition is not necessarily a barrier to community mobilisation among sex workers: an intervention planning assessment from Zimbabwe."** *BMC Public Health* 15(1): 787.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4537541/pdf/12889\\_2015\\_Article\\_2118.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4537541/pdf/12889_2015_Article_2118.pdf)

**BACKGROUND:** Community mobilization among female sex workers (SWs) is recognized as an effective strategy to empower SWs and increase their uptake of health services. Activities focus on increasing social cohesion between SWs by building trust, strengthening networks, and encouraging shared efforts for mutual gain. Several studies, however, suggest that high levels of interpersonal competition between SWs can pose a barrier to collective action and support. We conducted a study to examine levels of perceived competition between SWs in Mutare, Hwange and Victoria Falls in Zimbabwe in order to inform development of a community-based intervention for HIV prevention and treatment. This paper focuses on our qualitative findings and their implications for the design of HIV programming in the Zimbabwean context. **METHODS:** Following a respondent driven sampling (RDS) survey, we explored issues related to social cohesion amongst SWs in Mutare, Hwange and Victoria Falls through in-depth interviews conducted with 22 SWs. Interviews examined dynamics of SWs' relationships and extent of social support, and were analyzed

using thematic content analysis using the constant comparative method. Findings are contextualised against descriptive data extracted from the survey, which was analysed using Stata 12, adjusting for RDS. RESULTS: Across all sites, women described protecting each other at night, advising each other about violent or non-paying clients, and paying fines for each other following arrest. In Mutare, women gave additional examples, including physically attacking problem clients, treatment adherence support and shared saving schemes. However, interviews also highlighted fierce competition between women and deep mistrust. This reflects the reported mix of competition and support from the survey of 836 women (Mutare n = 370, Hwange n = 237, Victoria Falls n = 229). In Mutare, 92.8 % of SWs agreed there was a lot of competition; 87.9 % reported that SWs support each other. This contrasted with Victoria Falls and Hwange where fewer agreed there was competition between SWs (70.5 % and 78.0 %), but also fewer reported that SWs support each other at work (55.2 % and 51.2 %). CONCLUSIONS: Women reported being most likely to support each other when confronted with serious danger but maintained high levels of competition for clients, suggesting competition at work does not represent a barrier to support. Examples of practical assistance between SWs provide entry points for our planned community mobilization activities, which aim to broaden trust and support among SWs while acknowledging their professional competition.

9. Maher, L., et al. (2015). "Conflicting Rights: How the Prohibition of Human Trafficking and Sexual Exploitation Infringes the Right to Health of Female Sex Workers in Phnom Penh, Cambodia." *Health Hum Rights* 17(1): E102-113.

While repressive laws and policies in relation to sex work have the potential to undermine HIV prevention efforts, empirical research on their interface has been lacking. In 2008, Cambodia introduced antitrafficking legislation ostensibly designed to suppress human trafficking and sexual exploitation. Based on empirical research with female sex workers, this article examines the impact of the new law on vulnerability to HIV and other adverse health outcomes. Following the introduction of the law, sex workers reported being displaced to streets and guesthouses, impacting their ability to negotiate safe sex and increasing exposure to violence. Disruption of peer networks and associated mobility also reduced access to outreach, condoms, and health care. Our results are consistent with a growing body of research which associates the violation of sex workers' human rights with adverse public health outcomes. Despite the successes of the last decade, Cambodia's AIDS epidemic remains volatile and the current legal environment has the potential to undermine prevention efforts by promoting stigma and discrimination, impeding prevention uptake and coverage, and increasing infections. Legal and policy responses which seek to protect the rights of the sexually exploited should not infringe the right to health of sex workers.

10. Grosso, A. L., et al. (2015). "Correlates of condom use among female sex workers in The Gambia: results of a cross-sectional survey." *PeerJ* 3: e1076.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4540013/pdf/peerj-03-1076.pdf>

**Objectives.** This study examined correlates of condom use among 248 female sex workers (FSW) in The Gambia. **Methods.** Between July and August 2011, FSW in The Gambia who were older than 16 years of age, the age of consent in The Gambia, were recruited for the study using venue-based sampling and snowball sampling, beginning with seeds who were established clients with the Network of AIDS Services Organizations. To be eligible, FSW must have reported selling sex for money, favors, or goods in the past 12 months. Bivariate and multivariate logistic regressions were used to determine associations and the relative odds of the independent variables with condom use. Four different condom use dependent variables were used: consistent condom use in the past six months during vaginal or anal sex with all clients and partners; consistent condom use in the past month during vaginal sex with new clients; consistent condom use in the past month during vaginal sex with nonpaying partners (including boyfriends, husbands, or casual sexual partners); and condom use at last vaginal or anal sex with a nonpaying partner. **Results.** Many FSW (67.34%, n = 167) reported it was not at all difficult to negotiate condom use with clients in all applicable situations, and these FSW were more likely to report consistent condom use with all clients and partners in the past 6 months (aOR 3.47, 95% CI [1.70-7.07]) compared to those perceiving any difficulty in condom negotiation. In addition, FSW were more likely to report using condoms in the past month with new clients (aOR 8.04, 95% CI [2.11-30.65]) and in the past month with nonpaying partners (aOR 2.93, 95% CI [1.09-7.89]) if they had been tested for HIV in the past year. Women who bought all their condoms were less likely than those who received all of their condoms for free (aOR 0.38, 95% CI [0.15-0.97]) to have used a condom at last vaginal or anal sex with a nonpaying partner. **Conclusions.** HIV and sexually transmitted infection (STI) prevention interventions for FSW should aim to improve condom negotiation self-efficacy since women who report less difficulty negotiating condom use are more likely to use condoms with clients. Interventions should also be aimed at structural issues such as increasing access to free condoms and HIV testing since these were positively associated with condom use among FSW.

11. Patel, S. K., et al. (2015). "**Correlates of Mental Depression Among Female Sex Workers in Southern India.**" Asia Pac J Public Health.

Mental health is an integral part of overall health status but has been a largely neglected issue in the developing world especially among female sex workers (FSWs). This study examines the prevalence and correlates of major depression among FSWs in southern India. Major depression was assessed using Patient Health Questionnaire-2 depression scale data from a cross-sectional Behavioral Tracking Survey, 2010-2011 conducted among FSWs (n = 1986) in Andhra Pradesh, a state in southern India. Almost two-fifths of FSWs (39%) reported major depression. Multivariate logistic regression analysis shows a significant association between major depression and the following characteristics for FSWs: low autonomy, alcohol use, experience of violence, police arrest, inconsistent condom use with clients, mobility for sex work, and being HIV positive or not wanting to disclose HIV status. Research and advocacy efforts are needed to ensure that the mental health issues of marginalized groups are appropriately addressed in HIV prevention programs.

12. Andrews, C. H., et al. (2015). "**Determinants of consistent condom use among female sex workers in Savannakhet, Lao PDR.**" BMC Womens Health 15: 63.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4543492/pdf/12905\\_2015\\_Article\\_215.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4543492/pdf/12905_2015_Article_215.pdf)

BACKGROUND: Female sex workers (FSWs) are a high-risk population for HIV. Correct and consistent use of condoms is the most effective measure for reducing transmission of HIV. Lao PDR is a low HIV-prevalence country, but FSWs have a relatively high HIV prevalence. To be able to make recommendations for condom promotion interventions in Lao PDR it is important to know more about the context specific situation. This study looked at reasons for and associated factors of consistent condom use among FSWs. METHODS: A cross-sectional survey among 258 FSWs in Kaysone Phomvihan district in Savannakhet province was performed. RESULTS: Almost all FSWs had enough condoms (94%), condoms always available (100%) and could always afford condoms (92%). Consistent condom use was 97% with non-regular partners and 60% with regular partners. Almost all respondents (95%) had received information about condoms from the drop-in centre. Stated reasons for consistent condom use were prevention of HIV (94%), STIs (88%) and pregnancy (87%). Most reasons for inconsistent condom use were related to partners not wanting to use condoms because of reduced sexual pleasure. Some FSWs reported that they were physically abused and forced not to use condoms. Shorter time in sex work, higher education and FSW not having regular partners were significantly associated with consistent condom use. CONCLUSIONS: Consistent condom use was very high with non-regular partners, but less frequent with regular partners. The main reason for inconsistent condom use was that the partner did not want to use a condom. Associated factors for consistent condom use were not having regular partners, higher education and shorter time in sex work. Condom promotion programs should include both FSWs and their partners and female condoms should be included in condom intervention efforts. Future studies should investigate the validity of self-reported sexual practices, partners' reasons for inconsistent condom use, risk of violence in sex work and why shorter time in sex work is associated with consistent condom use.

