



## Quarterly Research Digest on HIV and Key Populations

December 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 youth). This quarterly digest includes articles published between September 1, 2015 and December 1, 2015. For open access articles, we've included the link to the full text.

### Browse by topic:

- Key Populations General - 9**
- People Who Inject Drugs - 30**
- Men who have Sex with Men - 53**
- Sex Workers - 39**
- Transgender People - 7**
- Young Key Populations - 7**

### Key Populations General - 9

1. Figueroa, C., et al. "Attitudes and Acceptability on HIV Self-testing Among Key Populations: A Literature Review." *AIDS Behav* 2015 19(11): 1949-65.  
  
HIV self-testing (HIVST) is a potential strategy to overcome disparities in access to and uptake of HIV testing, particularly among key populations (KP). A literature review was conducted on the acceptability, values and preferences among KP. Data was analyzed by country income World Bank classification, type of specimen collection, level of support offered and other qualitative aspects. Most studies identified were from high-income countries and among men who have sex with men (MSM) who found HIVST to be acceptable. In general, MSM were interested in HIVST because of its convenient and private nature. However, they had concerns about the lack of counseling, possible user error and accuracy. Data on the values and preferences of other KP groups regarding HIVST is limited. This should be a research priority, as HIVST is likely to become more widely available, including in resource-limited settings.
2. Shisana, O., et al. "The case for expanding the definition of 'key populations' to include high-risk groups in the general population to improve targeted HIV prevention efforts." *S Afr Med J* 2015 105(8): 669.  
Online at: <http://www.samj.org.za/index.php/samj/article/download/9328/6893>.

**BACKGROUND:** Two additional key populations within the general population in South Africa (SA) that are at risk of HIV infection are black African women aged 20 - 34 years and black African men aged 25 - 49 years. **OBJECTIVE:** To investigate the social determinants of HIV serostatus for these two high-risk populations. **METHODS:** Data from the 2012 South African National HIV Prevalence, Incidence, and Behaviour Survey were analysed for black African women aged 20 - 34 years and black African men aged 25 - 49 years. **RESULTS:** Of the 6.4 million people living with HIV in SA in 2012, 1.8 million (28%) were black women aged 20 - 34 years and 1.9 million (30%) black men aged 25 - 49 years. In 2012, they constituted 58% of the total HIV-positive population and 48% of the newly infected population. Low socioeconomic status (SES) was strongly associated ( $p < 0.001$ ) with being HIV-positive among black women aged 20 - 34 years, and was marginally significant among black men aged 25 - 49 years ( $p < 0.1$ ). **CONCLUSION:** Low SES is a critical social determinant for HIV infection among the high-risk groups of black African women aged 20 - 34 years and black African men aged 25 - 49 years. Targeted interventions for these key populations should prioritise socioeconomic empowerment, access to formal housing and services, access to higher education, and broad economic transformation.

3. Johnston, L. G., et al. **"Estimating the Size of Hidden Populations Using Respondent-driven Sampling Data: Case Examples from Morocco."** *Epidemiology* 2015 26(6): 846-52.

**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.

4. Thepthien, B. O., et al. **"Factors Enabling Access to HIV Voluntary Counseling and Testing for Key Affected Populations in Thailand."** *Asia Pac J Public Health* 2015 27(7): 765-74.

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.

5. Aral, S. O., et al. **"Geographical targeting to improve progression through the sexually transmitted infection/HIV treatment continua in different populations."** *Curr Opin HIV AIDS* 2015 10(6): 477-82.

**PURPOSE OF REVIEW:** The purpose of this study is to review and synthesize the recent literature on the use of geographical targeting to improve progression through HIV and sexually transmitted disease (STD) prevention and treatment continua in different populations. **RECENT FINDINGS:** Geographical targeting can help identify obstacles to progression through prevention and treatment continua for each stage and in specific geographic locations. Macro-level geographical targeting can help maximize allocative efficiency, while micro-level targeting of hot spots increases effectiveness of interventions. Migration into and out of geographical areas of interest constitutes a challenge to geographical targeting in that stage-specific monitoring strategies tend to yield inaccurate results when people leave the area. Despite these issues, it is possible to identify failures in each stage of the continuum by specific spatial location such as census tracts and focus improvement efforts accordingly. **SUMMARY:** Vulnerabilities, risk behaviours

and infections all cluster across age, race-ethnicity, socioeconomic status, key populations, risk networks and geographic space. Spatial concentration may be the most important in this context, as it allows prevention programmes to identify and reach target populations more easily. Geographical targeting can be employed at both macro and micro levels and in combination with targeting of key populations and high-risk networks.

6. Risher, K., et al. **"HIV treatment cascade in MSM, people who inject drugs, and sex workers."** *Curr Opin HIV AIDS* 2015 10(6): 420-9.

**PURPOSE OF REVIEW:** People who inject drugs (PWID), sex workers, and MSM simultaneously bear a high burden of HIV and stigma and discrimination. The purpose of this review was to summarize recent information about the understanding of the HIV care cascade among PWID, sex workers, and MSM populations around the globe. **RECENT FINDINGS:** A review of the published literature relating to the care cascade in these three key populations was conducted. Data on the care cascade among key populations are sparse, particularly for PWID and sex workers. In the 12 countries in which a study or report of the care cascade was available stratified by these populations, all three populations have care cascade outcomes that are far below the 90-90-90 target set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) for 2020. Culturally tailored interventions, including colocation of services and peer navigators, can improve care cascade outcomes among key populations. **SUMMARY:** Key populations' care cascade outcomes must be included in international reporting metrics to expand cascade data for these groups. Improving care cascade outcomes in these key populations through culturally tailored interventions should be a priority in the coming years.

7. Melhem, N. M., et al. **"Human immunodeficiency virus and viral hepatitis among high-risk groups: Understanding the knowledge gap in the Middle East and North Africa Region."** *World J Hepatol* 2015 7(25): 2619-30.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4635148/pdf/WJH-7-2619.pdf>.

**AIM:** To identify gaps in the existing knowledge on single, dual and triple infections of human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) in the Middle East and North Africa (MENA) region among men who have sex with men (MSMs), female sex workers (FSWs), injecting drug users (IDUs) and prisoners. **METHODS:** We performed an extensive literature search on articles published on the topic in the 25 countries of the MENA region. PubMed database was used as the main search engine. Case reports, case series, qualitative studies, editorials, commentaries, authors' replies and animal studies were excluded. Original articles and reviews dealing with the prevalence of HIV, HBV and HCV and their co-infection were included. Data on population type, sample size, age and markers of infections were extracted from the relevant studies. **RESULTS:** HIV, HBV and HCV are blood-borne viruses with similar modes of transmission. The categories of people at high risk of acquiring HIV-1, HBV and HCV commonly include: MSMs, FSW and IDUs. It is well established that HIV-positive individuals co-infected with HBV or HCV suffer from liver pathology associated with morbidity and mortality. Moreover, HIV-infected individuals do not respond well to treatment for HBV or HCV and hence are at increased risk of hepatic toxicity. Consequently, co-infection of HIV-positive individuals with HBV and/or HCV is a global health problem of significant magnitude. Our review reveals the paucity of epidemiological data for key populations in many countries of the region. Limited number of studies exists in the MENA region on the status of HIV, HBV and HCV and their co-infections among prisoners, MSMs and FSWs. Evidence support the continued increase of the HIV epidemic among MSMs. In addition to the lack of studies on MSMs and FSWs in the MENA region, our review highlights the lack of data on the practices, characteristics, or the status of HIV infection and viral hepatitis among male sex workers selling or exchanging sex for money. **CONCLUSION:** The MENA countries are in urgent need of advanced research and strengthening of the data collection systems and reporting practices of these infections among key populations.

8. Zhao, Y., et al. **"Risk Factors of HIV and Other Sexually Transmitted Infections in China: A Systematic Review of Reviews."** *PLoS One* 2015 10(10): e0140426.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4607362/pdf/pone.0140426.pdf>.

**BACKGROUND:** Sexually Transmitted Infections (STIs) are a global challenge. China, once said to have eradicated STIs, is now facing a rapid rise in the prevalence of HIV/STIs. This review of reviews aims to map HIV/STI risk factors among the Chinese population, with the objective of identifying risk factors to inform the formulation of effective prevention strategies. **METHODS:** A systematic search using key terms related to HIV/STIs, risk factors and the Chinese population in both English and Chinese databases (PubMed, PsycINFO, the Cochrane Library; Wanfang data, CNKI, VIP and SINOMED) was conducted, and peer-reviewed systematic reviews on the topic from 1991 to 2014 were selected. Identified risk factors were grouped into different level determinants based on the HIV Social Epidemiology Model, and then evaluated and reported based on the PRISMA checklist. **FINDINGS:** Of the twenty-eight reviews included, the

majority were focused on well-established, individual level risk factors within key populations, with some highlighting the complexity of interacting factors (e.g., alcohol use and higher income in male migrants). While twenty-two reviews covered individual factors, only ten mentioned social factors and five had contents on structural factors. There are gaps in the evidence on social and structural level impacts of HIV/STIs, such as on stigma, discrimination, health policy, access to care, and illicit drug control policies. Migration and social expectation appear to pose a significant threat in aggravating the HIV/STI situation in China; for example, incarceration patterns indicated a significant risk of HIV/STIs for female sex workers. CONCLUSIONS: Since international guidelines recommend an integrated and multi-level approach to HIV/STI prevention, a comprehensive approach targeting interventions at all levels along the continuum of care is needed to effectively curtail HIV/STI transmission in China. More research is needed to better understand the impact of socio-political interventions within a Chinese context.

9. Muzyamba, C., et al. **"You cannot eat rights": a qualitative study of views by Zambian HIV-vulnerable women, youth and MSM on human rights as public health tools.** *BMC Int Health Hum Rights* 2015 15(1): 26. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4595269/pdf/12914\\_2015\\_Article\\_67.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4595269/pdf/12914_2015_Article_67.pdf).

BACKGROUND: Human rights approaches now dominate the HIV prevention landscape across sub-Saharan Africa, yet little is known about how they are viewed by the populations they are designed to serve. Health interventions are most effective when they resonate with the worldviews and interests of target groups. This study examined local Zambian understandings of human rights approaches to HIV-prevention among three highly HIV-vulnerable groups: women, youth, and men-who-have-sex-with-men (MSM). METHODS: Focus groups included 23 women, youth, and MSM who had participated in activities organized by local non-governmental organizations (NGOs) using rights-based approaches, and interviews included 10 Zambian employees of these NGOs. Topics included participants' experiences and views of the utility of these activities. Thematic analysis mapped out diverse ways participants viewed the concept of human rights in relation to HIV-prevention. RESULTS: Whilst NGO workers noted the need for human rights programs to address the complex drivers of the HIV epidemic, they struggled to tailor them to the Zambian context due to donor stipulations. Women program beneficiaries noted that the concept of human rights helped challenge harmful sexual practices and domestic abuse, and youth described rights-based approaches as more participatory than previous HIV-prevention efforts. However, they criticized the approach for conflicting with traditional values such as respect for elders and 'harmonious' marital relationships. They also critiqued it for threatening the social structures and relationships that they relied on for material survival, and for failing to address issues like poverty and unemployment. In contrast, MSM embraced the rights approach, despite being critical of its overly confrontational implementation. CONCLUSIONS: A rights-based approach seeks to tackle the symbolic drivers of HIV-its undeniable roots in cultural and religious systems of discrimination. Yet, it fails to resonate with youth and women's own understandings of their needs and priorities due to its neglect of material drivers of HIV such as poverty and unemployment. MSM, who suffer extreme stigma and discrimination, have less to lose and much to gain from an approach that challenges inequitable social systems. Developing effective HIV-prevention strategies requires careful dialogue with vulnerable groups and greater flexibility for context-specific implementation rather than a one-size-fits-all conceptualization of human rights.

[Back to top](#)

## People Who Inject Drugs - 30

1. Guimaraes, M. L., et al. **"Assessing the HIV-1 Epidemic in Brazilian Drug Users: A Molecular Epidemiology Approach."** *PLoS One* 2015 10(11): e0141372. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4633026/pdf/pone.0141372.pdf>.

Person who inject illicit substances have an important role in HIV-1 blood and sexual transmission and together with person who uses heavy non-injecting drugs may have less than optimal adherence to anti-retroviral treatment and eventually could transmit resistant HIV variants. Unfortunately, molecular biology data on such key population remain fragmentary in most low and middle-income countries. The aim of the present study was to assess HIV infection rates, evaluate HIV-1 genetic diversity, drug resistance, and to identify HIV transmission clusters in heavy drug users (DUs). For this purpose, DUs were recruited in the context of a Respondent-Driven Sampling (RDS) study in different Brazilian cities during 2009. Overall, 2,812 individuals were tested for HIV, and 168 (6%) of them were positive, of which 19 (11.3%) were classified as recent seroconverters, corresponding to an estimated incidence rate of 1.58%/year (95% CI 0.92-2.43%). Neighbor joining phylogenetic trees from env and pol regions and bootscan analyses were employed to subtype the virus from 132 HIV-1-infected individuals. HIV-1 subtype B was prevalent in most of the cities under analysis, followed by BF recombinants (9%-35%). HIV-1 subtype C was the most prevalent in Curitiba

(46%) and Itajai (86%) and was also detected in Brasilia (9%) and Campo Grande (20%). Pure HIV-1F infections were detected in Rio de Janeiro (9%), Recife (6%), Salvador (6%) and Brasilia (9%). Clusters of HIV transmission were assessed by Maximum likelihood analyses and were cross-compared with the RDS network structure. Drug resistance mutations were verified in 12.2% of DUs. Our findings reinforce the importance of the permanent HIV-1 surveillance in distinct Brazilian cities due to viral resistance and increasing subtype heterogeneity all over Brazil, with relevant implications in terms of treatment monitoring, prophylaxis and vaccine development.

2. Simmons, N., et al. **"Assessment of contamination and misclassification biases in a randomized controlled trial of a social network peer education intervention to reduce HIV risk behaviors among drug users and risk partners in Philadelphia, PA and Chiang Mai, Thailand."** *AIDS Behav* 2015 19(10): 1818-27.