13. Thein, S. T., et al. (2015). "**Estimation of the Number of Female Sex Workers in Yangon and Mandalay, Myanmar.**" AIDS Behav.

While it is known that HIV prevalence is higher among key affected populations, such as female sex workers (FSW), the sizes of these populations are difficult to estimate. This study aimed to estimate the numbers of FSW in the two largest cities of Myanmar using multiple data-driven methods. A total of 778 FSW (450 in Yangon, 328 in Mandalay) were recruited through time-location sampling during November and December 2013. Five multiplier methods and a modified wisdom of the crowds method were applied within the surveys to calculate the number of FSW in each city. The median of the methods estimated a population size of FSW in Yangon at 4992 (acceptable upper and lower bounds: 4482-5753) and 3315 (2992-3368) in Mandalay. These estimates translate to a population prevalence of FSW among adult women (age 18-49 years) of 0.35 % (0.32-0.40 %) in Yangon and 0.77 % (0.69-0.84 %) in Mandalay.

14. Suryawanshi, D., et al. (2015). "**FACTORS ASSOCIATED WITH THE LIKELIHOOD OF FURTHER MOVEMENT AMONG MOBILE FEMALE SEX WORKERS IN INDIA: A MULTINOMIAL LOGIT APPROACH.**" J Biosoc Sci: 1-18.

Female sex workers (FSWs) are vulnerable to HIV infection. Their socioeconomic and behavioural vulnerabilities are crucial push factors for movement for sex work. This paper assesses the factors associated with the likelihood of movement of sex workers from their current place of work. Data were derived from a cross-sectional survey conducted among 5498 mobile FSWs in 22 districts of high in-migration across four states in southern India. A multinomial logit model was constructed to predict the likelihood of FSWs moving from their current place of work.

Ten per cent of the sampled mobile FSWs were planning to move from their current place of sex work. Educational attainment, marital status, income at current place of work, debt, sexual coercion, experience of violence and having tested for HIV and collected the results were found to be significant predictors of the likelihood of movement from the current place of work. Consistent condom use with different clients was significantly low among those planning to move. Likewise, the likelihood of movement was significantly higher among those who had any STI symptom in the last six months and those who had a high self-perceived risk of HIV. The findings highlight the need to address factors associated with movement among mobile FSWs as part of HIV prevention and access to care interventions.

15. Deering, K. N., et al. (2015). "**Fertility intentions, power relations and condom use within intimate and other non-paying partnerships of women in sex work in Bagalkot District, South India.**" *AIDS Care*: 1-9.

This study aimed to: (1) examine the relationship between interpersonal as well as social-demographic, cultural and structural factors, and condom non-use by sex workers' main intimate or other non-paying male sex partners (NPPs), as reported by a sample of sex workers; and (2) understand HIV/sexually transmitted infections (STIs) risk (e.g., numbers of sexual partners; condom use with different partners) among couples comprised of a sub-set of sex workers and their NPPs. Bivariate and multivariable logistic regression was used to identify factors associated with condom non-use at last sex by the main NPP, as reported by sex workers. Adjusted odds ratios and 95% confidence intervals are reported (AOR[95%CI]). Data were drawn from cross-sectional surveys in Bagalkot District, Karnataka State, South India. Responses by sex workers whose main NPPs agreed to enrol in the study and the main NPP enrolled were linked; these responses by couples (pairs of sex workers and NPPs) were examined for responses to sexual risk for HIV/STIs. Overall, this study included 257 sex workers and 76 NPPs. The data from 67 couples (88.2%) could be linked. In over a quarter of partnerships, at least one (SW or NPP) partner reported having another type of partner besides each other (and clients of SWs). In multivariable analysis, significantly increased odds of condom non-use at last sex with the main NPP were found for the following key factors: planning to have a child with their main NPP (AOR = 3.71[1.44-9.58]); and having decisions about condom use made by their main NPP (AOR = 9.87[4.03-24.16]) or both equally (AOR = 3.18[1.39-7.80]) (instead of by the sex workers herself). Our study highlights the potential risk for HIV/STI acquisition and transmission between NPPs and sex workers, and between NPPs and their non-sex workers wives and other sex partners. Study results underscore the need for HIV/STI prevention approaches that incorporate informed decision-making about childbearing and parenting, and empowerment strategies for sex workers within the context of NPPs.

16. Marin, G., et al. (2015). "**Healthcare program for sex workers: a public health priority.**" *Int J Health Plann Manage* 30(3): 276-284.

OBJECTIVE: The objective of this study was to propose a model of health care for sexual workers (SWs) and transvestites (Ts) groups who were historically excluded from health services. MATERIALS AND METHODS: A prospective descriptive/analytical study with an intervention stage was performed, focusing on the health status of SWs and Ts. Access to health system, inclusion into social programs, beneficiaries' participation, and rate of risk behaviors were variables measured before and after intervention that consist in a program based on promotion/prevention activities and complete health care service suitable to SW-T needs. RESULTS: Nine hundred and fifty SW-Ts were included. At baseline, 99.7% lacked health insurance and 90.1% had no access to the health care. These data were compared with those obtained after attention quadruplicated among SW because of the implementation of the program. Risky sexual behaviors were reduced by 25 times. SWs have their own leader of health institutions and coordinate themselves with the program's activities. CONCLUSION: Responsibility of the state's authorities on vulnerable groups must focus on their inclusion. To this end, health services must adapt themselves in order to attend those community groups with special needs. Active participation of the target population contributes to viability of this type of proposals, and it is essential for the project's success. Copyright (c) 2013 John Wiley & Sons, Ltd.

17. Augusto, A. D., et al. (2015). "**High Burden of HIV Infection and Risk Behaviors Among Female Sex Workers in Three Main Urban Areas of Mozambique.**" *AIDS Behav*.

This is the first integrated biological and behavioral survey among female sex workers (FSW) in Mozambique. Using respondent-driven sampling, 400, 411 and 429 FSW were enrolled respectively in Maputo, Beira and Nampula in 2011-2012. Estimates were produced using RDSAT 7.1. HIV prevalence was 31.2, 23.6, and 17.8 % in each location respectively. Among HIV-positive FSW, 48.1, 79.8 and 89.6 % in each city, were unaware of their serostatus. Condom use at last sex with a client was 85.8, 73.4 and 62.8 % among FSW, respectively. HIV was associated with current age,

age of first sex for money, low educational level, and having had a genital ulcer in the last 6 months. Results suggest the urgent need to increase behavioral and structural interventions in this key population.

18. Zulliger, R., et al. (2015). **"High Drop-off Along the HIV Care Continuum and ART Interruption Among Female Sex Workers in the Dominican Republic."** *J Acquir Immune Defic Syndr* 69(2): 216-222.