Controlled trials of HIV prevention and care interventions are susceptible to contamination. In a randomized controlled trial of a social network peer education intervention among people who inject drugs and their risk partners in Philadelphia, PA and Chiang Mai, Thailand, we tested a contamination measure based on recall of intervention terms. We assessed the recall of test, negative and positive control terms among intervention and control arm participants and compared the relative odds of recall of test versus negative control terms between study arms. The contamination measures showed good discriminant ability among participants in Chiang Mai. In Philadelphia there was no evidence of contamination and little evidence of diffusion. In Chiang Mai there was strong evidence of diffusion and contamination. Network structure and peer education in Chiang Mai likely led to contamination. Recall of intervention materials can be a useful method to detect contamination in experimental interventions.

3. Le, L. T., et al. **"Coalition building by drug user and sex worker community-based organizations in Vietnam can lead to improved interactions with government agencies: a qualitative study."** *Harm Reduct J* 2015 12: 38. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608150/pdf/12954\\_2015\\_Article\\_70.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608150/pdf/12954_2015_Article_70.pdf).

BACKGROUND: Drug users and female sex workers are among the groups most vulnerable to HIV infection in Vietnam. To address the HIV epidemic within these communities, former drug users and sex workers established the first community-based organizations (CBOs) in 2009. The study provides a focused assessment of CBOs' expanding efforts to advocate for their members that identifies existing collaborations with Vietnamese government programs. This assessment explores the barriers to and facilitators of expansion in order to propose recommendations to improve the working relationship between CBOs and government programs. METHODS: Thirty-two individuals from drug user and sex worker CBOs (n = 24) and relevant government programs (n = 8) participated in face-to-face interviews in Hanoi, Ho Chi Minh City, and Hai Phong. Coded interview transcripts were analyzed qualitatively concerning the purpose of CBOs, the interactions between CBOs and government programs, and the perceived barriers, facilitators, and feasibility of future CBO-government program collaborations. RESULTS: Services provided by the CBOs were considered to improve members' quality of life. The formation of coalitions among CBOs increased efficiency in meeting members' specific service needs, in addition to internal capacity building. Government field staff interacted with CBOs by providing CBOs with technical and legal support. CBOs and methadone maintenance treatment (MMT) clinics collaborated to help the clinics meet patient enrollment quotas and facilitate entry into treatment for CBO members. Barriers to CBO-government program collaboration included perceived conflicting missions on how to address drug use and sex work in the community, limited CBO-government program communication, CBO mistrust of the MMT system, and lack of legal status for CBOs. CONCLUSION: To reduce these barriers, we recommend (1) introduction of CBO consultative services at government healthcare centers, (2) enlistment of CBO outreach to ensure full access to the imminent scaled-up MMT program, and (3) establishment of standards by which CBOs can obtain legal status.

4. Tien Ng, K., et al. **"Co-infections and transmission networks of HCV, HIV-1 and HPgV among people who inject drugs."** *Sci Rep* 2015 5: 15198. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4602306/pdf/srep15198.pdf>.

Co-infections with human immunodeficiency virus type 1 (HIV-1) and human pegivirus (HPgV) are common in hepatitis C virus (HCV)-infected individuals. However, analysis on the evolutionary dynamics and transmission network profiles of these viruses among individuals with multiple infections remains limited. A total of 228 injecting drug users (IDUs), either HCV- and/or HIV-1-infected, were recruited in Kuala Lumpur, Malaysia. HCV, HIV-1 and HPgV genes were sequenced, with epidemic growth rates assessed by the Bayesian coalescent method. Based on the sequence data, mono-, dual- and triple-infection were detected in 38.8%, 40.6% and 20.6% of the subjects, respectively. Fifteen transmission networks involving HCV (subtype 1a, 1b, 3a and 3b), HIV-1 (CRF33\_01B) and HPgV (genotype 2) were identified and characterized. Genealogical estimates indicated that the predominant HCV, HIV-1

and HPgV genotypes were introduced into the IDUs population through multiple sub-epidemics that emerged as early as 1950s (HCV), 1980s (HIV-1) and 1990s (HPgV). By determining the difference in divergence times between viral lineages (DeltatMRCA), we also showed that the frequency of viral co-transmission is low among these IDUs. Despite increased access to therapy and other harm reduction interventions, the continuous emergence and coexistence of new transmission networks suggest persistent multiple viral transmissions among IDUs.

5. Bergenstrom, A., et al. **"Drug-related HIV epidemic in Pakistan: a review of current situation and response and the way forward beyond 2015."** *Harm Reduct J* 2015 12: 43.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608141/pdf/12954\\_2015\\_Article\\_79.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608141/pdf/12954_2015_Article_79.pdf).

Pakistan is among four countries in Asia where the estimated number of new HIV infections has been increasing year by year ever since 1990. The Asian Epidemic Modelling (AEM), conducted in 2015, reconfirmed that the use of contaminated injection equipment among people who inject drugs (PWID) remains the main mode of HIV transmission in the country. The estimated number of PWID ranges from 104,804 to 420,000 PWID. HIV prevalence in this population is above 40 % in several cities, including Faisalabad (52.5 %), D.G. Khan (49.6 %), Gujrat (46.2 %), Karachi (42.2 %) and Sargodha (40.6 %), respectively. Harm reduction service delivery is being implemented through a public-private partnership led by the National and Provincial AIDS Control Programmes and Nai Zindagi with funding support from the Global Fund. Current programmatic coverage of the needle and syringe programme, HIV testing and counselling and antiretroviral treatment among PWID remain insufficient to control ongoing transmission of HIV in the country. While opioid substitution therapy (OST) is yet to be introduced, significant progress and coordination among various ministries have taken place recently to register buprenorphine in the dosage required for treatment of opioid dependence, and possible introduction of OST will greatly facilitate adherence to antiretroviral treatment among PWID living with HIV.

6. Ahamad, K., et al. **"Effect of low-threshold methadone maintenance therapy for people who inject drugs on HIV incidence in Vancouver, BC, Canada: an observational cohort study."** *Lancet HIV* 2015 2(10): e445-50.

**BACKGROUND:** HIV infection in people who inject drugs (PWID) is an international public health concern. We aimed to assess the effect of methadone maintenance therapy on HIV incidence in PWID in Vancouver, BC, Canada, where methadone is widely available through family physicians' offices and dispensed by community pharmacies. **METHODS:** Data were derived from the Vancouver Injection Drug Users Study (VIDUS), a prospective cohort of PWID in Vancouver. Individuals were eligible to enrol in VIDUS if they had injected illicit drugs at least once in the previous month and lived in the Greater Vancouver region. Participants responded to an interviewer-administered questionnaire and provided blood samples at enrolment and follow-up visits every 6 months. We estimated time to HIV seroconversion with Kaplan-Meier methods and used Cox proportional hazards methods to assess associations between methadone use and time to seroconversion. **FINDINGS:** 1639 HIV-negative individuals were recruited between May 1, 1996, and May 31, 2013. Of these individuals, 138 had HIV seroconversion during a median of 75.5 months (IQR 33.4-115.3) of follow-up. In multivariate Cox regression analyses, methadone maintenance therapy remained independently associated with a reduced hazard of HIV infection after adjustment for sociodemographic characteristics and drug use patterns (adjusted relative hazard 0.64, 95% CI 0.41-0.98). **INTERPRETATION:** Methadone maintenance therapy for PWID made available through primary care physicians and community pharmacies can help to achieve public health goals such as reducing the spread of HIV. **FUNDING:** US National Institutes of Health, Canada Research Chair, Canadian Institutes of Health Research.

7. Heimer, R., et al. **"Emergence of methadone as a street drug in St. Petersburg, Russia."** *Int J Drug Policy* 2015.

**BACKGROUND:** The syndemic of opioid addiction, HIV, hepatitis, tuberculosis, imprisonment, and overdose in Russia has been worsened by the illegality of opioid substitution therapy. As part of on-going serial studies, we sought to explore the influence of opioid availability on aspects of the syndemic as it has affected the city of St. Petersburg. **METHODS:** We employed a sequential approach in which quantitative data collection and statistical analysis were followed by a qualitative phase. Quantitative data were obtained in 2013-2014 from a respondent-driven sample (RDS) of people who inject drugs (PWID). Individuals recruited by RDS were tested for antibodies to HIV and interviewed about drug use and injection practices, sociodemographics, health status, and access to medical care. Subsequently, we collected in-depth qualitative data on methadone use, knowledge, and market availability from PWID recruited at nine different locations within St. Petersburg. **RESULTS:** Analysis of interview data from the sample revealed the percentage of PWID injecting methadone in the 30 days prior to interview increased from 3.6% in 2010 to 53.3% in 2012-2013. Injection of only methadone, as compared to injecting only heroin or both drugs, was associated with less frequent injection and reduced HIV-related injected risk, especially a lower rate of injecting with



a previously used syringe. In-depth questioning of methadone injectors corroborated the finding from serial quantitative surveys of PWID that methadone's black market availability is a recent phenomenon. Spatial analysis revealed widespread methadone availability but no concentration in any specific districts of the city. **CONCLUSION:** Despite the prohibition of substitution therapy and demonization of methadone, the drug has emerged to rival heroin as the most commonly available opioid in St. Petersburg. Ironically, its use is associated with reduced injection-related HIV risk even when its use is illegal.

8. Armstrong, G., et al. **"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* 2015 70(2): e66-8.
9. Zule, W. A., et al. **"Factors that influence the characteristics of needles and syringes used by people who inject drugs in Tajikistan."** *Harm Reduct J* 2015 12: 37.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608191/pdf/12954\\_2015\\_Article\\_69.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608191/pdf/12954_2015_Article_69.pdf).

**BACKGROUND:** "Low dead space" syringes with permanently attached needles retain less fluid, blood, and HIV after use than standard "high dead space" syringes. This reduces the probability of HIV transmission if they are shared by people who inject drugs (PWID). The World Health Organization recently recommended that needle and syringe programs (NSP) offer clients low dead space syringes. The success of this recommendation will depend on PWID switching to low dead space needles and syringes. This paper examines the needles and syringes that PWID in Tajikistan use and factors that influence their choices. **METHODS:** In May 2014, we conducted six focus groups in Kulob and six in Khorog, Tajikistan, with a total of 100 participants. NSP staff members recruited participants. Focus group topics included the needles and syringes used and factors that influence choice of needles and syringes. Focus groups were conducted in Russian and Tajik, audio recorded, transcribed, and translated into English. The translated files were imported into NVivo 10 for coding and analysis. **RESULTS:** All participants in both cities were male and reported injecting heroin. Everyone also reported using syringes with detachable needles almost exclusively. The most popular syringe sizes were 2 and 5 ml. Needles ranged in gauge from 25 to 21 g. Needle gauge was influenced by the size of the vein, the viscosity of drug solution to be injected, and problems with blood clotting. Needles ranged in length from 12 to 38 mm, with 25 and 32 mm being the most popular. Needle length was influenced by the depth of the vein being used. Many PWID inject volumes of fluid greater than 1 ml into deep veins that require needles at least 25 mm long and 25 g in diameter. **CONCLUSION:** Most low dead space syringes are 1-ml insulin syringes with 12 mm 28 g permanently attached needles. Findings from this project suggest that these will not be acceptable to PWID who need larger syringes and longer and thicker needles that are detachable. Low dead space detachable needles appear to be an acceptable option that could overcome barriers to the widespread use of low dead space equipment for reducing HIV and HCV transmission.

10. Cheong, H. T., et al. **"Genome Sequence of Complex HIV-1 Unique Recombinant Forms Sharing a Common Recombination Breakpoint Identified in Malaysia."** *Genome Announc* 2015 3(6).  
Online at: <http://genomea.asm.org/content/3/6/e01220-15.full.pdf>.

Three strains of HIV-1 unique recombinant forms (URFs) descended from subtypes B, B', and CRF01\_AE were identified among people who inject drugs in Kuala Lumpur, Malaysia. These three URFs shared a common recombination breakpoint in the reverse transcriptase region, indicating frequent linkage within the drug-injecting networks in Malaysia.

11. Zhou, Y. B., et al. **"Geographical variations in risk factors associated with HIV infection among drug users in a prefecture in Southwest China."** *Infect Dis Poverty* 2015 4: 38.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4557839/pdf/40249\\_2015\\_Article\\_73.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4557839/pdf/40249_2015_Article_73.pdf).

**BACKGROUND:** Previous studies have shown inconsistent or even contradictory results for some risk factors associated with HIV infection among drug users, and these may be partially explained by geographical variations. **METHODS:** Data were collected from 11 methadone clinics in the Liangshan Yi Autonomous Prefecture from 2004 to 2012. A non-spatial logistical regression model and a geographically weighted logistic regression model were fitted to analyze the association between HIV infection and specific factors at the individual level. **RESULTS:** This study enrolled 6,458 patients. The prevalence of HIV infection was 25.1 %. The non-spatial model indicated that being divorced was positively associated with HIV infection. The spatial model also showed that being divorced was positively associated with HIV infection, but only for 49.4 % of individuals residing in some northern counties. The non-spatial model suggested that service sector work was negatively associated with HIV infection. However, the spatial model indicated that service work was associated with HIV infection, but only for 23.0 % of patients living in some western counties.

The non-spatial model did not show that being married was associated with HIV infection in our study field, but the spatial model indicated that being married was negatively associated with HIV infection for 12.0 % of individuals living in some western counties. For other factors, the non-spatial and spatial models showed similar results. CONCLUSION: The spatial model may be useful for improving understanding of geographical heterogeneity in the relationship between HIV infection and individual factors. Spatial heterogeneity may be useful for tailoring intervention strategies for local regions, which can consequently result in a more efficient allocation of limited resources toward the control of HIV transmission.

12. Heath, A. J., et al. **"Healthcare avoidance by people who inject drugs in Bangkok, Thailand."** *J Public Health (Oxf)* 2015.

BACKGROUND: Although people who inject drugs (IDU) often contend with various health-related harms, timely access to health care among this population remains low. We sought to identify specific individual, social and structural factors constraining healthcare access among IDU in Bangkok, Thailand. METHODS: Data were derived from a community-recruited sample of IDU participating in the Mitsampan Community Research Project between July and October 2011. We assessed the prevalence and correlates of healthcare avoidance due to one's drug use using multivariate logistic regression. RESULTS: Among 437 participants, 112 (25.6%) reported avoiding health care because they were IDU. In multivariate analyses, factors independently associated with avoiding health care included having ever been drug tested by police [adjusted odds ratio (AOR) = 1.80], experienced verbal abuse (AOR = 3.15), been discouraged from engaging in usual family activities (AOR = 3.27), been refused medical care (AOR = 10.90), experienced any barriers to health care (AOR = 4.87) and received healthcare information and support at a drop-in centre (AOR = 1.92) (all  $P < 0.05$ ). CONCLUSIONS: These findings highlight the need to address the broader policy environment, which perpetuates the criminalization and stigmatization of IDU, and to expand peer-based interventions to facilitate access to health care for IDU in this setting.

13. Todd, C. S., et al. **"Hepatitis C and HIV incidence and harm reduction program use in a conflict setting: an observational cohort of injecting drug users in Kabul, Afghanistan."** *Harm Reduct J* 2015 12: 22.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608295/pdf/12954\\_2015\\_Article\\_56.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608295/pdf/12954_2015_Article_56.pdf).

BACKGROUND: Armed conflict may increase the risk of HIV and other pathogens among injecting drug users (IDUs); however, there are few prospective studies. This study aimed to measure incidence and potential predictors, including environmental events and needle and syringe distribution and collection program (NSP) use, of hepatitis C virus (HCV) and HIV among IDUs in Kabul, Afghanistan. METHODS: Consenting adult IDUs completed interviews quarterly in year 1 and semi-annually in year 2 and HCV and HIV antibody testing semi-annually through the cohort period (November 2007-December 2009). Interviews detailed injecting and sexual risk behaviors, NSP service use, and conflict-associated displacement. Quarters with peak conflict or local displacement were identified based on literature review, and key events, including insurgent attacks and deaths, were reported with simple counts. Incidence and predictors of HCV and HIV were measured with Cox proportional hazards models. RESULTS: Of 483 IDUs enrolled, 385 completed one or more follow-up visits (483.8 person-years (p-y)). All participants were male with a median age of 28 years and a median duration of injecting of 2 years. Reported NSP use among the participants ranged from 59.9 to 70.5 % in the first year and was 48.4 and 55.4 % at 18 and 24 months, respectively. There were 41 confirmed deaths, with a crude death rate of 93.4/1000 p-y (95 % confidence interval (CI) 67.9-125) and overdose as the most common cause. HCV and HIV incidence were 35.6/100 p-y (95 % CI 28.3-44.6) and 1.5/100 p-y (95 % CI 0.6-3.3), respectively. Changing from injecting to smoking was protective for HCV acquisition (adjusted hazard ratio (AHR) = 0.53, 95 % CI 0.31-0.92), while duration of injecting (AHR = 1.09, 95 % CI 1.01-1.18/year) and sharing syringes (AHR = 10.09, 95 % CI 1.01-100.3) independently predicted HIV infection. CONCLUSION: There is high HCV incidence and high numbers of reported deaths among male Kabul IDUs despite relatively consistent levels of harm reduction program use; peak violence periods did not independently predict HCV and HIV risk. Programming should increase awareness of HCV transmission and overdose risks, prepare clients for harm reduction needs during conflict or other causes of displacement, and continue efforts to engage community and police force support.

14. Malekinejad, M., et al. **"High hepatitis C virus prevalence among drug users in Iran: systematic review and meta-analysis of epidemiological evidence (2001-2012)."** *Int J Infect Dis* 2015 40: 116-30.  
Online at: [http://ac.els-cdn.com/S1201971215002325/1-s2.0-S1201971215002325-main.pdf?\\_tid=0962ed66-9933-11e5-883a-0000aacb35d&acdnat=1449088198\\_674f497decdb1e56cf00dc2beb7764b8](http://ac.els-cdn.com/S1201971215002325/1-s2.0-S1201971215002325-main.pdf?_tid=0962ed66-9933-11e5-883a-0000aacb35d&acdnat=1449088198_674f497decdb1e56cf00dc2beb7764b8).

OBJECTIVE: Drug users, particularly drug injectors, are at elevated risk of blood-borne diseases. This study systematically reviewed the prevalence of hepatitis C virus (HCV) mono-infection and its co-infections with human



immunodeficiency virus (HIV) and hepatitis B virus (HBV) in drug users in Iran. METHODS: Searches were conducted in international, regional, and Iranian databases. Documents were screened, data extracted, and pooled point prevalence and 95% confidence intervals (CI) were calculated. RESULTS: Overall, 13 821 subjects (87.4% male) with an average age of 32.4 years (95% CI 31-33 years) from 24 original studies were included in the analysis. The pooled HCV prevalence (95% CI) among drug users with and without an injection history was 45% (37-54%) and 8% (4-13%), respectively. The pooled HCV prevalences (95% CI) among individuals with vs. without a history of imprisonment and needle sharing were 58% (39-77%) vs. 44% (20-68%) and 56% (41-71%) vs. 49% (26-71%), respectively. The prevalence of HCV/HIV co-infection among injectors was 11% (95% CI 5-16%). CONCLUSIONS: HCV prevalence is high in drug users in Iran, especially among those with a history of injection drug use, needle sharing, and imprisonment. Drug user-focused HCV prevention and treatment programs are urgently needed.

15. Matsumoto, S., et al. "**High Treatment Retention Rate in HIV-Infected Patients Receiving Antiretroviral Therapy at Two Large HIV Clinics in Hanoi, Vietnam.**" *PLoS One* 2015 10(9): e0139594.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4589350/pdf/pone.0139594.pdf>.

BACKGROUND: Loss to follow-up (LTFU) is viewed as a major challenge in improving retention in HIV treatment. In Vietnam, the reasons for disengagement from clinics and the effect of injection drug use (IDU) on LTFU with unknown outcome (true LTFU) are not well known. METHODS: Patients receiving antiretroviral therapy (ART) from two HIV clinics in Hanoi were included in this observational study between 2007 and 2012, and followed up every 6 months until the end of 2013. The reasons for disengagement from the clinic, and ART status during imprisonment were investigated in patients with a history of IDU to identify true LTFU. The retention rate at 6-54 months and true LTFU rate were calculated. Cox proportional hazards regression models were performed to identify factors associated with true LTFU. RESULTS: There were 1,431 patients, with a follow-up time of 4,371 person-years (median 2.49 years). At the end of the follow-up period, 71 (5.0%) patients died, 79 (5.5%) transferred to other clinics, 16 (1.1%) disengaged from the clinics, and the calculated true LTFU was 45 (3.1%), with 12-month ART retention rate of 95.3% for the entire study population. Imprisonment was the most frequent reason for disengagement from the clinics. True LTFU correlated significantly with low CD4 count and high plasma viral load, but not history of IDU. CONCLUSION: Imprisonment is a major cause of disengagement from HIV care among patients with a history of IDU.

16. Risher, K., et al. "**HIV treatment cascade in MSM, people who inject drugs, and sex workers.**" *Curr Opin HIV AIDS* 2015 10(6): 420-9.

PURPOSE OF REVIEW: People who inject drugs (PWID), sex workers, and MSM simultaneously bear a high burden of HIV and stigma and discrimination. The purpose of this review was to summarize recent information about the understanding of the HIV care cascade among PWID, sex workers, and MSM populations around the globe. RECENT FINDINGS: A review of the published literature relating to the care cascade in these three key populations was conducted. Data on the care cascade among key populations are sparse, particularly for PWID and sex workers. In the 12 countries in which a study or report of the care cascade was available stratified by these populations, all three populations have care cascade outcomes that are far below the 90-90-90 target set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) for 2020. Culturally tailored interventions, including colocation of services and peer navigators, can improve care cascade outcomes among key populations. SUMMARY: Key populations' care cascade outcomes must be included in international reporting metrics to expand cascade data for these groups. Improving care cascade outcomes in these key populations through culturally tailored interventions should be a priority in the coming years.

17. Hoang, T. V., et al. "**Impact of a methadone maintenance therapy pilot in Vietnam and its role in a scaled-up response.**" *Harm Reduct J* 2015 12: 39.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608299/pdf/12954\\_2015\\_Article\\_75.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608299/pdf/12954_2015_Article_75.pdf).

BACKGROUND: As a dual response to the HIV epidemic and the high level of injecting drug use in Vietnam, the Ministry of Health (MOH) initiated a pilot methadone maintenance therapy (MMT) program in Hai Phong and Ho Chi Minh City (HCMC) in early 2009. The objectives of the pilot were to provide evidence on whether MMT could be successfully implemented in Vietnam and scaled up to other localities. METHODS: A prospective study was conducted among 965 opiate drug users admitted to the pilot. Data on demographic characteristics, sexual behaviors, substance use behaviors (including heroin use), and blood-borne virus infection (HIV, hepatitis B, and hepatitis C) were collected at treatment initiation and then again at 3-, 6-, 9-, 12-, 18-, and 24-month intervals thereafter. RESULTS: Twenty-four months after treatment initiation, heroin use as measured by urine test or self-report had reduced from 100 % of participants at both sites to 14.6 % in Hai Phong and 22.9 % in HCMC. When adjusted for multiple factors in

Generalized Estimating Equations (GEE) logistic regression modeling, independent predictors of continued heroin use after 24 months of MMT in HCMC were the following: poor methadone adherence (adjusted odds ratio (AOR) = 3.7, 95 % confidence interval (CI) 1.8-7.8); currently on antiretroviral treatment (ART) (AOR = 1.8, 95 % CI 1.4-2.4); currently on TB treatment (AOR = 2.2, 95 % CI 1.4-3.4); currently experiencing family conflict (AOR = 1.6, 95 % CI 1.1-2.4); and currently employed (AOR = 0.8, 95 % CI 0.6-1.0). For Hai Phong participants, predictors were the following: currently on ART (AOR = 2.0, 95 % CI = 1.4-3.0); currently experiencing family conflict (AOR = 2.0, 95 % CI = 1.0-3.9); and moderate adherence to methadone (AOR = 2.1, 95 % CI = 1.2-1.9). In Hai Phong, the percentage of participants who were employed had also increased by end of study from 35.0 to 52.8 %, while in HCMC the level remained relatively unchanged, between 52.2 and 55.1 %. DISCUSSION: Study findings were used in multiple fora to convince policymakers and the public on the significant and vital role MMT can play in reducing heroin use and improving quality of life for individuals and families. Four years after this study was completed, Vietnam had expanded MMT to 162 clinics in 44 provinces serving 32,000 patients.

18. Heimer, R., et al. **"Impact of incarceration experiences on reported HIV status and associated risk behaviours and disease comorbidities."** Eur J Public Health 2015.

BACKGROUND: The Russian human immunodeficiency virus (HIV) epidemic among people who inject drugs (PWID) originated in Kaliningrad, but research into risk behaviours among PWID has been lacking. The potential for heterosexual spread has not been analysed. METHODS: A sample of PWID was accrued using two methods. A questionnaire was administered to assess HIV-related risk behaviours for parenteral and sexual transmission, sociodemographic factors, HIV knowledge and attitudes about sexual risks. Data were analysed focusing on the role of imprisonment, factors associated with awareness of being HIV infected and condom use. RESULTS: More than a quarter of the sample reported having been diagnosed with HIV infection, with higher prevalence among women and those with a history of incarceration. More than half reported having been diagnosed with hepatitis C virus infection. Those reporting being HIV positive were less likely to distribute used syringes to other PWID and more likely to have used a condom the last time they had sex. A history of incarceration was associated with higher rates of receptive syringe sharing among those not having ever received an HIV-positive diagnosis and a lower likelihood of believing that condoms are needed when having sex with a casual partner. CONCLUSION: Although extensive HIV testing has alerted many PWID to their HIV-positive status, which is associated with less distributive syringe sharing and higher likelihood of condom use, substantial risk for parenteral and especially sexual HIV transmission remains. More active prevention programs will be required to control the heterosexual spread of HIV.

19. Milloy, M. J., et al. **"Increased prevalence of controlled viremia and decreased rates of HIV drug resistance among HIV-positive people who use illicit drugs during a community-wide Treatment-as-Prevention initiative."** Clin Infect Dis 2015.

BACKGROUND: Although Treatment-as-Prevention is a new cornerstone of global HIV/AIDS strategies, its effect among HIV-positive people who use illicit drugs (PWUD) has yet to be evaluated. We sought to describe longitudinal trends in exposure to antiretroviral therapy (ART), plasma HIV-1 RNA viral load (VL) and HIV drug resistance during a community-wide TasP intervention. METHODS: We used data from the ACCESS study, a prospective cohort of HIV-positive PWUD linked to HIV clinical monitoring records. We estimated longitudinal changes in the proportion of individuals with VL<50 copies/mL and rates of HIV drug resistance using generalized estimating equations (GEE) and extended Cox models. RESULTS: Between January 1, 2006 and June 30, 2014, 819 individuals were recruited and contributed >=1 VL observation. During that time, the proportion of individuals with non-detectable VL increased from 28% to 63% (p<0.001). In a multivariable GEE model, later year of observation was independently and positively associated with greater likelihood of non-detectable VL (Adjusted Odds Ratio=1.20 per year, p<0.001). Although the proportion of individuals on ART increased, the incidence of HIV drug resistance declined (Adjusted Hazard Ratio=0.78 per year, p=0.011). CONCLUSIONS: We observed significant improvements in several measures of exposure to ART and virologic status in this large long-running community-recruited cohort of HIV-seropositive illicit drug users during a community-wide ART expansion intervention, including declines in HIV drug resistance. Our findings support continued efforts to scale-up ART coverage among HIV-positive PWUD.