BACKGROUND: Engagement in HIV care offers clear individual and societal benefits, but little evidence exists on the care experiences of key populations. METHODS: A cross-sectional survey was conducted with 268 female sex workers (FSWs) living with HIV in Santo Domingo, Dominican Republic, to describe the HIV care continuum and to determine factors associated with antiretroviral therapy (ART) interruption. RESULTS: FSWs disengaged throughout the care continuum with the highest drop-off after ART initiation. Most participants were linked to care (92%), retained in care (85%), and initiated onto ART (78%), but ART discontinuation and irregular adherence were frequent. Only 48% of participants had an undetectable HIV viral load. Overall, 36% of participants ever initiated onto ART reported lifetime experience with ART interruption. The odds of ART interruption were 3.24 times higher among women who experienced FSW-related discrimination [95% confidence interval (CI): 1.28 to 8.20], 2.41 times higher among women who used any drug (95% CI: 1.09 to 5.34), and 2.35 times higher among women who worked in an FSW establishment (95% CI: 1.20 to 4.60). Internalized stigma related to FSW was associated with higher odds of interruption (adjusted odds ratio: 1.09; 95% CI: 1.02 to 1.16), and positive perceptions of HIV providers were protective (adjusted odds ratio: 0.91; 95% CI: 0.85 to 0.98). CONCLUSIONS: FSWs living with HIV confront multiple barriers throughout the HIV care continuum, many of which are related to the social context and stigmatization of sex work. Given the clear importance of maximizing the potential benefits of engagement in HIV care, there is an urgent need for interventions to support FSWs throughout the HIV care continuum.

19. Wilson, D. (2015). **"HIV Programs for Sex Workers: Lessons and Challenges for Developing and Delivering Programs."** *PLoS Med* 12(6): e1001808.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4469316/pdf/pmed.1001808.pdf>

There is evidence that HIV prevention programs for sex workers, especially female sex workers, are cost-effective in several contexts, including many western countries, Thailand, India, the Democratic Republic of Congo, Kenya, and Zimbabwe. The evidence that sex worker HIV prevention programs work must not inspire complacency but rather a renewed effort to expand, intensify, and maximize their impact. The PLOS Collection "Focus on Delivery and Scale: Achieving HIV Impact with Sex Workers" highlights major challenges to scaling-up sex worker HIV prevention programs, noting the following: sex worker HIV prevention programs are insufficiently guided by understanding of epidemic transmission dynamics, situation analyses, and programmatic mapping; sex worker HIV and sexually transmitted infection services receive limited domestic financing in many countries; many sex worker HIV prevention programs are inadequately codified to ensure consistency and quality; and many sex worker HIV prevention programs have not evolved adequately to address informal sex workers, male and transgender sex workers, and mobile- and internet-based sex workers. Based on the wider collection of papers, this article presents three major clusters of recommendations: (i) HIV programs focused on sex workers should be prioritized, developed, and implemented based on robust evidence; (ii) national political will and increased funding are needed to increase coverage of effective sex worker HIV prevention programs in low and middle income countries; and (iii) comprehensive, integrated, and rapidly evolving HIV programs are needed to ensure equitable access to health services for individuals involved in all forms of sex work.

20. Yi, S., et al. (2015). **"The impact of a community-based HIV and sexual reproductive health program on sexual and healthcare-seeking behaviors of female entertainment workers in Cambodia."** *BMC Infect Dis* 15: 221.

Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456785/pdf/12879\\_2015\\_Article\\_954.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456785/pdf/12879_2015_Article_954.pdf)

BACKGROUND: In Cambodia, despite great successes in the fight against HIV, challenges remain to eliminating new HIV infections and addressing sexual reproductive health (SRH) issues in key populations including female entertainment workers (FEWs). To address these issues, the Sustainable Action against HIV and AIDS in Communities (SAHACOM) project has been implemented since late 2009 using a community-based approach to integrate HIV and SRH services. This study evaluates the impact of the SAHACOM on sexual and healthcare-seeking behaviors among FEWs in Cambodia. METHODS: A midterm and endpoint comparison design was utilized. Midterm data were collected in early 2012, and endpoint data were collected in early 2014. A two-stage cluster sampling method was used to randomly select 450 women at midterm and 556 women at endpoint for face-to-face interviews. RESULTS: Compared to women at midterm, women at endpoint were significantly less likely to report having sexual intercourse in exchange for money or gifts in the past three months (OR = 2.1, 95 % CI = 1.6-2.7). The average number of

commercial sexual partners in the past three months also decreased significantly from 5.5 (SD = 13.3) at midterm to 3.6 (SD = 13.9) at endpoint ( $p = 0.03$ ). However, women at endpoint were significantly less likely to report always using condom when having sexual intercourse with clients in exchange for money or gifts (OR = 2.6, 95 % CI = 1.5-4.5). Regarding sexually transmitted infections (STIs), women at endpoint were significantly less likely to report having an STI symptom in the past three months (OR = 1.8, 95 % CI = 1.4-2.3) and more likely to seek treatment for the most recent STI symptom (OR = 1.6, 95 % CI = 1.1-1.9). Furthermore, women at endpoint were significantly more likely to be currently using a contraceptive method (OR = 1.4, 95 % CI = 1.1-1.8) and less likely to report having an induced abortion (OR = 1.4, 95 % CI = 1.1-1.7) during the time working as a FEW. CONCLUSIONS: The overall findings of the study indicate that the SAHACOM is effective in reducing sexual risk behaviors and improving the access to SRH care services among FEWs in Cambodia. However, several unfavorable findings merit attention.

21. McClelland, R. S., et al. (2015). "Impact of community antiretroviral therapy coverage on HIV incidence in Kenyan female sex workers: a 15-year prospective cohort study." *Aids*.

OBJECTIVE: To test the hypothesis that increasing community antiretroviral therapy (ART) coverage would be associated with lower HIV incidence in female sex workers (FSWs) in Mombasa District, Kenya. DESIGN: Prospective cohort study. METHODS: From 1998 to 2012, HIV-negative FSWs were asked to return monthly for an interview regarding risk behavior and testing for sexually transmitted infections including HIV. We evaluated the association between community ART coverage and FSW's risk of becoming HIV infected using Cox proportional hazards models adjusted for potential confounding factors. RESULTS: One thousand four hundred four FSWs contributed 4335 woman-years of follow-up, with 145 acquiring HIV infection (incidence 3.35/100 woman-years). The ART rollout began in 2003. By 2012, an estimated 52% of HIV-positive individuals were receiving treatment. Community ART coverage was inversely associated with HIV incidence (adjusted hazard ratio 0.77; 95% confidence interval 0.61-0.98;  $P = 0.03$ ), suggesting that each 10% increase in coverage was associated with a 23% reduction in FSWs' risk of HIV acquisition. Community ART coverage had no impact on herpes simplex virus type-2 incidence (adjusted hazard ratio 0.97; 95% confidence interval 0.79-1.20;  $P = 0.8$ ). CONCLUSION: Increasing general population ART coverage was associated with lower HIV incidence in FSWs. The association with HIV incidence, but not herpes simplex virus type-2 incidence, suggests that the effect of community ART coverage may be specific to HIV. Interventions such as preexposure prophylaxis and antiretroviral-containing microbicides have produced disappointing results in HIV prevention trials with FSWs. These results suggest that FSWs' risk of acquiring HIV infection might be reduced through the indirect approach of increasing ART coverage in the community.

22. Thyda, L., et al. (2015). "Implementation and Operational Research: Integration of Family Planning Services in a Peer-Managed HIV Care Clinic Serving Most-at-Risk Populations in Phnom Penh, Cambodia." *J Acquir Immune Defic Syndr* 69(4): e120-126.

OBJECTIVE: To assess contraceptive uptake and method choice among women living with HIV (WLHIV) attending an HIV care clinic serving most-at-risk women in Phnom Penh, Cambodia, before and after the implementation of family planning (FP) services. METHODS: Semistructured questionnaires were administered to clients before (July, 2011) and after (July, 2012) FP service implementation with provision of contraceptive methods (pills, injectables, implants, and intrauterine device [IUD]). RESULTS: Among 250 and 249 clients interviewed before and after implementation respectively, 24.5% of women reported selling sex for money during the last 6 months before and 35.3% after implementation. Awareness about contraceptive methods significantly increased among clients postimplementation. Among sexually active women, male condom remained the contraceptive method of choice with an overall condom use during the last 6 months at 91% postimplementation vs. 95.6% preimplementation ( $P = 0.11$ ). Although the use of noncondom FP methods increased but not significantly (16.4% after vs. 12.6% before implementation,  $P = 0.8$ ), the use of dual method (condom plus another method) remained low and did not significantly increase after implementation (14.8% after vs. 11.0% before,  $P = 0.28$ ). CONCLUSIONS: Our results show that FP practices of WLHIV attending an HIV care clinic for most-at-risk populations did not significantly change after integration on-site provision of a wide range of FP methods. Innovative strategies and further research are needed to better understand how to promote the use of noncondom FP methods and prevent unwanted pregnancies and abortions among most-at-risk women and WLHIV.