20. Jeong, S. J., et al. **"Late Presentation into Care of HIV Disease and Its Associated Factors in Asia: Results of TAHOD."** AIDS Res Hum Retroviruses 2015.

Many HIV-infected individuals do not enter health care until late in the infection course. Despite encouraging earlier testing, this situation has continued for several years. We investigated the prevalence of late presenters and factors associated with late presentation among HIV-infected patients in an Asian regional cohort. This cohort study included

HIV-infected patients with their first positive HIV test during 2003-2012 and CD4 count and clinical status data within 3 months of that test. Factors associated with late presentation into care (CD4 count <200 cells/mul or an AIDS-defining event within +/-3 months of first positive HIV test) were analyzed in a random effects logistic regression model. Among 3,744 patients, 2,681 (72%) were late presenters. In the multivariable model, older patients were more likely to be late presenters than younger (<=30 years) patients [31-40, 41-50, and >=51 years: odds ratio (OR) = 1.57, 95% confidence interval (CI) 1.31-1.88; OR = 2.01, 95% CI 1.58-2.56; and OR = 1.69, 95% CI 1.23-2.31, respectively; all p <= 0.001]. Injecting drug users (IDU) were more likely (OR = 2.15, 95% CI 1.42-3.27, p < 0.001) and those with homosexual HIV exposure were less likely (OR = 0.45, 95% CI 0.35-0.58, p < 0.001) to be late presenters compared to those with heterosexual HIV exposure. Females were less likely to be late presenters (OR = 0.44, 95% CI 0.36-0.53, p < 0.001). The year of first positive HIV test was not associated with late presentation. Efforts to reduce the patients who first seek HIV care at the late stage are needed. The identified risk factors associated with late presentation should be utilized in formulating targeted public health intervention to improve earlier entry into HIV care.

21. Janulis, P. **"The micro-social risk environment for injection drug use: An event specific analysis of dyadic, situational, and network predictors of injection risk behavior."** *Int J Drug Policy* 2015.

BACKGROUND: This study explores the risk environment for drug use by examining injection risk behavior during specific injection episodes. By leveraging multiple observations of injection episodes of participants, the study attempts to move beyond global assessment of environmental variables to simultaneously model within (i.e., event level) as well as between (i.e., individual level) predictors of injection risk. Furthermore, gender is also explored as a potential moderator of the relationship between the association of specific partner characteristics (e.g., having an injection partner who is also a sexual partner) and injection risk behavior. METHODS: Data is used from the Sexual Acquisition of Transmission of HIV Cooperative Agreement Study (SATHCAP). Multilevel structural equation modeling is utilized to predict within and between variations in underlying injection risk behavior as measured using four indicators of injection risk. RESULTS: Results indicated that a number of partner level characteristics (i.e., being emotionally close with the partner, sexual partnership, being a first time partner) and one social situational (i.e., the number of non-injectors present at the injection episode) characteristic predicted event level injection risk behavior. However, the impact of partner characteristics also appears to be moderated by gender of the participants. More specifically, sharing a sexual partnership with an injection partner was more strongly associated with injection risk among females as compared to males and females indicated higher levels of risk when injecting with other females while the partner's gender showed no significant association with risk for male injectors. CONCLUSION: These results suggest that people who inject drug do report varying levels of risk during different injection episodes and this variation can be explained by partner and situational characteristics. Improved understanding of the social processes surrounding injection episodes is required to further refine harm reduction approaches.

22. Cakalo, J. I., et al. **"Misclassification of men with reported HIV infection in Ukraine."** *AIDS Behav* 2015 19(10): 1938-40.

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.

23. Chen, M., et al. **"Multiple Introduction and Naturally Occurring Drug Resistance of HCV among HIV-Infected Intravenous Drug Users in Yunnan: An Origin of China's HIV/HCV Epidemics."** *PLoS One* 2015 10(11): e0142543. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4642981/pdf/pone.0142543.pdf>.

BACKGROUND: The human immunodeficiency virus 1 (HIV-1) epidemic in China historically stemmed from intravenous drug users (IDUs) in Yunnan. Due to a shared transmission route, hepatitis C virus (HCV)/HIV-1 co-infection is common. Here, we investigated HCV genetic characteristics and baseline drug resistance among HIV-infected IDUs in Yunnan. METHODS: Blood samples of 432 HIV-1/HCV co-infected IDUs were collected from January to June 2014 in six prefectures of Yunnan Province. Partial E1E2 and NS5B genes were sequenced. Phylogenetic, evolutionary and genotypic drug resistance analyses were performed. RESULTS: Among the 293 specimens successfully genotyped, seven subtypes were identified, including subtypes 3b (37.9%, 111/293), 3a (21.8%, 64/293), 6n (14.0%, 41/293), 1b (10.6%, 31/293), 1a (8.2%, 24/293), 6a (5.1%, 15/293) and 6u (2.4%, 7/293). The distribution

of HCV subtypes was mostly related to geographic location. Subtypes 3b, 3a, and 6n were detected in all six prefectures, however, the other four subtypes were detected only in parts of the six prefectures. Phylogeographic analyses indicated that 6n, 1a and 6u originated in the western prefecture (Dehong) and spread eastward and showed genetic relatedness with those detected in Burmese. However, 6a originated in the southeast prefectures (Honghe and Wenshan) bordering Vietnam and was transmitted westward. These subtypes exhibited different evolutionary rates (between  $4.35 \times 10^{-4}$  and  $2.38 \times 10^{-3}$  substitutions site<sup>-1</sup> year<sup>-1</sup>) and times of most recent common ancestor (tMRCA, between 1790.3 and 1994.6), suggesting that HCV was multiply introduced into Yunnan. Naturally occurring resistance-associated mutations (C316N, A421V, C445F, I482L, V494A, and V499A) to NS5B polymerase inhibitors were detected in direct-acting antivirals (DAAs)-naïve IDUs. CONCLUSION: This work reveals the temporal-spatial distribution of HCV subtypes and baseline HCV drug resistance among HIV-infected IDUs in Yunnan. The findings enhance our understanding of the characteristics and evolution of HCV in IDUs and are valuable for developing HCV prevention and management strategies for this population.

24. Ambekar, A., et al. **"Pattern of Drug Use and Associated Behaviors Among Female Injecting Drug Users From Northeast India: A Multi-Centric, Cross-Sectional, Comparative Study."** *Subst Use Misuse* 2015 50(10): 1332-40.

BACKGROUND: Studies from developed countries document the presence of injecting drug use among females and significantly higher vulnerabilities and risks as compared with male injecting drug users (IDUs). Studies comparing vulnerabilities and drug use patterns between female and male IDUs are not available for developing countries. OBJECTIVES: The aim of the study was to assess the drug use pattern and related HIV vulnerabilities among female IDUs and compare these findings with those from male IDUs from four states of Northeast India. METHOD: The study used data collected as part of a nationwide study of drug use pattern and related HIV vulnerabilities among IDUs. Ninety-eight female and 202 male IDUs accessing services from harm reduction sites across the four states of Northeast region of India were chosen through random sampling methodology. Drug use pattern, injecting practices, and knowledge of HIV were assessed using a structured questionnaire. RESULTS: Significantly higher proportion of female IDUs was uneducated, unemployed, reported their occupation as sex workers, and switched to injecting drug use faster as compared with male IDUs. Female IDUs practicing sex work differed significantly from those who did not with respect to frequency of daily injections, choice of drugs injected, and concomitant use of non-injecting drugs. More than half of female IDUs initiated sharing within the first month of injecting. CONCLUSIONS: The study demonstrates that female IDUs differ from male IDUs in their drug use pattern, initiation into injection as well as injecting behavior, which would be an important consideration during designing of female-specific interventions.

25. Guise, A., et al. **"A qualitative analysis of transitions to heroin injection in Kenya: implications for HIV prevention and harm reduction."** *Harm Reduct J* 2015 12: 27.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4558953/pdf/12954\\_2015\\_Article\\_61.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4558953/pdf/12954_2015_Article_61.pdf).

BACKGROUND: Heroin injection is emerging as a significant dimension of the HIV epidemic in Kenya. Preventing transitions to injecting drug use from less harmful forms of use, such as smoking, is a potentially important focus for HIV prevention. There is, however, little evidence to support comprehensive programming in this area, linked to a shortage of analysis of the social and structural context for transitions, particularly in low-income settings. We explore accounts of transitions from smoking to injecting in Kenya to understand the role of individual, social and structural processes. METHODS: We combine data from two separate studies conducted in Kenya: an in-depth qualitative study of HIV care access for people who inject drugs (study 1) and an ethnographic study of the political economy of the heroin trade in Kenya (study 2). In-depth interviews with PWID and community observation from study 1 are triangulated with accounts from stakeholders involved in the heroin trade and documentary data from study 2. RESULTS: People who inject drugs link transitions to injecting from smoking to a range of social and behavioural factors, as well as particular aspects of the local drug supply and economy. We present these results in the form of two narratives that account for factors shaping transitions. A dominant narrative of 'managing markets and maintaining a high' results from a process of trying to manage poverty and a shifting heroin supply, in the context of deepening addiction to heroin. A secondary narrative focuses on people's curiosity for the 'feeling' of injecting, and the potential pleasure from it, with less emphasis on structural circumstances. CONCLUSIONS: The narratives we describe represent pathways through which structural and social factors interact with individual experiences of addiction to increase the risk of transitions to injecting. In response, HIV and harm reduction programmes need combinations of different strategies to respond to varied experiences of transitions. These strategies should include, alongside behaviour-oriented interventions, structural interventions to address economic vulnerability and the policing of the drug supply.

26. Stone, K. A. "Reviewing harm reduction for people who inject drugs in Asia: the necessity for growth." *Harm Reduct J* 2015 12: 32. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608313/pdf/12954\\_2015\\_Article\\_66.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608313/pdf/12954_2015_Article_66.pdf).

BACKGROUND: There is an estimate of three to five million people who inject drugs living in Asia. Unsafe injecting drug use is a major driver of both the HIV and hepatitis C (HCV) epidemic in this region, and an increase in incidence among people who inject drugs continues. Although harm reduction is becoming increasingly accepted, a largely punitive policy remains firmly in place, undermining access to life-saving programmes. The aim of this study is to present an overview of key findings on harm reduction in Asia based on data collected for the Global State of Harm Reduction 2014. METHODS: A review of international scientific and grey literature was undertaken between May and September 2014, including reports from multilateral agencies and international non-governmental organisations. A qualitative survey comprising open-ended questions was also administered to civil society, harm reduction networks, and organisations of people who use drugs to obtain national and regional information on key developments in harm reduction. Expert consultation from academics and key thinkers on HIV, drug use, and harm reduction was used to verify findings. RESULTS: In 2014, 17 countries in Asia provide needle and syringe programmes (NSP) provision and 15 opioid substitution therapy (OST). It is estimated that between 60 and 90 % of people who use drugs in Asia have HCV; however, treatment still remains out of reach due to cost barriers. TB testing and treatment services are yet to be established for key populations, yet nearly 15 % of the global burden of new cases of HIV-TB co-infection are attributed to southeast Asia. Eighteen percent of the total number of people living with HIV eligible for antiretroviral treatment (ART) accessed treatment. Only Malaysia and Indonesia provide OST in prison, with no NSP provision in prisons in the region. CONCLUSION: To reduce HIV and viral hepatitis risk among people who inject drugs, there is a necessity to significantly increase harm reduction service provision in Asia. Although there has been progress, work still needs to be done to ensure an appropriate and enabling environment. At present, people who inject drugs are extremely difficult to reach; structural and legal barriers to services must be reduced, integrated holistic services introduced, and further research undertaken.

27. Khuat, O. T., et al. "Social context, diversity and risk among women who inject drugs in Vietnam: descriptive findings from a cross-sectional survey." *Harm Reduct J* 2015 12: 35. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608123/pdf/12954\\_2015\\_Article\\_67.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608123/pdf/12954_2015_Article_67.pdf).

BACKGROUND: Women who inject drugs (WWID) are neglected globally in research and programming yet may be likelier than males to practise sexual and injecting risks and be infected with HIV and more stigmatised but seek fewer services. Little is known about characteristics, practices and nexus between drugs and sex work of WWID in Vietnam, where unsafe injecting has driven HIV transmission, and commercial sex and inconsistent condom use are prevalent. This was the first quantitative investigation of Vietnamese WWID recruited as injecting drug users. This article summarises descriptive findings. FINDINGS: A cross-sectional survey was conducted among WWID in Hanoi (n = 203) and Ho Chi Minh City (HCMC) (n = 200) recruited using respondent-driven sampling. Characteristics varied within and between sites. Twenty-two percent in Hanoi and 47.5 % in HCMC had never sold sex. Almost all commenced with smoking heroin, some as children. Most injected frequently, usually alone, although 8 % (Hanoi) and 18 % (HCMC) shared equipment in the previous month. Some had sex--and sold it--as children; most had multiple partners. Condom use was high with clients but very low with intimate partners, often injecting drug users. HIV knowledge was uneven, and large minorities were not tested recently (or ever) for HIV. Nearly all perceived intense gender-related stigma, especially for drug use. CONCLUSION: This ground-breaking study challenges assumptions about characteristics and risks based on anecdotal evidence and studies among men. Most WWID were vulnerable to sexual HIV transmission from intimate partners. Interventions should incorporate broader sociocultural context to protect this highly stigmatised population.

28. Pierce, R. D., et al. "Strategic information is everyone's business: perspectives from an international stakeholder meeting to enhance strategic information data along the HIV Cascade for people who inject drugs." *Harm Reduct J* 2015 12: 41. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608293/pdf/12954\\_2015\\_Article\\_73.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608293/pdf/12954_2015_Article_73.pdf).

People who inject drugs (PWID) are at increased HIV transmission risk because of unsafe injecting practices and a host of other individual, network, and structural factors. Thus, PWID have a great need for services within the Cascade of HIV prevention, diagnosis, care, and treatment (HIV Cascade). Yet the systems that monitor their progress through the Cascade are often lacking. Subsequently, fewer reliable data are available to guide programs targeting this key population (KP). Programmatic data, which are helpful in tracking PWID through the Cascade, also are limited because not all countries have harm reduction programming from which to estimate Cascade indicators. Also, due to stigma and the illegal nature of drug use, PWID may not disclose their drug use behavior or HIV status when accessing services. Consequently, PWID appear to have low HIV testing rates and, for those living with HIV, lower access to

health services and lower viral suppression rates than do other KP groups. This commentary, based on outcomes from an international stakeholder meeting, identifies data gaps and proposes solutions to strengthen strategic information (SI), the systematic collection, analysis, and dissemination of information, to optimize HIV prevention, care, and treatment programming for PWID.

29. Loeliger, K. B., et al. **"The syndemic of HIV, HIV-related risk and multiple co-morbidities among women who use drugs in Malaysia: Important targets for intervention."** *Addict Behav* 2015 53: 31-39.

BACKGROUND: Substance use and HIV are syndemic public health problems in Malaysia. Harm reduction efforts to reduce HIV transmission have primarily focused on men with substance use disorders. OBJECTIVES: To explore HIV risk behaviors, substance use, and social factors associated with poor health outcomes among women who use drugs in Malaysia. METHODS: A cross-sectional survey of 103 drug-using women in Kuala Lumpur, Malaysia were recruited to assess their medical, psychiatric and social comorbidity as well as their engagement in nationally recommended HIV testing and monitoring activities. RESULTS: One-third reported having ever injected drugs, with most (68.2%) having recently shared injection paraphernalia. Sex work (44.7%) and infrequent condom use (42.4%) were common as was underlying psychiatric illness and physical and sexual violence during childhood and adulthood. Most women (62.1%) had unstable living situations and suffered from an unmet need for social support and health services. HIV prevalence was high (20%) with only two thirds of women eligible for antiretroviral therapy having received it. Suboptimal HIV testing and/or monitoring was positively associated with interpersonal violence (AOR 2.73; 95% CI 1.04-7.14) and negatively associated with drug injection (AOR 0.28; 95% CI 0.10-0.77). CONCLUSIONS/IMPORTANCE: Women who use drugs in Malaysia demonstrate considerable medical, psychiatric and social co-morbidity, which negatively contributes to optimal and crucial engagement in HIV treatment-as-prevention strategies. Mental health and social support may be key targets for future public health interventions aimed at drug-using women in Malaysia.

30. Artzrouni, M., et al. **"A syringe-sharing model for the spread of HIV: application to Omsk, Western Siberia."** *Math Med Biol* 2015.

A system of two differential equations is used to model the transmission dynamics of human immunodeficiency virus between 'persons who inject drugs' (PWIDs) and their syringes. Our vector-borne disease model hinges on a metaphorical urn from which PWIDs draw syringes at random which may or may not be infected and may or may not result in one of the two agents becoming infected. The model's parameters are estimated with data mostly from the city of Omsk in Western Siberia. A linear trend in PWID prevalence in Omsk could only be fitted by considering a time-dependent version of the model captured through a secular decrease in the probability that PWIDs decide to share a syringe. A global sensitivity analysis is performed with 14 parameters considered random variables in order to assess their impact on average numbers infected over a 50-year projection. With obvious intervention implications the drug injection rate and the probability of syringe-cleansing are the only parameters whose coefficients of correlations with numbers of infected PWIDs and infected syringes have an absolute value close to or larger than 0.40.

[Back to top](#)

## Men who have Sex with Men - 53

1. Chakrapani, V., et al. **"Acceptability of HIV Pre-Exposure Prophylaxis (PrEP) and Implementation Challenges Among Men Who Have Sex with Men in India: A Qualitative Investigation."** *AIDS Patient Care STDS* 2015 29(10): 569-77.

This qualitative study explored the acceptability of HIV pre-exposure prophylaxis (PrEP) among MSM in India, and identified facilitators and barriers to future PrEP uptake. In 2014, we conducted 10 focus groups (n=61) among a purposive sample of diverse MSM recruited through community-based organizations in Chennai and Mumbai, and 10 key informant interviews with community leaders and health care providers. Participants' mean age was 26.1 years (SD 4.8); 62% completed secondary education, and 42% engaged in sex work. No focus group participants had heard of PrEP, but once explained, most reported they would likely use it. PrEP was alternately perceived as a 'back-up plan', a condom substitute, or a burden with concurrent condom use. Facilitators were potential for covert use, sex without condoms, and anxiety-less sex. Potential barriers emerged around stigma associated with PrEP use, fear of disclosures to one's family, wife, or male steady partner, and being labeled as HIV-positive or promiscuous by peers. Preferences emerged for intermittent rather than daily PrEP use, injectable PrEP, and free or subsidized access through community organizations or government hospitals. Key informants expressed additional concerns about risk compensation, non-adherence, and impact on ART availability for treatment. Demonstration projects are needed in India to support PrEP implementation tailored for at-risk MSM. Educational interventions for MSM should address



concerns about PrEP effectiveness, side effects, and mitigate risk compensation. Community engagement may facilitate broad acceptability and challenge stigma around PrEP use. Importantly, provision of free or subsidized PrEP is necessary to making implementation feasible among low socioeconomic status MSM in India.

2. Jung, M., et al. "**Associated with Differences in Sexual Risk-Taking Behaviors Among Migrants in South Korea.**" J Immigr Minor Health 2015.

We investigated influential factors on differences in sexual risk-taking among homosexual migrants. The data used in this paper are based on the survey and medical examination for migrants' sexual behaviors that was carried out by the Korea Federation for HIV/AIDS Prevention in 2011-2013 on participants living in South Korea. Among 1141 migrants, homosexuals were 0.54 times less likely to use condom than heterosexuals. Homosexuals were 2.93 times more likely to be infected with sexually transmitted diseases (STDs) than heterosexuals. Among 250 homosexual migrants, those who preferred risky sexual intercourse were 0.19 times less likely to use a condom than heterosexual migrants. Those who have a fixed sexual partner were 0.35 times less likely to be infected with HIV than their counterparts. Administrative programs for STDs prevention of migrants should be focused on their sexual risk-taking, which were limited to casual partnership, unprotected sex, and previous contraction of sexual diseases.

3. Chuang, D. M., et al. "**Community engagement among men who have sex with men living with HIV/AIDS in Taiwan.**" AIDS Care 2015: 1-5.

Community engagement was developed as a global principle in the provision of HIV/AIDS services, yet evidence-based research of implementation of the principle is lacking in Taiwan. This short report aims to understand factors associated with engagement in two types of activities with varying levels of visibility: HIV-related community events and HIV-related community action, in Taiwanese men who have sex with men (MSM) living with HIV. A cross-sectional survey was distributed to a purposive sample of participants recruited from AIDS service organizations (ASOs). Among participants (n = 178), 63.6% were involved in HIV-related community events, while less than half (47.7%) were involved in HIV-related community action. In multivariable analysis, age, involvement in ASOs, and AIDS knowledge were positively associated with engagement in community events, and living in the north of Taiwan, years of infection, and self-stigma were negatively associated with this type of engagement. Few factors, with the exception of involvement in ASOs, were positively associated with engagement in HIV-related community action. To this end, ASOs appear to play a strong role in improving and organizing both types of community engagement in Taiwan. Future studies should evaluate tailored programs delivered through ASOs for strengthening community connectedness among younger, stigmatized, and longer diagnosed MSM living with HIV.

4. Horth, R. Z., et al. "**Correlates of HIV Testing Among Men Who have Sex with Men in Three Urban Areas of Mozambique: Missed Opportunities for Prevention.**" AIDS Behav 2015 19(11): 1978-89.  
Online at: <http://link.springer.com/content/pdf/10.1007%2Fs10461-015-1044-8.pdf>.

This is the first study to identify levels of recent HIV testing and associated factors among men who have sex with men (MSM) in Mozambique. Using data from Maputo (n = 493), Beira (n = 572), and Nampula/Nacala (n = 347), collected via respondent-driven sampling in 2011, and excluding those with prior known infection, we found that 30.4 % [95 % confidence interval (CI) 25.0-36.3 %], 42.1 % (95 % CI 36.8-47.3 %) and 29.8 % (95 % CI 22.9-36.9 %), respectively, had recently tested for HIV (</=12 months), while between three and five out of 10 MSM had never tested. A range of factors was associated with recent HIV testing such as familiarity with the modes of transmission, knowledge of antiretroviral treatment for HIV, contact with peer educators and awareness of partner serostatus; yet, surprisingly recent healthcare utilization was not associated with recent testing. Findings provide evidence that structural and behavioral interventions among MSM may play an important role in increasing HIV testing.

5. Abler, L., et al. "**Depression and HIV Serostatus Disclosure to Sexual Partners Among Newly HIV-Diagnosed Men Who Have Sex with Men.**" AIDS Patient Care STDS 2015 29(10): 550-8.

HIV disclosure to sexual partners facilitates joint decision-making and risk reduction strategies for safer sex behaviors, but disclosure may be impacted by depression symptoms. Disclosure is also associated with disclosure self-efficacy, which in turn may also be influenced by depressive symptoms. This study examined the relationship between depression and HIV disclosure to partners following diagnosis among men who have sex with men (MSM), mediated by disclosure self-efficacy. Newly HIV-diagnosed MSM (n = 92) who reported sexual activity after diagnosis completed an assessment soon after diagnosis which measured depressive symptoms, and another assessment within 3 months of diagnosis that measured disclosure self-efficacy and disclosure. Over one-third of the sample reported elevated

depressive symptoms soon after diagnosis and equal proportions (one-third each) disclosed to none, some, or all partners in the 3 months after diagnosis. Depressive symptoms were negatively associated with disclosure self-efficacy and disclosure to partners, while disclosure self-efficacy was positively associated with disclosure. Disclosure self-efficacy partially mediated the relationship between depression and disclosure, accounting for 33% of the total effect. These findings highlight the importance of addressing depression that follows diagnosis to enhance subsequent disclosure to sexual partners.

6. Mayer, K. H., et al. "**Differing Identities but Comparably High HIV and Bacterial Sexually Transmitted Disease Burdens Among Married and Unmarried Men Who Have Sex With Men in Mumbai, India.**" *Sex Transm Dis* 2015 42(11): 629-33.

BACKGROUND: Although HIV incidence has declined in India, men and transgender women who have sex with men (MSM) continue to have high rates of HIV and sexually transmitted disease (STD). Indian MSM face substantial pressures to marry and have families, but the HIV/STD burden among married Indian MSM is not well characterized. METHODS: A diverse sample of Indian MSM were recruited through respondent-driven sampling. Independent variables that produced a P value of 0.10 or less were then added to a multivariable logistic regression model. RESULTS: Most of the 307 MSM (95 married and 212 unmarried) recruited into the study were younger than 30 years, and less than one-third had more than a high school education. Almost two-thirds of the married men had children, compared with 1.4% of the unmarried men ( $P < 0.001$ ). The numbers of condomless anal sex acts did not differ by marriage status. Although unmarried MSM more often identified themselves as "kothi" (receptive role), their rates of HIV or bacterial STD were similar to married MSM, with 14.3% being HIV infected. The respondent-driven sampling-adjusted prevalence of any bacterial STD was 18.3% for married MSM and 20% for unmarried MSM (not significant). Participants reported high levels of psychological distress, with 27.4% of married and 20.1% of unmarried MSM reporting depressive symptoms (not significant). CONCLUSIONS: Men who have sex with men in Mumbai had high rates of HIV, STD, and behavioral health concerns. Clinicians need to become more comfortable in eliciting sexual histories so that they can identify MSM who need HIV/STD treatment and/or prevention services.

7. Lin, A. W., et al. "**Epidemiology of sexually transmitted viral hepatitis in human immunodeficiency virus-positive men who have sex with men in Asia.**" *J Formos Med Assoc* 2015.

Both human immunodeficiency virus (HIV) and viral hepatitis constitute major disease burden globally. As with other parts of the world, the HIV epidemic in Asia impacts mainly on men who have sex with men, one of the at-risk populations for sexually transmitted viral hepatitis. With the increasing availability of effective antiretroviral therapy, HIV-related mortality of people living with HIV has markedly reduced. Liver disease has become an important cause of mortality and morbidity in the HIV-infected population. With the improvement of socioeconomic conditions and availability of healthcare in Asian countries in recent years, the epidemiology of sexually transmitted viral hepatitis among HIV-positive men who have sex with men has also evolved. This review updates the epidemiology of different types of sexually transmitted viral hepatitis in this defined population in Asia.

8. Li, H., et al. "**Exploring Unprotected Anal Intercourse among Newly Diagnosed HIV Positive Men Who Have Sex with Men in China: An Ethnographic Study.**" *PLoS One* 2015 10(10): e0140555.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4604142/pdf/pone.0140555.pdf>.

BACKGROUND: Unprotected anal intercourse (UAI) is a major pathway towards secondary HIV transmission among men who have sex with men (MSM). We explored the socio-cultural environment and individual beliefs and experiences conducive to UAI in the context of Southern China. METHODS: We employed an ethnographic approach utilizing a socio-ecological framework to conduct repeated in-depth interviews with thirty one newly diagnosed HIV positive MSM as well as participant observations in Shenzhen based healthcare settings, MSM venues and NGO offices. RESULTS: Some men (6/31) reported continuing to practice UAI after an initial diagnosis of being HIV positive. For MSM who had existing lovers or stable partners, the fear of losing partners in a context of non-serostatus disclosure was testified to be a major concern. MSM with casual partners reported that anonymous sexual encounters and moral judgments played a significant role in their sexual risk behaviors. Simultaneously, self-reported negative emotional and psychological status, perception and idiosyncratic risk interpretation, as well as substance abuse informed the intrapersonal context for UAI. CONCLUSION: UAI among these HIV positive MSM was embedded in an intrapersonal context, related to partner type, shaped by anonymous sexual encounters, psychological status, and moral judgments. It is important that prevention and intervention for secondary HIV transmission among newly diagnosed HIV positive MSM in China take into account these contextual factors.