23. Wall, K. M., et al. (2015). "Implementation of an electronic fingerprint-linked data collection system: a feasibility and acceptability study among Zambian female sex workers." *Global Health* 11: 27.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4489038/pdf/12992\\_2015\\_Article\\_114.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4489038/pdf/12992_2015_Article_114.pdf)



**BACKGROUND:** Patient identification within and between health services is an operational challenge in many resource-limited settings. When following HIV risk groups for service provision and in the context of vaccine trials, patient misidentification can harm patient care and bias trial outcomes. Electronic fingerprinting has been proposed to identify patients over time and link patient data between health services. The objective of this study was to determine 1) the feasibility of implementing an electronic-fingerprint linked data capture system in Zambia and 2) the acceptability of this system among a key HIV risk group: female sex workers (FSWs). **METHODS:** Working with Biometrac, a US-based company providing biometric-linked healthcare platforms, an electronic fingerprint-linked data capture system was developed for use by field recruiters among Zambian FSWs. We evaluated the technical feasibility of the system for use in the field in Zambia and conducted a pilot study to determine the acceptability of the system, as well as barriers to uptake, among FSWs. **RESULTS:** We found that implementation of an electronic fingerprint-linked patient tracking and data collection system was feasible in this relatively resource-limited setting (false fingerprint matching rate of 1/1000 and false rejection rate of <1/10,000) and was acceptable among FSWs in a clinic setting (2% refusals). However, our data indicate that less than half of FSWs are comfortable providing an electronic fingerprint when recruited while they are working. The most common reasons cited for not providing a fingerprint (lack of privacy/confidentiality issues while at work, typically at bars or lodges) could be addressed by recruiting women during less busy hours, in their own homes, in the presence of "Queen Mothers" (FSW organizers), or in the presence of a FSW that has already been fingerprinted. **CONCLUSIONS:** Our findings have major implications for key population research and improved health services provision. However, more work needs to be done to increase the acceptability of the electronic fingerprint-linked data capture system during field recruitment. This study indicated several potential avenues that will be explored to increase acceptability.

24. Cepeda, A., et al. (2015). **"Injecting Drug Use Among Mexican Female Sex Workers on the US-Mexico Border."** *J Ethn Subst Abuse*: 1-13.

Both injecting drug users (IDU) and sex workers are at great risk of contracting and transmitting HIV. Therefore, IDU sex workers could be at especially high risk. The recent increase of HIV infection in Mexico has caused increased attention to sex work. We identify the correlates of injecting drug use including socio-demographic, work history, and sexual and non-injecting drug use risk behaviors among Mexican female sex workers. There is a high risk profile for IDUs compared to never injectors including a high prevalence of lifetime STI infection (54.2%). Revealed is an environment composed of high-risk networks that may have serious binational public health implications.

25. Syvertsen, J. L., et al. (2015). **"Love, Trust, and HIV Risk Among Female Sex Workers and Their Intimate Male Partners."** *Am J Public Health* 105(8): 1667-1674.

**OBJECTIVES:** We examined correlates of love and trust among female sex workers and their noncommercial male partners along the Mexico-US border. **METHODS:** From 2011 to 2012, 322 partners in Tijuana and Ciudad Juarez, Mexico, completed assessments of love and trust. Cross-sectional dyadic regression analyses identified associations of relationship characteristics and HIV risk behaviors with love and trust. **RESULTS:** Within 161 couples, love and trust scores were moderately high (median 70/95 and 29/40 points, respectively) and correlated with relationship satisfaction. In regression analyses of HIV risk factors, men and women who used methamphetamine reported lower love scores, whereas women who used heroin reported slightly higher love. In an alternate model, men with concurrent sexual partners had lower love scores. For both partners, relationship conflict was associated with lower trust. **CONCLUSIONS:** Love and trust are associated with relationship quality, sexual risk, and drug use patterns that shape intimate partners' HIV risk. HIV interventions should consider the emotional quality of sex workers' intimate relationships.

26. Chanzu, N. M., et al. (2015). **"Mucosal Blood Group Antigen Expression Profiles and HIV Infections: A Study among Female Sex Workers in Kenya."** *PLoS One* 10(7): e0133049.

Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4505875/pdf/pone.0133049.pdf>

**BACKGROUND:** The ABO blood group antigens are carbohydrate moieties expressed on human red blood cells however; these antigens can also be expressed on some other cells particularly the surface of epithelial cells and may be found in mucosal secretions. In many human populations 80% secrete ABO antigens (termed 'secretors') while 20% do not (termed 'non-secretors'). Furthermore, there are disease conditions that are associated with secretor status. **OBJECTIVE:** To investigate correlations between secretor status and HIV infection among female sex workers in Nairobi, Kenya. **METHODOLOGY:** This cross-sectional study recruited 280 female sex workers aged 18-65 years from the Pumwani Majengo cohort, Kenya. Blood typing was determined by serological techniques using monoclonal antibodies to the ABO blood group antigens. Secretor phenotyping was determined using anti-H specific lectins

specific to salivary, vaginal and cervical blood group H antigen using the agglutination inhibition technique and correlated to individual HIV sero-status. Participants were additionally screened for Bacterial vaginosis, Neisseria gonorrhoea and Trichomonas vaginalis. RESULTS: Out of the 280 participants, 212 (75.7%) were secretors and 68 (24.3%) were non-secretors. The incidence of all infections: HIV, Bacterial vaginosis, Neisseria gonorrhoea and Trichomonas vaginalis was higher among secretors compared to non-secretors. However, this difference was only statistically significant for HIV infection incidence rates: HIV infected secretors (83.7%) versus HIV un-infected secretors (71.8%) ( $p = 0.029$ ) Based on ABO phenotype stratification, the incidence of HIV infection was higher among blood group A secretors ( $26/52 = 50\%$ ), in comparison to B ( $12/39 = 33.3\%$ :  $p = 0.066$ ), AB ( $3/9 = 33.3\%$ :  $p = 0.355$ ), and O secretors ( $36/112 = 32.1\%$ :  $p = 0.028$ ). CONCLUSION: This is the first report to document the variable expression of the ABH blood group antigens profiling secretor and non-secretor phenotypes in the female genital tract among a high-risk population in a Kenyan population. These findings suggest the non-secretor phenotype may confer a certain degree of protection against HIV infection.

27. Wagner, K. D., et al. (2015). "Place of Residence Moderates the Relationship Between Emotional Closeness and Syringe Sharing Among Injection Drug Using Clients of Sex Workers in the US-Mexico Border Region." AIDS Behav 19(6): 987-995.

Injection drug-using men from the US and Mexico who purchase sex in Tijuana, Mexico are at risk for transmitting HIV to their contacts in both countries via syringe sharing. We used social network methods to understand whether place of residence (US vs. Mexico) moderated the effect of emotional closeness on syringe sharing. We interviewed 199 drug-using men who reported paying/trading for sex in Tijuana, Mexico using an epidemiological and social network survey and collected samples for HIV/STI testing. Seventy-two men reported using injection drugs with 272 network contacts. Emotional closeness was strongly associated with syringe sharing in relationship where the partner lives in the US, while the relationship between emotional closeness and syringe sharing was considerably less strong in dyads where the partner lives in Mexico. Efforts to reduce HIV risk behaviors in emotionally close relationships are needed, and could benefit from tailoring to the environmental context of the relationship.

28. McMillan, K. E. and H. Worth (2015). "Problematics of empowerment: sex worker HIV prevention in the Pacific." Health Promot Int.