9. Chow, E. P., et al. **"Factors associated with self-reported unprotected anal intercourse among men who have sex with men in Changsha city of Hunan province, China."** *AIDS Care* 2015 27(10): 1332-42.

Men who have sex with men (MSM) in China are highly susceptible to HIV infection and HIV prevalence among Chinese MSM is rapidly increasing in recent years. Unprotected anal intercourse (UAI) is a major contributing factor of HIV transmission. This study aims to identify factors associated with UAI among MSM in Changsha city, China. A cross-sectional survey was conducted among 642 MSM in Changsha city from July 2009 to June 2011 via a venue-based sampling method. Data on socio-demographic characteristics, sexual behaviours and utilisation of HIV/AIDS services were collected to determine the associates of UAI in MSM. Among the 642 MSM, 184 (28.7%) reported having UAI with male partners at the last sexual episode. UAI was associated with the venues where MSM met other MSM, and having unprotected sex with female partners at last the sexual episode and in the past six months. In addition, UAI was significant associated with not being exposed to HIV interventions, including free condom, lubricant, HIV testing and counselling, and peer education. MSM who have UAI practice are more likely to have unprotected sex with female; hence, potentially bridging HIV to the general female population. Specific harm-reduction programmes are shown to have significant impacts in reducing UAI and should be scaled up among MSM in China.

10. Bowring, A. L., et al. **"Factors Influencing Access to Sexual Health Care Among Behaviorally Bisexual Men in Vientiane, Laos: A Qualitative Exploration."** *Asia Pac J Public Health* 2015 27(8): 820-34.

In Laos, men who have sex with men (MSM) are disproportionately affected by HIV, and bisexual behavior among men is common. We conducted a qualitative study to explore access and influences on sexual health care seeking among bisexual men in Vientiane. In 2013, behaviorally bisexual men were recruited from bars, clubs and dormitories for 5 focus group discussions and 11 in-depth interviews. Participants (aged 18-35 years) commonly reported high-risk sexual behaviors, yet most had never been tested for HIV, and none reported testing for sexually transmitted infections. Common barriers to testing were low perception of risk, expectation of symptoms, fear of HIV, shyness, perceived stigma, confidentiality concerns, and waiting times. Many men were unaware of available services. Most clinics cannot provide comprehensive HIV and sexually transmitted infection services. Strategies are needed to generate demand for testing, improve the capacity of sexual health care providers, and promote available services among behaviorally bisexual men in Vientiane.

11. Wirtz, A. L., et al. **"Feasibility of a Combination HIV Prevention Program for Men Who Have Sex With Men in Blantyre, Malawi."** *J Acquir Immune Defic Syndr* 2015 70(2): 155-62.

INTRODUCTION: The use of combination HIV prevention interventions (CHPI) now represent the standard of care to minimize HIV acquisition risks among men who have sex with men (MSM). There has been limited evaluation of these approaches in generalized HIV epidemics and/or where MSM are stigmatized. A peer-based CHPI program to target individual, social, and structural risks for HIV was developed for MSM in Blantyre, Malawi. METHODS: To test the feasibility of CHPI, adult MSM were followed prospectively from January 2012 to May 2013. Participants (N = 103) completed sociobehavioral surveys and HIV testing at each of the 3 follow-up study visits. RESULTS: Approximately 90% of participants attended each study visit and 93.2% (n = 96) completed the final visit. Participants met with peer educators a median of 3 times (range: 1-10) in the follow-up visits 2 and 3. Condom use at last sex improved from baseline through follow-up visit 3 with main (baseline: 62.5%, follow-up 3: 77.0%; P = 0.02) and casual male partners (baseline: 70.7%, follow-up 3: 86.3%; P = 0.01). Disclosure of sexual behaviors/orientation to family increased from 25% in follow-up 1 to 55% in follow-up 3 (P < 0.01). DISCUSSION: Participants maintained a high level of retention in the study highlighting the feasibility of leveraging community-based organizations to recruit and retain MSM in HIV prevention and treatment interventions in stigmatizing settings. Group-level changes in sexual behavior and disclosure in safe settings for MSM were noted. CHPI may represent a useful model to providing access to other HIV prevention for MSM and aiding retention in care and treatment services for MSM living with HIV in challenging environments.

12. Grosso, A., et al. **"Financing the response to HIV among gay men and other men who have sex with men: Case studies from eight diverse countries."** *Glob Public Health* 2015 10(10): 1172-84.

Despite reductions in the number of new HIV infections globally, the HIV epidemic among men who have sex with men (MSM) is expanding. This study characterises financing of HIV programmes for MSM and the impact of criminalisation on levels of funding, using data from five countries that criminalise same-sex sexual practices (Ethiopia, Mozambique, Guyana, India and Nigeria) and three that do not (China, Ukraine and Vietnam). For each country, all publicly available documents from the Global Fund to Fight AIDS, Tuberculosis and Malaria for approved HIV/AIDS grants in Rounds 5-9 and Country Operational Plans detailing investments made through the President's

Emergency Plan for AIDS Relief (PEPFAR) from US fiscal year (FY) 2007-2009 were examined. Eleven of 20 HIV proposals to the Global Fund contained programmes for MSM totalling approximately \$40 million or 6% of proposed budgets. In six countries providing activity-level data on MSM programming, PEPFAR funding that served this population and others ranged from \$23.3 million in FY2007 to \$35.4 million in FY2009, representing 0.5-25.9% of overall, non-treatment funding over this period. Countries that criminalise same-sex sexual practices spend fewer resources on HIV programmes serving MSM. However, they also show consistent underfunding of programmes serving MSM regardless of context or geography.

13. Ramanaiik, S., et al. **"Frontline Health Service Providers' Perspectives on HIV Vaccine Trials among Female Sex Workers and Men Who Have Sex with Men in Karnataka, South India."** *PLoS One* 2015 10(10): e0141822. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4627793/pdf/pone.0141822.pdf>.

**BACKGROUND:** Little qualitative research is available on the role of frontline health service providers (FHSPs) in the implementation of clinical trials, particularly in developing countries. This paper presents findings from a qualitative study about the perspectives of FHSPs on future HIV vaccine trials involving female sex workers (FSWs) and men who have sex with men (MSM) in three districts of Karnataka, India. In particular, we explore FHSPs' knowledge of and views on clinical trials in general, and examine their potential willingness to play a role if such trials were introduced or implemented in the region. **METHODS:** A field team of four researchers from Karnataka—two of whom self-identified with FSW or MSM communities ("community researchers") and two with backgrounds in social work—conducted in-depth interviews with FHSPs. Including community researchers in the study helped to build rapport with FSW and MSM participants and facilitate in-depth discussions. A coding scheme for transcribed and translated data was developed using a framework analysis approach. Data was then analysed thematically using a combination of a priori and emergent codes. **RESULTS:** Over half of FHSPs demonstrated limited knowledge or understanding of clinical trials. Despite reported skepticism around the testing of HIV vaccines in developing countries and concerns around potential side effects, most FHSPs strongly advocated for the implementation of HIV vaccine clinical trials in Karnataka. Further, most FHSPs expressed their willingness to be involved in future HIV vaccine clinical trials in varying capacities. **CONCLUSION:** Given that FHSPs are often directly involved in the promotion of health and well-being of FSWs and MSM, they are well-positioned to play leadership, ethical, and communicative roles in future HIV vaccine trials. However, our findings reveal a lack of awareness of clinical trials among FHSP participants, suggesting an important area for capacity building and staff development before viable and ethical clinical trials can be set up in the region.

14. Mimiaga, M. J., et al. **"Garnering an in-depth understanding of men who have sex with men in Chennai, India: a qualitative analysis of sexual minority status and psychological distress."** *Arch Sex Behav* 2015 44(7): 2077-86.

Men who have sex with men (MSM) in India are a hidden and largely understudied population, and have an HIV prevalence 17 times higher than that of the general Indian population. Experiences of social marginalization and negative psychosocial conditions occur concurrent to HIV risk among Indian MSM. To better understand the contextual variables driving HIV risk and inform intervention development, five focus groups (n = 46) and nine key informant interviews were conducted with 55 MSM in Chennai in 2010. NVivo software was used to code the transcripts, and data were analyzed using qualitative descriptive analysis methodology. Participants described sources of psychological distress and low self-worth related to gender non-conformity and sexual minority status. These included stigma from society, pressure to marry, lack of familial acceptance, childhood sexual abuse, and the imperative to keep sexual minority status a secret. Participants' personal evaluations revealed that self-acceptance may be an important resilience factor that can shield these psychosocial and HIV risk factors. In promoting health-seeking behavioral changes for Indian MSM at an individual level, our findings point to the potential strength of strategies that focus on self-acceptance of one's sexual minority identity to foster better psychosocial and overall health.

15. van der Elst, E. M., et al. **"The green shoots of a novel training programme: progress and identified key actions to providing services to MSM at Kenyan health facilities."** *J Int AIDS Soc* 2015 18(1): 20226. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4615801/pdf/JIAS-18-20226.pdf>.

**INTRODUCTION:** Although men who have sex with men (MSM) in sub-Saharan Africa are at high risk for HIV acquisition, access to and quality of health and HIV services within this population are negatively affected by stigma and capacity within the health sector. A recently developed online MSM training programme ([www.marps-africa.org](http://www.marps-africa.org)) was shown to contribute to reductions in MSM prejudice among healthcare providers (HCPs) in coastal Kenya. In this study, we used qualitative methods to explore the provision of MSM healthcare services two years post-training in coastal Kenya. **METHODS:** From February to July 2014, we held 10 focus group discussions (FGD) with 63 participants,

including HCP from 25 facilities, county AIDS coordinators and MSM from local support groups. Participants discussed availability, acceptability and accessibility of HIV healthcare for MSM. HCP also discussed changes in their health service practices after completing the training. FGD were recorded, transcribed verbatim and analyzed using Ritchie and Spencer's "framework approach" for qualitative data. RESULTS: HCPs described continued improvements in their ability to provide service in a non-stigmatizing way to MSM patients since completing the training programme and expressed comfort engaging MSM patients in care. Four additional recommendations for improving MSM healthcare services were identified: 1) expanding the reach of MSM sensitivity training across the medical education continuum; 2) establishing guidelines to manage sexually transmitted anal infections; 3) promoting legal and policy reforms to support integration of MSM-appropriate services into healthcare; and 4) including MSM information in national reporting tools for HIV services. CONCLUSIONS: Positive impacts of this sensitivity and skills training programme were reflected in HCP attitudes two years post-intervention. Scaling-up of efforts will rely on continued policies to include MSM in healthcare programmes to reduce stigma in health settings and guidelines for MSM STI service delivery.

16. Sanchez, J., et al. **"High HIV Prevalence among Men who have Sex with Men in a Time-Location Sampling Survey, Sao Paulo, Brazil."** *AIDS Behav* 2015 19(9): 1589-98.

We conducted a time-location sampling sero-behavioral surveillance survey of men who have sex with men (MSM) in Sao Paulo, Brazil, the largest city in Latin America and the Southern Hemisphere (N = 1,217 interviewed with serological results for 771). HIV prevalence was 15.4 % (95 % CI 11.6-20.1), with only 45.8 % previously aware of their infection. HIV prevalence achieved 6.4 % among youth 18-24 years and was higher among MSM with lower socio-economic status. In multivariate analysis, correlates of HIV were older age, gay identity, lower socio-economic status, social networks with HIV-positive MSM, receptive anal sex, and internet sex partners. Policy change towards increasing avenues for HIV testing coupled with antiretroviral treatment regardless of CD4 count or stage of disease stand to benefit the MSM community if scaled up fast enough.

17. Mimiaga, M. J., et al. **"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* 2015 44(7): 1869-78.

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.

18. Abara, W. E., et al. **"HIV epidemic and human rights among men who have sex with men in sub-Saharan Africa: Implications for HIV prevention, care, and surveillance."** *Glob Public Health* 2015: 1-14.

Recent research has presented evidence that men who have sex with men (MSM) bear a disproportionate burden of HIV and are at increased risk for HIV in sub-Saharan Africa (SSA). However, many countries in SSA have failed to address the needs of MSM in national HIV/AIDS programmes. Furthermore, many MSM face structural barriers to HIV prevention and care, the most significant of which include laws that criminalise male-to-male sexual contact and facilitate stigma and discrimination. This in turn increases the vulnerability of MSM to acquiring HIV and presents barriers to HIV prevention, care, and surveillance. This relationship illustrates the link between human rights, social justice, and health outcomes and presents considerable challenges to addressing the HIV epidemic among MSM in SSA. The response to the HIV epidemic in SSA requires a non-discriminatory human rights approach to all at-risk groups, including MSM. Existing international human rights treaties, to which many SSA countries are signatories, and

a 'health in all policies' approach provides a strong basis to reduce structural barriers to HIV prevention, care, surveillance, and research, and to ensure that all populations in SSA, including MSM, have access to the full range of rights that help ensure equal opportunities for health and wellness.

19. Perez-Brumer, A. G., et al. **"HIV prevalence, sexual behaviours and engagement in HIV medical care among an online sample of sexually active MSM in Venezuela."** *Int J STD AIDS* 2015.

In Venezuela, members of a social and sexual partner-networking site for MSM completed an online survey regarding sexual behaviours and HIV medical care. Among the 2851 respondents, self-reported HIV prevalence was 6.6%. Of participants living with HIV, 73.2% reported taking antiretroviral medication and, 56.6% reported complete adherence within the past month. Participants living with HIV were more likely to be older (aOR = 1.04 per one-year increase in age, 95% CI: 1.02, 1.06) and diagnosed with an STI in the previous year (aOR 3.26, 95% CI: 2.11, 5.04). These data provide further understanding of the HIV epidemic among MSM in Venezuela, and potential targets for HIV prevention interventions.

20. Risher, K., et al. **"HIV treatment cascade in MSM, people who inject drugs, and sex workers."** *Curr Opin HIV AIDS* 2015 10(6): 420-9.