A recent overview of HIV/STI prevention programmes for sex workers in the Pacific region indicates that, despite a regional policy shift from universal to targeted interventions, Pacific Island countries currently lack core HIV/STI prevention services for sex workers. Across the region, condom distribution, peer outreach and support services for sex workers have ceased even in countries where such programmes had previously existed. This article cautions that the endorsement of empowerment projects does not negate the important role of condom access in HIV and STI prevention efforts for Pacific sex workers. While community empowerment underpins, and is essential to the sustainability of, effective interventions, it does not constitute an adequate form of HIV and STI prevention in and of itself. We contend that in the context of the Pacific Islands, timely and effective HIV prevention measures must specifically attend to the implementation of, and sustained support for, behavioural interventions such as sex-worker-specific peer education, condom and lubricant distribution, and access to appropriate sexual health services. Further, the responsibility for delivery of these should not be borne solely by fledgling sex worker organizations and communities. The evolution of targeted interventions in the Pacific and the current lack of funded condom distribution programmes highlight a more generalizable imperative within HIV prevention to ensure that behaviour change efforts are not considered to be extraneous to, or rendered redundant by, empowerment-based interventions.

29. Duff, P., et al. (2015). "The relationship between social, policy and physical venue features and social cohesion on condom use for pregnancy prevention among sex workers: a safer indoor work environment scale." J Epidemiol Community Health 69(7): 666-672.

BACKGROUND: This study aims to report on a newly developed Safer Indoor Work Environmental Scale that characterises the social, policy and physical features of indoor venues and social cohesion; and using this scale, longitudinally evaluate the association between these features on sex workers' (SWs') condom use for pregnancy prevention. METHODS: Drawing on a prospective open cohort of female SWs working in indoor venues, a newly developed Safer Indoor Work Environment Scale was used to build six multivariable models with generalised estimating equations (GEE), to determine the independent effects of social, policy and physical venue-based features and social cohesion on condom use. RESULTS: Of 588 indoor SWs, 63.6% used condoms for pregnancy prevention in the last month. In multivariable GEE analysis, the following venue-based features were significantly correlated with

barrier contraceptive use for pregnancy prevention: managerial practices and venue safety policies (adjusted OR (AOR)=1.09; 95% CI 1.01 to 1.17), access to sexual and reproductive health services/supplies (AOR=1.10; 95% CI 1.00 to 1.20), access to drug harm reduction (AOR=1.13; 95% CI 1.01 to 1.28) and social cohesion among workers (AOR=1.05; 95% CI 1.03 to 1.07). Access to security features was marginally associated with condom use (AOR=1.13; 95% CI 0.99 to 1.29). **CONCLUSIONS:** The findings of the current study highlight how work environment and social cohesion among SWs are related to improved condom use. Given global calls for the decriminalisation of sex work, and potential legislative reforms in Canada, this study points to the critical need for new institutional arrangements (eg, legal and regulatory frameworks; labour standards) to support safer sex workplaces.

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

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.

31. Carney, T., et al. (2015). **"Sexual HIV risk among substance-using female commercial sex workers in Durban, South Africa."** *Afr J AIDS Res* 14(2): 153-158.

This study examined data collected from a sample of female sex workers (FSWs) during the first two years of a brief risk-reduction intervention for vulnerable populations that focused on substance use and HIV risk-related behaviours (2007-2009) as part of a rapid assessment and response evaluation study. In 2007, in collaboration with a local non-governmental organisation (NGO), an initiative was begun to roll out targeted harm reduction strategies for drug-using street based FSWs in Durban, South Africa. Data were collected on demographic characteristics, substance use and HIV risk behaviours to tailor these harm reduction strategies with participants. Over the first two years of the intervention, data were collected from 646 FSWs: 428 who reported being at low risk for HIV and 218 who reported being at high risk for HIV (defined as engaging in unprotected sex with sexual partners in the past 90 days). FSWs who had previously been diagnosed with HIV or a sexually transmitted disease (STD) were significantly less likely to report engaging in unprotected sex. Those who used over-the-counter or prescription (OTC/PRE) drugs reported engaging in unprotected sex significantly more often than FSWs who did not use these substances, while those who used heroin were less likely to report unprotected sex. The findings are encouraging in that those who are aware of their HIV status are less likely to engage in risky sexual behaviour, and therefore HIV testing and counselling is recommended. It indicates the need to identify strategies to encourage the likelihood of all FSWs, particularly those who are HIV-positive, to use condoms. It also encourages further research to investigate specific substances as possible predictors of high risk behaviours in high-risk populations of sex workers.

32. Merli, M. G., et al. (2015). **"Sexual Mixing in Shanghai: Are Heterosexual Contact Patterns Compatible With an HIV/AIDS Epidemic?"** *Demography* 52(3): 919-942.

China's HIV prevalence is low, mainly concentrated among female sex workers (FSWs), their clients, men who have sex with men, and the stable partners of members of these high-risk groups. We evaluate the contribution to the spread of HIV of China's regime of heterosexual relations, of the structure of heterosexual networks, and of the attributes of key population groups with simulations driven by data from a cross-sectional survey of egocentric sexual networks of the general population of Shanghai and from a concurrent respondent-driven sample of FSWs. We find that the heterosexual network generated by our empirically calibrated simulations has low levels of partner change, strong constraints on partner selection by age and education, and a very small connected core, mainly comprising FSWs and their clients and characterized by a fragile transmission structure. This network has a small HIV epidemic potential but is compatible with the transmission of bacterial sexually transmitted infections (STIs), such as syphilis,

which are less susceptible to structural breaks in transmission of infection. Our results suggest that policies that force commercial sex underground could have an adverse effect on the spread of HIV and other STIs.

33. Silverman, J. G., et al. (2015). **"Sexual Violence and HIV Infection Associated With Adolescent vs Adult Entry Into the Sex Trade in Mexico."** *Jama* 314(5): 516-518.
34. Gaines, T. L., et al. (2015). **"Short-term cessation of sex work and injection drug use: evidence from a recurrent event survival analysis."** *Addict Behav* 45: 63-69.

**OBJECTIVE:** This study quantitatively examined the prevalence and correlates of short-term sex work cessation among female sex workers who inject drugs (FSW-IDUs) and determined whether injection drug use was independently associated with cessation. **METHODS:** We used data from FSW-IDUs (n=467) enrolled into an intervention designed to increase condom use and decrease sharing of injection equipment but was not designed to promote sex work cessation. We applied a survival analysis that accounted for quit-re-entry patterns of sex work over 1-year stratified by city, Tijuana and Ciudad Juarez, Mexico. **RESULTS:** Overall, 55% of participants stopped sex work at least once during follow-up. Controlling for other characteristics and intervention assignment, injection drug use was inversely associated with short-term sex work cessation in both cities. In Ciudad Juarez, women receiving drug treatment during follow-up had a 2-fold increase in the hazard of stopping sex work. In both cities, income from sources other than sex work, police interactions and healthcare access were independently and significantly associated with shorter-term cessation. **CONCLUSIONS:** Short-term sex work cessation was significantly affected by injection drug use. Expanded drug treatment and counseling coupled with supportive services such as relapse prevention, job training, and provision of alternate employment opportunities may promote longer-term cessation among women motivated to leave the sex industry.

35. Choudhury, S. M., et al. (2015). **"Social Support and Sexual Risk Among Establishment-Based Female Sex Workers in Tijuana."** *Qual Health Res* 25(8): 1056-1068.

Social support can affect health outcomes of female sex workers. In this inductive feminist grounded theory study based on 20 in-depth interviews, we explore how establishment-based female sex workers in Tijuana perceive the impact of the connections among women on their lives and health. Participants elected to discuss the importance of social support from mothers, sisters, friends, and co-workers, and the empowering and disempowering aspects of these relationships. In previous studies, scholars demonstrated the efficacy of formal organization of female sex workers in promoting the mitigation of sexual and HIV risk. We show the importance of informal ties with other women. Some participants mentioned competitive relationships, others talked about cooperation and the desire for a venue to learn from one another. Social interactions with other women are especially empowering when female sex workers can openly engage in "woman talk" that may contribute to the mitigation of sexual and HIV risk.

36. Connors, E. E., et al. (2015). **"Structural Determinants of Client Perpetrated Violence Among Female Sex Workers in Two Mexico-U.S. Border Cities."** *AIDS Behav*.

Female sex workers (FSWs) are disproportionately affected by both HIV and gender-based violence, such as that perpetrated by clients (CPV). We used a structural determinants framework to assess correlates of physical or sexual CPV in the past 6 months among FSWs in the Mexico/U.S. border cities of Ciudad Juarez and Tijuana. Bivariate and multivariate logistic regression analysis identified individual, client, interpersonal, work environment and macrostructural factors associated with recent CPV. Among 496 FSWs, 5 % experienced recent CPV. Witnessing violence towards other FSWs in one's neighborhood (aOR 5.6, 95 % CI 1.8-17.2), having a majority of foreign (aOR 3.5, 95 % CI 1.4-8.4) or substance using (aOR 4.0, 95 % CI 1.5-10.4) clients, and being a street worker (aOR 3.0, 95 % CI 1.1-7.7) were independently associated with recent CPV. Our findings underscore the vulnerability of FSWs and the need to design policies and interventions addressing macro-level influences on CPV rather than exclusively targeting individual behaviors.

37. Erickson, M., et al. (2015). **"Structural determinants of dual contraceptive use among female sex workers in Gulu, northern Uganda."** *Int J Gynaecol Obstet*.

**OBJECTIVE:** To describe the characteristics of female sex workers (FSWs) who do and do not use dual contraceptives (i.e. male condoms plus a non-barrier method) in Gulu, northern Uganda. **METHODS:** The present analysis was based on data gathered as part of a questionnaire-based, cross-sectional study conducted between May 2011 and January 2012. FSWs aged 14years or older were recruited through peer-led or sex worker-led outreach and community-based

services. Logistic regression was used to identify correlates of dual contraceptive use. RESULTS: Among the 400 FSWs who participated, 180 (45.0%) had ever used dual contraceptives. In the multivariate model, dual contraceptive use was positively associated with older age (adjusted odds ratio [AOR] 1.09, 95% confidence interval [CI] 1.04-1.15;  $P=0.001$ ), prior unintended pregnancy (AOR 1.53, 95% CI 1.01-2.34;  $P=0.046$ ), and HIV testing (AOR 5.22, 95% CI 1.75-15.57;  $P=0.003$ ). Having to rush sexual negotiations owing to police presence was negatively associated with dual contraceptive use (AOR 0.65, 95% CI 0.42-1.00;  $P=0.050$ ). CONCLUSION: Although a history of unintended pregnancy and accessing HIV testing might promote contraceptive use, criminalized work environments continue to pose barriers to uptake of sexual and reproductive health services among FSWs in post-conflict northern Uganda. Integrated links between HIV and sexual health programs could support contraceptive uptake among FSWs.

38. Chiang, S. S., et al. (2015). "Tuberculosis screening among Bolivian sex workers and their children." *J Epidemiol Glob Health* 5(2): 205-210.

Bolivian sex workers were more likely than other employed women to report tuberculosis screening only if they reported HIV screening. Of all women with household tuberculosis exposure, <40% reported screening for themselves or their children. Coupling tuberculosis screening with sex workers' mandatory HIV screenings may be a cost-efficient disease-control strategy.

39. Huang, Y., et al. (2015). "Unpacking the 'structural' in a structural approach for HIV prevention among female sex workers: A case study from China." *Glob Public Health* 10(7): 852-866.

Interventions for HIV prevention among female sex workers (FSWs) in China focus on HIV/sexually transmitted infection (STI) and individual behaviour change. An occupational health framework facilitates intervention across an array of health issues FSWs face including HIV/STI, violence, reproductive health, stigma and substance use. Through a case study of a community-based Jiaozhou (JZ) FSW programme, we developed a conceptual framework incorporating global discussions of structural approaches to HIV prevention with the specific social and structural contexts identified among FSWs in China. Based on ethnographic fieldwork between August 2010 and May 2013, we describe the evolution of this programme to its current occupational health focus and unpack the intervention strategies. We describe the critical features of the programme that have fostered success among FSWs including high-quality clinical services provided within a welcoming setting, responsive outreach work through staff and trained FSW peers, interpersonal and community-level engagement aimed at changing the local social and structural environments of sex work and tailored health education materials. This intervention differs from other projects in China by adopting a more holistic approach to FSW health that incorporates social issues. It also demonstrates the feasibility of structural interventions among FSWs even within an environment that has strong anti-prostitution policies.

40. Ewen, J. E. (2015). "Using the Venom of a Snake for an Antidote: exploring strategies and services for sex workers in preparation for the World Cup 2014." *Perspect Public Health* 135(4): 197-203.

AIMS: This article considers the public health implications that were predicted by sex workers a year prior to the FIFA World Cup 2014, with considerations towards the Olympic Games in 2016. Primary research conducted in 2013 in Brazil's second largest city, Rio de Janeiro, gave sex workers and civil society organizations the opportunity to voice concerns of the everyday disadvantages faced by those involved in the sex industry, with emphasis on what could cause further detriments from acting as a double draw international sporting host. This research largely took place through invitation at the 2013 Rio State Conference on HIV/AIDS, Equality and Human Rights. METHODS: Mixed methods research - pre-arrival questionnaires and interviews led by a semi-structured interview guide - was deemed suitable for the primary research collection. The use of the research software NVivo allowed data to be categorised into key themes to form the basis of this research article. Working with a Portuguese translator, case studies of transsexual sex workers and civil society organizations were developed. RESULTS: Police violence was the main re-occurring theme expressed as a continued fear, alongside the added increase of security measures that the games would bring, to reduce organized crime, and through the Pacification programme. The majority of sex workers and organizations believed that there was no support from the Brazilian government to continue to provide services of high demand, including social care and legal assistance. Sex workers also felt prejudice in receiving HIV/AIDS treatment from government-led health services. A desirable outcome for the sex worker community would be for the government to consider the following: recommendations devised for further health and well being support; an act or law of non-violence against them; and recommendations to decriminalize the sex industry. CONCLUSIONS: The Brazilian government has received global recognition for its response to the HIV/AIDS epidemic, however the treatment based and contraception promotion does not extend itself to consider the social implications that put sex workers at huge

public health risks, especially physical violence. This research provides an important case for explicit revisions of policies in Brazil regarding the health and safety of sex workers.

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## Transgender People - 8

1. Peacock, E., et al. (2015). **"Binge Drinking among Men Who Have Sex with Men and Transgender Women in San Salvador: Correlates and Sexual Health Implications."** *J Urban Health* 92(4): 701-716.