PURPOSE OF REVIEW: People who inject drugs (PWID), sex workers, and MSM simultaneously bear a high burden of HIV and stigma and discrimination. The purpose of this review was to summarize recent information about the understanding of the HIV care cascade among PWID, sex workers, and MSM populations around the globe. RECENT FINDINGS: A review of the published literature relating to the care cascade in these three key populations was conducted. Data on the care cascade among key populations are sparse, particularly for PWID and sex workers. In the 12 countries in which a study or report of the care cascade was available stratified by these populations, all three populations have care cascade outcomes that are far below the 90-90-90 target set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) for 2020. Culturally tailored interventions, including colocation of services and peer navigators, can improve care cascade outcomes among key populations. SUMMARY: Key populations' care cascade outcomes must be included in international reporting metrics to expand cascade data for these groups. Improving care cascade outcomes in these key populations through culturally tailored interventions should be a priority in the coming years.

21. Sanchez-Gomez, A., et al. **"HIV, STI and Behavioral Risk Among Men Who have Sex with Men in a Setting of Elevated HIV Prevalence Along Ecuador's Pacific Coast."** *AIDS Behav* 2015 19(9): 1609-18.

We assessed HIV and STI prevalence, risk behaviors and factors associated with HIV infection in men who have sex with men (MSM) in Guayaquil, Ecuador. Respondent-driven sampling was used to recruit 400 MSM in 2011-2012. Participants completed a computer-assisted self-interview and provided blood samples. Statistical analysis accounted for differential probability of selection and for recruitment patterns. HIV prevalence was 11.3 %, HSV-2 30.2 %, active syphilis 6.9 % and hepatitis B 1.2 %. In the previous 12 months, 84 % of MSM reported casual male sex partners and 25 % sex work. Only 48 % of MSM consistently used condoms with male partners and 54 % had ever been tested for HIV. Of 17 % of MSM reporting a female partner, consistent condom use was 6 %. HIV infection was associated with age 25 or older, active syphilis and homosexual self-identification. Findings suggest continuing HIV risk and a need to strengthen prevention and testing among MSM.

22. Midoun, M., et al. **"How intersectional constructions of sexuality, culture, and masculinity shape identities and sexual decision-making among men who have sex with men in coastal Kenya."** *Cult Health Sex* 2015: 1-14.

Men who have sex with men are increasingly recognised as one of the most vulnerable HIV risk groups in Kenya. Sex between men is highly stigmatised in Kenya, and efforts to provide sexual health services to men who have sex with men require a deeper understanding of their lived experiences; this includes how such men in Kenya construct their sexual identities and how these constructions affect sexual decision-making. Adult self-identified men who have sex with men (n = 26) in Malindi, Kenya, participated in individual interviews to examine sociocultural processes influencing sexual identity construction and decision-making. Four key themes were identified: (1) tensions between perceptions of 'homosexuality' versus being 'African', (2) gender-stereotyped beliefs about sexual positioning, (3) socioeconomic status and limitations to personal agency and (4) objectification and commodification of non-normative sexualities. Findings from this analysis emphasise the need to conceive of same-sex sexuality and HIV risk as context-dependent social phenomena. Multiple sociocultural axes were found to converge and shape sexual identity and sexual decision-making among this population. These axes and their interactive effects should be



considered in the design of future interventions and other public health programmes for men who have sex with men in this region.

23. Menacho, L. A., et al. "[How to produce a video to promote HIV testing in men who have sex with men?]." *Rev Peru Med Exp Salud Publica* 2015 32(3): 519-25. Online at: <http://www.scielosp.org/pdf/rpmesp/v32n3/a17v32n3.pdf>.

The aim of the study was to describe the process of designing and producing a video to promote HIV testing in Peruvian men who have sex with men (MSM). The process involved the following steps: identification of the theories of behavior change; identifying key messages and video features; developing a script that would captivate the target audience; working with an experienced production company; and piloting the video. A video with everyday situations of risk associated with HIV infection was the one preferred by participants. Key messages identified, and theoretical constructs models chosen were used to create the video scenes. Participants identified with the main, 9 minute video which they considered to be clear and dynamic. It is necessary to work with the target population to design a video according to their preferences.

24. de Lind van Wijngaarden, J. W., et al. "Identity management and sense of belonging to gay community among young rural Thai same-sex attracted men: implications for HIV prevention and treatment." *Cult Health Sex* 2015: 1-14.

Young Thai men who have sex with men continue to have high HIV prevalence and incidence in spite of much investment in community-based prevention approaches. To make HIV services more appropriate for same-sex attracted young men in Thailand, it needs to be considered how target groups view themselves and manage their identities. This paper derives from a qualitative study of 25 same-sex attracted rural young Thai men. It identifies five tactics men employed to manage the discrepancy between their preferences and parental/societal expectations regarding gender and sexuality, and discusses how the young men viewed themselves in the wider context of Thai society, including whether they felt part of a separate gay community. Participants usually did not adopt a gay social identity and were reluctant to join in gay community activities beyond dating. Hence, they would likely experience barriers in accessing gay community-based HIV services. HIV services targeting young same-sex attracted Thai men need to be diversified if they are to be more inclusive, appropriate and effective.

25. Liu, G., et al. "Incidence of HIV and Syphilis among Men Who Have Sex with Men (MSM) in Beijing: An Open Cohort Study." *PLoS One* 2015 10(10): e0138232. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4591335/pdf/pone.0138232.pdf>.

BACKGROUND: This study investigated HIV and syphilis incidence among men who have sex with men (MSM) in Beijing, China. METHODS: An open cohort was established from September 2009 to April 2012. Participants were followed up with every three to four months after recruitment and for thirty-one months in total. Chi-square tests were used to compare demographic and behavioral characteristics between participants who were followed up with and those lost to follow up. Univariate and multivariate Cox proportional hazards regression analyses were used to examine demographic and behavioral associations with HIV and syphilis incidence. RESULTS: 69.7% (699/1,003) of the participants finished at least two follow-up surveys during the study period. Variables which corresponded to increased loss to follow-up included younger age, less education, non-identification of homosexual identity, and migrant status. A total of 1,045 person-years (PYs) and 1,016.4 PYs were followed up for HIV and syphilis incidence estimation, respectively. The HIV incidence was 5.9 per 100 PYs and 7.8 per 100 PYs for syphilis. The predictors for the high HIV incidence included unsafe anal sex, sex after drinking alcohol and STI infection. CONCLUSION: HIV incidence increased rapidly within the cohort, but syphilis incidence remained stable and decreased. More research is needed to provide multi-pronged HIV prevention interventions among MSM in order to reduce the increasing burden of HIV and sexually transmitted infections (STIs) in China.

26. Hagan, H., et al. "Incidence of sexually transmitted hepatitis C virus infection in HIV-positive men who have sex with men." *Aids* 2015 29(17): 2335-45.

OBJECTIVE: The epidemiology of the incidence of sexually transmitted hepatitis C virus (HCV) infection in HIV-positive men who have sex with men (MSM) is only partially understood. In the presence of HIV, HCV infection is more likely to become chronic and liver fibrosis progression is accelerated. DESIGN: A systematic review and meta-analysis was used to synthesize data characterizing sexually transmitted HCV in HIV-positive MSM. METHODS: Electronic and other searches of medical literature (including unpublished reports) were conducted. Eligible studies reported on HCV seroconversion or on reinfection postsuccessful HCV treatment in HIV-positive MSM who were not injecting drugs. Pooled incidence rates were calculated using random-effects meta-analysis, and meta-regression was used to assess

study-level moderators. Attributable risk measures were calculated from statistically significant associations between exposures and HCV seroconversion. RESULTS: More than 13 000 HIV-positive MSM in 17 studies were followed for more than 91 000 person-years between 1984 and 2012; the pooled seroconversion rate was 0.53/100 person-years. Calendar time was a significant moderator of HCV seroconversion, increasing from an estimated rate of 0.42/100 person-years in 1991 to 1.09/100 person-years in 2010, and 1.34/100 person-years in 2012. Reinfection postsuccessful HCV treatment (n = 2 studies) was 20 times higher than initial seroconversion rates. Among the seroconverters, a large proportion of infections were attributable to high-risk behaviours including mucosally traumatic sex and sex while high on methamphetamine. CONCLUSION: The high reinfection rates and the attributable risk analysis suggest the existence of a subset of HIV-positive MSM with recurring sexual exposure to HCV. Approaches to HCV control in this population will need to consider the changing epidemiology of HCV infection in MSM.

27. Wong, N. S., et al. **"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* 2015 27(7): 756-64.

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.

28. Cange, C. W., et al. **"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* 2015.

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.

29. Jeong, S. J., et al. **"Late Presentation into Care of HIV Disease and Its Associated Factors in Asia: Results of TAHOD."** *AIDS Res Hum Retroviruses* 2015.

Many HIV-infected individuals do not enter health care until late in the infection course. Despite encouraging earlier testing, this situation has continued for several years. We investigated the prevalence of late presenters and factors associated with late presentation among HIV-infected patients in an Asian regional cohort. This cohort study included HIV-infected patients with their first positive HIV test during 2003-2012 and CD4 count and clinical status data within 3 months of that test. Factors associated with late presentation into care (CD4 count <200 cells/mul or an AIDS-defining event within +/-3 months of first positive HIV test) were analyzed in a random effects logistic regression model. Among 3,744 patients, 2,681 (72%) were late presenters. In the multivariable model, older patients were more likely to be late presenters than younger (</=30 years) patients [31-40, 41-50, and >/=51 years: odds ratio (OR)

= 1.57, 95% confidence interval (CI) 1.31-1.88; OR = 2.01, 95% CI 1.58-2.56; and OR = 1.69, 95% CI 1.23-2.31, respectively; all  $p < 0.001$ . Injecting drug users (IDU) were more likely (OR = 2.15, 95% CI 1.42-3.27,  $p < 0.001$ ) and those with homosexual HIV exposure were less likely (OR = 0.45, 95% CI 0.35-0.58,  $p < 0.001$ ) to be late presenters compared to those with heterosexual HIV exposure. Females were less likely to be late presenters (OR = 0.44, 95% CI 0.36-0.53,  $p < 0.001$ ). The year of first positive HIV test was not associated with late presentation. Efforts to reduce the patients who first seek HIV care at the late stage are needed. The identified risk factors associated with late presentation should be utilized in formulating targeted public health intervention to improve earlier entry into HIV care.

30. Qian, H. Z., et al. **"Lower HIV risk among circumcised men who have sex with men in China: Interaction with anal sex role in a cross-sectional study."** *J Acquir Immune Defic Syndr* 2015.

BACKGROUND: Voluntary medical male circumcision reduces the risk of HIV heterosexual transmission in men, but its effect on male-to-male sexual transmission is uncertain. METHODS: Circumcision status of men who have sex with men (MSM) in China was evaluated by genital examination and self-report; anal sexual role was assessed by questionnaire interview. Serostatus for HIV and syphilis was confirmed. RESULTS: Among 1155 participants (242 known seropositives and 913 with unknown HIV status at enrollment), the circumcision rate by self-report (10.4%) was higher than confirmed by genital examination (8.2%). Male circumcision (by exam) was associated with 47% lower odds of being HIV seropositive (adjusted odds ratio [aOR], 0.53; 95% confidence interval [CI], 0.27-1.02) after adjusting for demographic covariates, number of lifetime male sexual partners, and anal sex role. Among MSM who predominantly practiced insertive anal sex, circumcised men had 62% lower odds of HIV infection than those who were uncircumcised (aOR, 0.38, 95%CI, 0.09-1.64). Among those whose anal sex position was predominantly receptive or versatile, circumcised men have 46% lower odds of HIV infection than did men who were not circumcised (aOR, 0.54, 95%CI, 0.25-1.14). Compared to uncircumcised men reporting versatile or predominantly receptive anal sex positioning, those who were circumcised and reported practicing insertive sex had an 85% lower risk (aOR, 0.15; 95%CI, 0.04-0.65). Circumcision was not associated clearly with lower syphilis risk (aOR, 0.91; 95%CI, 0.51-1.61). CONCLUSIONS: Circumcised MSM were less likely to have acquired HIV, most pronounced among men predominantly practicing insertive anal intercourse. A clinical trial is needed.

31. Romijnders, K. A., et al. **"Lubricant use and condom use during anal sex in men who have sex with men in Tanzania."** *Int J STD AIDS* 2015.

The lack of data on condom and lubricant use among African men who have sex with men hinders prevention efforts. We describe use, knowledge, and access to lubricants in Dar es Salaam and Tanga, Tanzania. Data were collected in 2012 and 2013 from a cross-sectional survey of 200 men who have sex with men in Dar es Salaam and 100 men who have sex with men in Tanga, Tanzania. The most common reason for not using condoms was dislike of condoms. Two-thirds of the men reported always using a lubricant for anal sex. Fewer men who have sex with both men and women know about lubricants, more gay men look for, have difficulty finding, and find lubricants to be expensive; and men who have sex with men use lubricants to facilitate penetration. Men who have sex with both men and women commonly receive their lubricants from their sexual partner, while gay men got them from friends and pharmacies. HIV-negative men who have sex with men used lubricants to facilitate penetration and reduce pain. HIV-positive men who have sex with men are likely to get their lubricants from pharmacies or friends. Men who have sex with men and women use Vaseline(R) significantly more than gay men as a lubricant. Results suggest that HIV prevention knowledge among gay men is greater; HIV prevention efforts should emphasise carrying water-based lubricant among men who have sex with men and women. Consequently, there is an opportunity to co-market condoms and water-based lubricants.

32. Cakalo, J. I., et al. **"Misclassification of men with reported HIV infection in Ukraine."** *AIDS Behav* 2015 19(10): 1938-40.

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.

33. Girault, P., et al. **"Piloting a Social Networks Strategy to Increase HIV Testing and Counseling Among Men Who Have Sex with Men in Greater Accra and Ashanti Region, Ghana."** *AIDS Behav* 2015 19(11): 1990-2000.