High rates of heavy alcohol use among men who have sex with men (MSM) and transgender women (TW) have been linked to increased vulnerability for HIV and poor mental health. While theories explaining elevated drinking levels among sexual minorities have been forwarded, few investigations have assessed the potential pathways using empirical data, particularly with an explicit focus on self-stigma and among MSM and TW in low- and middle-income countries. This study examined the relationship between stigma-related stress (specifically, self-stigma and concealment of one's sexual orientation) and binge drinking in a sample of MSM and TW ( $n = 670$ ) in San Salvador, El Salvador, recruited using respondent-driven sampling. Levels of alcohol consumption among participants were high: only 39 % of the sample did not drink alcohol or did not binge drink, while 34 % engaged in binge drinking at least weekly. Among MSM, high self-stigma was associated with binge drinking at least weekly (adjusted relative risk ratio (aRRR) = 2.1,  $p < 0.05$ ). No such relationship was found with less than weekly binge drinking. Among both MSM and TW, having a female partner was associated with binge drinking less than weekly (aRRR = 3.3,  $p < 0.05$ ) and binge drinking at least weekly (aRRR = 3.4,  $p < 0.05$ ), while disclosure of sexual orientation to multiple types of people was associated with binge drinking less than weekly (aRRR = 2.9 for disclosure to one-two types of people,  $p < 0.01$ ; aRRR = 4.0 for disclosure to three-nine types of people,  $p < 0.01$ ). No such relationship was found with at least weekly binge drinking. Binge drinking at least weekly was marginally associated with a number of sexual health outcomes, including high number of lifetime partners (adjusted odds ratio (aOR) = 1.7,  $p < 0.10$ ), inconsistent condom use with a non-regular partner (aOR = 0.5,  $p < 0.10$ ), and decreased intention to test for HIV in the next 12 months (aOR = 0.6,  $p < 0.10$ ). With the exception of inconsistent condom use with a non-regular partner (aOR = 0.4,  $p < 0.05$ ), binge drinking less than weekly was not associated with increased sexual risk behavior and was actually associated with increased intention to test for HIV in the next 12 months (aOR = 2.8,  $p < 0.01$ ). These findings support multiple pathways linking stigma-related stress to alcohol use. Specifically, those with high self-stigma and identity concealment may be using alcohol as a maladaptive coping and emotion regulation strategy, while those who have disclosed their sexual orientation to multiple types of people may be more engaged with the sexual minority community, likely in bars and other venues where permissive norms for alcohol use prevail. That this frequency of binge drinking does not appear to be associated with increased sexual risk behavior (and may even be associated with increased intention to test for HIV in the next 12 months) lends further support to the suggestion that these individuals with healthy concepts of the self (as indicated by high levels of disclosure and low levels of risky sexual behavior) may engage in binge drinking because of the influence of the social environment. Further research is needed to establish the pathways linking stigma-related stress to heavy alcohol use so that points of intervention can be identified.

2. Kaplan, R. L., et al. (2015). **"Forms of Safety and Their Impact on Health: An Exploration of HIV/AIDS-Related Risk and Resilience Among Trans Women in Lebanon."** *Health Care Women Int* 36(8): 917-935.

Using minority stress theory, the authors investigated risk behaviors of transgender women (trans women) in Lebanon. Using semistructured interviews, the authors explored six areas: relationships with family and friends; openness about gender and sexuality; experiences with stigma; sexual behavior; attitudes and behaviors regarding HIV testing; and perceived HIV-related norms among transgender peers. Participants voiced the importance of different forms of safety: social/emotional, physical, sexual, and financial. Strategies for obtaining safety were negotiated differently depending on social, behavioral, and structural factors in the environment. In this article, we provide study findings from the perspectives of trans women, their exposure to stigma, and the necessary navigation of environments characterized by transphobia.

3. Castillo, R., et al. (2015). **"HIV and Sexually Transmitted Infection Incidence and Associated Risk Factors Among High-Risk MSM and Male-to-Female Transgender Women in Lima, Peru."** *J Acquir Immune Defic Syndr* 69(5): 567-575.



**BACKGROUND:** Men who have sex with men (MSM) and male-to-female transgender women (TW) are at increased risk of HIV and sexually transmitted infections (STIs). We evaluated factors associated with incidence of HIV, HSV-2, and chlamydia and gonorrhea (anal and pharyngeal). **METHODS:** We used data from the Comunidades Positivas trial with MSM/TW who have sex with men in Lima, Peru. Participants were asked about sexual risk behaviors and underwent HIV/STI testing at baseline and 9- and 18-month follow-ups. We used discrete time proportional hazards regression to calculate hazard ratios for variables associated with incidence of each STI. **RESULTS:** Among 718 MSM/TW, HIV incidence was 3.6 cases per 100 person-years. HIV incidence was associated with having an incident STI adjusted hazard ratio (aHR) of 3.73. Unprotected receptive anal intercourse was associated with incident anal chlamydia (aHR 2.20). An increased number of sexual partners increased incident HSV-2 (aHR 3.15 for 6-14 partners and 3.97 for 15-46 partners compared with 0-2 partners). The risk of anal gonorrhea decreased with each sexually active year (aHR 0.94) and increased for unprotected compensated sex (aHR 2.36). The risk of pharyngeal gonorrhea also decreased with each year since sexual debut (aHR 0.95). The risk of anal chlamydia decreased with each sexually active year (aHR 0.96); the risk increased with reports of unprotected sex work (aHR 1.61) and unprotected receptive anal sex (aHR 2.63). All aHRs have P values <0.05. **CONCLUSIONS:** MSM/TW experience high incidence of HIV. Up-to-date prevalence and incidence information and identifying factors associated with infection can help develop a more effective combination prevention response.

4. Colby, D., et al. (2015). "HIV pre-exposure prophylaxis and health and community systems in the Global South: Thailand case study." *J Int AIDS Soc* 18(4 Suppl 3): 19953.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4509899/pdf/JIAS-18-19953.pdf>

**INTRODUCTION:** Pre-exposure prophylaxis (PrEP) is recommended by the World Health Organization as an effective method of HIV prevention for individuals at risk for infection. In this paper, we describe the unique role that Thailand has played in the global effort to combat the HIV epidemic, including its role in proving the efficacy of PrEP, and discuss the opportunities and challenges of implementing PrEP in a middle-income country. **DISCUSSION:** Thailand was one of the first countries in the world to successfully reverse a generalized HIV epidemic. Despite this early success, HIV prevalence has remained high among people who inject drugs and has surged among men who have sex with men (MSM) and transgender women (TGW). Two pivotal trials that showed that the use of oral antiretroviral medication as PrEP can reduce HIV transmission were conducted partially or entirely at Thai sites. Demonstration projects of PrEP, as well as clinical trials of alternative PrEP regimens, began or will begin in 2014-2015 in Thailand and will provide additional data and experience on how to best implement PrEP for high-risk individuals in the community. Financing of drug costs, the need for routine laboratory monitoring and lack of awareness about PrEP among at-risk groups all present challenges to the wider implementation of PrEP for HIV prevention in Thailand. **CONCLUSIONS:** Although significant challenges to wider use remain, PrEP holds promise as a safe and highly effective method to be used as part of a combined HIV prevention strategy for MSM and TGW in Thailand.

5. Zea, M. C., et al. (2015). "HIV Prevalence and Awareness of Positive Serostatus Among Men Who Have Sex With Men and Transgender Women in Bogota, Colombia." *Am J Public Health* 105(8): 1588-1595.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4504275/pdf/AJPH.2014.302307.pdf>

**OBJECTIVES:** We estimated HIV prevalence among men who have sex with men (MSM) and transgender women in Bogota, Colombia, and explored differences between HIV-positive individuals who are aware and unaware of their serostatus. **METHODS:** In this cross-sectional 2011 study, we used respondent-driven sampling (RDS) to recruit 1000 MSM and transgender women, who completed a computerized questionnaire and received an HIV test. **RESULTS:** The RDS-adjusted prevalence was 12.1% (95% confidence interval [CI] = 8.7, 15.8), comparable to a previous RDS-derived estimate. Among HIV-positive participants, 39.7% (95% CI = 25.0, 54.8) were aware of their serostatus and 60.3% (95% CI = 45.2, 75.5) were unaware before this study. HIV-positive-unaware individuals were more likely to report inadequate insurance coverage, exchange sex (i.e., sexual intercourse in exchange for money, goods, or services), and substance use than other participants. HIV-positive-aware participants were least likely to have had condomless anal intercourse in the previous 3 months. Regardless of awareness, HIV-positive participants reported more violence and forced relocation experiences than HIV-negative participants. **CONCLUSIONS:** There is an urgent need to increase HIV detection among MSM and transgender women in Bogota. HIV-positive-unaware group characteristics suggest an important role for structural, social, and individual interventions.

6. Aggleton, P. and R. Parker (2015). "Moving Beyond Biomedicalization in the HIV Response: Implications for Community Involvement and Community Leadership Among Men Who Have Sex with Men and Transgender People." *Am J Public Health* 105(8): 1552-1558.

As the world enjoys the promise of biomedical advances against HIV, numerous challenges remain. Some of these are connected to politics, others are connected to resource constraints. Other barriers are linked to the need to ensure that the concepts used to think about HIV remain current. Terms such as "MSM" (men who have sex with men) and "community" require critical interrogation at a moment when their political origins seem forgotten. Likewise, struggles between groups most affected by HIV and scientists and policymakers (an enduring feature of the epidemic) remain a key aspect of the response. The dangers of co-option and distraction remain real. In this context, it is vital to promote community ownership, political commitment, solidarity, and respect for differences, not as competing values, but as part of the ultimate solution to HIV.

7. Veloso, V. G., et al. (2015). **"Pre-exposure prophylaxis for men and transgender women who have sex with men in Brazil: opportunities and challenges."** *J Int AIDS Soc* 18(4 Suppl 3): 20010.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4509891/pdf/JIAS-18-20010.pdf>

**INTRODUCTION:** The World Health Organization recently released guidelines on the use of pre-exposure prophylaxis (PrEP) for prevention of HIV infection among men and transgender women (TGW) who have sex with men based on results of randomized clinical trials. The aim of this commentary is to discuss the opportunities and challenges of incorporating PrEP into the Brazilian continuum of HIV care and prevention for men who have sex with men (MSM) and TGW. **DISCUSSION:** Key aspects of the AIDS epidemic among MSM and TGW in Brazil and the comprehensive Brazilian response to the epidemic are presented. The universal access to health care provided through the Brazilian Unified Health System (SUS) and the range of prevention and care services already available countrywide to HIV-positive individuals and at-risk MSM and TGW are identified as the main facilitators for the implementation of PrEP. Limited PrEP awareness among MSM, TGW and health care providers, low HIV testing frequency and low HIV risk perception among MSM and TGW represent the core challenges to be addressed. Data generated by demonstration projects in Brazil will provide an important contribution to PrEP rollout in Brazil. **CONCLUSIONS:** The implementation of PrEP in Brazil is feasible. A synergistic rollout of treatment as prevention and PrEP will maximize public health and individual benefits of the country's comprehensive response to the AIDS epidemic.

8. Minor Peters, M. (2015). **"They wrote 'gay' on her file': transgender Ugandans in HIV prevention and treatment."** *Cult Health Sex*: 1-15.

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.

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## Young Key Populations - 3

1. Nelson, L. E., et al. (2015). **"The Association of HIV Stigma and HIV/STD Knowledge With Sexual Risk Behaviors Among Adolescent and Adult Men Who Have Sex With Men in Ghana, West Africa."** *Res Nurs Health* 38(3): 194-206.

Ghanaian men who have sex with men (MSM) have a high HIV seroprevalence, but despite a critical need to address this public health concern, research evidence has been extremely limited on influences on sexual risk behavior among MSM in Ghana. To investigate associations between HIV/STD knowledge, HIV stigma, and sexual behaviors in a sample of MSM in Ghana, we conducted a secondary data analysis of cross-sectional survey data from a non-

probability sample of Ghanaian MSM (N = 137). Nearly all the men (93%) had more than one current sex partner (M = 5.11, SD = 7.4). Of those reported partners, the average number of current female sexual partners was 1.1 (SD = 2.6). Overall, knowledge levels about HIV and STDs were low, and HIV stigma was high. There was no age-related difference in HIV stigma. Younger MSM ( $\leq 25$  years) used condoms less often for anal and vaginal sex than did those over 25. Relative frequency of condom use for oral sex was lower in younger men who had higher STD knowledge and also was lower in older men who reported high HIV stigma. Knowledge and stigma were not associated with condom use for anal or vaginal sex in either age group. These descriptive data highlight the need for the development of intervention programs that address HIV/STD prevention knowledge gaps and reduce HIV stigma in Ghanaian communities. Intervention research in Ghana should address age-group-specific HIV prevention needs of MSM youth.

2. Folayan, M. O., et al. (2015). **"Differences in Sexual Practices, Sexual Behavior and HIV Risk Profile between Adolescents and Young Persons in Rural and Urban Nigeria."** *PLoS One* 10(7): e0129106.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4501747/pdf/pone.0129106.pdf>

**INTRODUCTION:** We aimed to determine differences in sexual practices, HIV sexual risk behaviors, and HIV risk profile of adolescents and young persons' in rural and urban Nigeria. **METHODOLOGY:** We recruited 772 participants 15 to 24 years old from urban and rural townships in Nigeria through a household survey. Information on participants' socio-demographic profile (age sex, residential area, number of meals taken per day), sexual practices (vagina, oral and anal sex; heterosexual and homosexual sex; sex with spouse, casual acquaintances, boy/girlfriend and commercial sex workers), sexual behavior (age of sexual debut, use of condom, multiple sex partners, transactional sex and age of sexual partner), and other HIV risk factors (use of alcohol and psychoactive substances, reason for sexual debut, knowledge of HIV prevention and HIV transmission, report of STI symptoms) were collected through an interviewer administered questionnaire. Differences in sexual behavior and sexual practices of adolescents and HIV risk profile of adolescents and young persons resident in urban and rural areas were determined. **RESULTS:** More than half (53.5%) of the respondents were sexually active, with more residing in the rural than urban areas (64.9% vs 44.1%;  $p < 0.001$ ) and more resident in the rural area reporting having more than one sexual partner (29.5% vs 20.4%;  $p = 0.04$ ). Also, 97.3% of sexually active respondents reported having vaginal sex, 8.7% reported oral sex and 1.9% reported anal sex. More male than female respondents in the urban area used condoms during the last vaginal sexual intercourse (69.1% vs 51.9%;  $p = 0.02$ ), and reported sex with casual partners (7.0% vs 15.3%;  $p = 0.007$ ). More female than male respondents residing in the rural area engaged in transactional sex (1.0% vs 6.7%;  $p = 0.005$ ). More females than males in both rural (3.6% vs 10.2%;  $p = 0.04$ ) and urban (4.7% vs 26.6%;  $p < 0.001$ ) areas self-reported a history of discharge. More females than males in both rural (1.4% vs 17.0%;  $p = 0.04$ ) and urban (15.0% vs 29.1%;  $p < 0.001$ ) areas self-reported a history of itching. **CONCLUSION:** There are differences in the sexual behavior and practices of adolescents and young persons' residing in the urban and rural area with implication for HIV prevention programming.

3. Bowring, A. L., et al. (2015). **"It goes both ways: a cross-sectional study of buying and selling sex among young behaviourally bisexual men in Vientiane, Laos."** *Sex Health*.

**Background:** Transactional sex may increase risk of HIV and sexually transmissible infections (STIs). In Laos, men who have sex with men are disproportionately affected by HIV, and bisexual behaviour among men is relatively common. The occurrence of transactional sex among behaviourally bisexual men in Vientiane, Laos was explored. **Methods:** In 2010, behaviourally bisexual men were recruited through enhanced snowball sampling to complete a behavioural survey. Reports of transactional sex partners (anal/vaginal sex) in the previous year, by direction of payment and partner gender, is described. **Results:** Of 88 participating behaviourally bisexual men (median age 22 years), 17 (19%) reported only selling sex, eight (9%) reported only paying for sex and nine (10%) reported both selling and paying for sex. Men reporting any transactional sex reported a median of four transactional sex partners and reported a higher number of total sex partners in the previous 12 months (median: 18.5 partners) than men reporting no transactional sex partners (median: 6 partners). Of 26 men who reported selling sex, 15 (58%) were paid by females, 15 (58%) were paid by males and 14 (55%) were paid by transgender sex partner(s); 11 (42%) reported consistent condom use (CCU) when selling sex. Of 17 men who reported paying for sex, 13 (76%) paid females, six (35%) paid males and two (12%) paid transgender partner(s); eight (47%) reported CCU when paying for sex. **Conclusions:** Young behaviourally bisexual men engaging in transactional sex may be at increased risk of HIV and STIs. Prevention interventions should consider the transient and informal nature of transactional sex in this population.

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