The 2011 Ghana Men's Study identified a high prevalence of HIV among men who have sex with men (MSM) in Accra/Tema (34.4 %) and in Kumasi (13.6 %), whereas the HIV rate among MSM referred through peer educators (PEs) to HIV testing and counseling (HTC) services in these two sites was substantially lower (8.4 %). These findings raised questions about possible limitations of the peer-education strategy to reach high-risk MSM. Therefore, a pilot study was conducted to assess the feasibility of using a social network strategy (SNS) to identify and refer MSM to HTC services. Within 3 months, 166 MSM were reached and referred to HTC services: 62.7 % reported no recent exposure to PEs; 61.5 % were unaware of their recent HIV serostatus; and 32.9 % were newly diagnosed HIV positive. This pilot study suggests that an SNS could be an important strategy to reach MSM and to increase the uptake of HTC.

34. Hernandez, A. L., et al. **"Prevalence of anal HPV infection among HIV-positive men who have sex with men in India."** *J Acquir Immune Defic Syndr* 2015.

BACKGROUND: India has a large population of HIV-positive individuals, including men who have sex with men (MSM) and the incidence of human papillomavirus (HPV)-related cancers is high. In developed countries, HIV-positive MSM exhibit the highest prevalence of anal HPV infection and incidence of anal cancer. Little is known about anal HPV infection in HIV-positive Indian MSM. METHODS: We evaluated 300 HIV-positive MSM from two cities in India. Men were tested for anal HPV infection using L1-HPV DNA PCR with probes specific for 29 types and a mixture of 10 additional types. CD4+ level and plasma HIV viral load were measured. Participants completed an interviewer-administered questionnaire including a sexual history. RESULTS: The prevalence of anal HPV was 95% (95% CI 91%-97%). The three most common types were HPV 35 (20%), HPV 16 (13%) and HPV 6/11 (13%). History of taking antiretroviral medications decreased risk of anal HPV 16 infection (RR: 0.6 (0.4-1.0)). Having an increased number of vaginal sex partners lowered risk of any anal HPV infection. Ever having receptive sex increased risk of any anal HPV (RR: 1.2 (1.1-1.4)) and anal HPV 16 (RR: 6.5 (1.8-107)). CONCLUSIONS: Almost all Indian HIV-positive MSM had anal HPV infection. The prevalence of HPV 16 was lower and the prevalence of other oncogenic HPV types was higher than in similar populations in North America and Europe. Vaccine based prevention strategies for HPV infection in India should consider potential differences in HPV type distribution among HIV-infected MSM when designing interventions.

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

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.

36. Garg, S., et al. **"Randomized Controlled Trial to Compare Immunogenicity of Standard-Dose Intramuscular Versus Intradermal Trivalent Inactivated Influenza Vaccine in HIV-Infected Men Who Have Sex With Men in Bangkok, Thailand."** *Clin Infect Dis* 2015.

BACKGROUND: Individuals infected with human immunodeficiency virus (HIV) are at increased risk for severe influenza, yet immune responses to standard-dose intramuscular (IM) influenza vaccine are suboptimal in this population. Intradermal (ID) delivery of influenza vaccine might improve immune response through enhanced stimulation of dendritic cells. METHODS: We conducted a randomized, double-blind, controlled trial to compare the immunogenicity of off-label standard-dose (15 microg) ID vs standard-dose (15 microg) IM inactivated influenza vaccine in HIV-infected men in Bangkok, Thailand. The primary study outcome was seroconversion (minimum titer of 1:40 and

>/=4-fold rise in antibody titer) at 1 month postvaccination based on serum hemagglutination inhibition antibody titers against each vaccine strain. Adverse events (AEs) in the 7 days following vaccination were also assessed. RESULTS: We enrolled 400 HIV-infected participants; 200 were randomly assigned to receive IM and 200 ID vaccine. Vaccine arms were well-balanced with respect to age, CD4 cell count, HIV RNA load, and antiretroviral treatment. Percentage of seroconversion to all (ID 14% vs IM 15%; P = .8) or at least 1 (ID 69% vs IM 68%; P = .7) of the 3 vaccine strains did not differ significantly between ID vs IM vaccine recipients. A higher proportion of participants who received ID vaccine had mild injection-site AEs compared with participants who received IM vaccine (77% vs 27%). CONCLUSIONS: There were no significant differences in the immunogenicity of standard-dose ID vs IM influenza vaccine in this HIV-infected population in Thailand. Additional strategies to enhance immune responses to influenza vaccine among HIV-infected persons are needed. CLINICAL TRIALS REGISTRATION: NCT01538940.

37. Galea, J. T., et al. "**Rectal Douching Prevalence and Practices Among Peruvian Men Who have Sex with Men and Transwomen: Implications for Rectal Microbicides.**" *AIDS Behav* 2015.

Peruvian men who have sex with men (MSM) and transwomen (TW) could benefit from a rectal microbicide (RM) formulated as a rectal douche to prevent HIV infection. However, little is known about rectal douching practices among Peruvian MSM and TW, information necessary to inform RM douche development and future uptake. Using a self-administered interview, we examined the prevalence of and factors associated with rectal douching among a convenience sample of 415 Peruvian MSM and 68 TW. In the previous 6 months, 18 % of participants reported rectal douching using pre-filled commercial kits or plastic bottles or enema bags filled with water, water/soap or saltwater. Multivariate logistic analysis found that "equally insertive and receptive" or "exclusively/mainly receptive" sex roles were associated with douche use. Rectal douching among Peruvian MSM and TW is similar to reports from other studies and supports the potential uptake of a douche-formulated RM in these populations.

38. Lau, J. T., et al. "**Repeated HIV Voluntary Counseling and Testing Increased Risk Behaviors Among Men Who Have Sex with Men in China: A Prospective Cohort Study.**" *AIDS Behav* 2015 19(11): 1966-77.

High risk MSM are recommended to take up HIV voluntary counseling and testing (VCT) once every 6 months. 809 HIV-negative MSM in Beijing, China entered the 18-month prospective cohort study; 228 joined an extended study at month 21. The majority (92.5 %) of the participants had taken up four rounds of VCT over the study period. HIV prevalence at months 0, 6, 12, 18 and 21 ranged from 2.5 to 6.3 %; HIV incidences for the four intervals between the five visits ranged from 5.00 to 14.28 per 100-person year. Despite experiencing repeated VCT, high levels of risk behaviors were reported at month 21. 18 % of the participants interviewed at month 21 self-reported increased in UAI and other risk behaviors, comparing recent and pre-baseline experiences. HIV transmission and risk behaviors had not been reduced by multiple rounds of VCT. Reasons behind apparent ineffectiveness and tailored repeated testing strategies need to be investigated.

39. Stahlman, S., et al. "**Respondent-driven sampling as a recruitment method for men who have sex with men in southern sub-Saharan Africa: a cross-sectional analysis by wave.**" *Sex Transm Infect* 2015.

OBJECTIVES: Respondent-driven sampling (RDS) is a popular method for recruiting men who have sex with men (MSM). Our objective is to describe the ability of RDS to reach MSM for HIV testing in three southern African nations. METHODS: Data collected via RDS among MSM in Lesotho (N=318), Swaziland (N=310) and Malawi (N=334) were analysed by wave in order to characterise differences in sample characteristics. Seeds were recruited from MSM-affiliated community-based organisations. Men were interviewed during a single study visit and tested for HIV. chi2 tests for trend were used to examine differences in the proportions across wave category. RESULTS: A maximum of 13-19 recruitment waves were achieved in each study site. The percentage of those who identified as gay/homosexual decreased as waves increased in Lesotho (49% to 27%, p<0.01). In Swaziland and Lesotho, knowledge that anal sex was the riskiest type of sex for HIV transmission decreased across waves (39% to 23%, p<0.05, and 37% to 19%, p<0.05). The percentage of participants who had ever received more than one HIV test decreased across waves in Malawi (31% to 12%, p<0.01). In Lesotho and Malawi, the prevalence of testing positive for HIV decreased across waves (48% to 15%, p<0.01 and 23% to 11%, p<0.05). Among those living with HIV, the proportion of those unaware of their status increased across waves in all study sites although this finding was not statistically significant. CONCLUSIONS: RDS that extends deeper into recruitment waves may be a promising method of reaching MSM with varying levels of HIV prevention needs.

40. Aung, T., et al. "**Seroadaptive Behaviors of Men Who Have Sex with Men in Myanmar.**" *AIDS Behav* 2015.

Serosorting (i.e., choosing partners of the same HIV serostatus to reduce the risk of transmission with unprotected sex) and other forms of seroadaptation (i.e., engaging in diverse behaviors according to a hierarchy of risk by type of sex and partner serostatus) are phenomena widely described for men who have sex with men (MSM) in the developed world. We assessed seroadaptive behaviors among MSM surveyed in Yangon, Myanmar in 2013-2014. Among HIV-negative MSM, 43.1 % engaged in some form seroadaptation including serosorting (21.8 %), using condoms with potentially serodiscordant anal sex (19.3 %), and seropositioning (1.7 %). Among HIV-positive MSM, 3.5 % engaged in serosorting, 36.0 % in using condoms with potentially serodiscordant anal sex, 7.0 % in seropositioning, and 46.5 % in any form of seroadaptation. For HIV-negative and HIV-positive MSM, seroadaptation was more common than consistent condom use (38.0 and 26.7 %, respectively). MSM in Myanmar are engaging in seroadaptive behaviors in magnitude and ways similar to MSM in industrialized countries.

41. Peitzmeier, S. M., et al. **"Sexual Violence against Men Who Have Sex with Men and Transgender Women in Mongolia: A Mixed-Methods Study of Scope and Consequences."** *PLoS One* 2015 10(10): e0139320. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4592264/pdf/pone.0139320.pdf>.

The role of sexual violence in health and human rights-related outcomes, including HIV, is receiving increasing attention globally, yet the prevalence, patterns, and correlates of sexual violence have been little-studied among men who have sex with men (MSM) and transgender women in low and middle income countries. A mixed-methods study with quantitative and qualitative phases was conducted among MSM and transgender women in Ulaanbaatar, Mongolia. Methods included respondent-driven sampling (RDS) with structured socio-behavioral surveys (N = 313) as well as qualitative methods including 30 in-depth interviews and 2 focus group discussions. Forced sex in the last three years was reported by 14.7% of respondents (RDS-weighted estimate, 95%CI: 9.4-20.1; crude estimate 16.1%, 49/307) in the quantitative phase. A descriptive typology of common scenarios was constructed based on the specific incidents of sexual violence shared by respondents in the qualitative phase (37 incidents across 28 interviews and 2 focus groups). Eight major types of sexual violence were identified, most frequent of which were bias-motivated street violence and alcohol-involved party-related violence. Many vulnerabilities to and consequences of sexual violence described during the qualitative phase were also independently associated with forced sex, including alcohol use at least once per week (AOR = 3.39, 95% CI:1.69-6.81), and having received payment for sex (AOR = 2.77, 95% CI:1.14-6.75). Building on the promising strategies used in other settings to prevent and respond to sexual violence, similar strengthening of legal and social sector responses may provide much needed support to survivors and prevent future sexual violence.

42. Sabido, M., et al. **"Sexual Violence Against Men Who Have Sex with Men in Brazil: A Respondent-Driven Sampling Survey."** *AIDS Behav* 2015 19(9): 1630-41.

We estimated the prevalence of sexual violence (SV) experience among men who have sex with men (MSM) in Brazil and identified its associated risk factors. We recruited 3859 MSM through respondent driven sampling. A multivariable hierarchical analysis was performed using an ecological model. The prevalence of having ever experienced SV was 15.9 % (95 % confidence interval [CI] 14.7-17.1). SV experience was independently associated with discrimination due to sexual orientation (odds ratio [OR] 3.05; 95 % CI 2.10-4.42), prior HIV testing (OR 1.81; 95 % CI 1.25-2.63), <math>\leq 14</math> years at first sex (OR 1.86; 95 % CI 1.28-2.71), first sex with a man (OR 1.89; 95 % CI 1.28-2.79), presenting STI symptoms (last year) (OR 1.66; 95 % CI 1.12-2.47), and having suicidal ideas (last 6 months) (OR 2.08; 95 % CI 1.30-3.35). The high levels of SV against MSM in Brazil place them at a markedly higher risk of SV than the general population. Homophobic prejudice is the strongest determinant of SV and urgently needs to be included at the forefront of the national response to SV.

43. Kim, E. J., et al. **"Sexually transmitted infections associated with alcohol use and HIV infection among men who have sex with men in Kampala, Uganda."** *Sex Transm Infect* 2015.

**OBJECTIVES:** Few studies have been conducted in Africa to assess prevalence of sexually transmitted infections (STIs) and risk factors among men who have sex with men (MSM). We report findings from the first behavioural survey to include STI testing among MSM in Kampala, Uganda. **METHODS:** Respondent-driven sampling (RDS) was used to recruit MSM for a biobehavioural survey. Eligible participants were men who reported anal sex with another man in the previous 3 months, were 18 years or older, and resided in Kampala. Information was collected on demographics, sexual behaviour, alcohol and drug use, and STI symptoms. Blood, urine and rectal specimens were tested for syphilis, HIV, rectal and urethral gonorrhoea, and chlamydia. Analyses weighted for RDS were conducted to assess associations with STI diagnosis. **RESULTS:** A total of 295 MSM participated in the survey. Almost half (weighted percentage: 47.3%) reported STI symptoms in the last 6 months and 12.9% tested HIV-positive. Prevalence of non-HIV STI was 13.5%; syphilis prevalence was 9.0%. Adjusting for age and education, STI was associated with HIV (adjusted



OR (AOR)=3.46, 95% CI 1.03 to 11.64), alcohol use before sex (AOR=4.99, 95% CI 1.86 to 13.38) and having sold sex in the last 3 months (AOR=3.17, 95% CI 1.25 to 8.07), and inversely associated with having anonymous sex partners (AOR=0.20, 95% CI 0.07 to 0.61). CONCLUSIONS: We observed high levels of self-reported STI symptoms and STI prevalence associated with alcohol use and HIV among MSM in Kampala. Public health interventions supporting MSM are needed to address STI risk and facilitate access to diagnosis and treatment services.

44. de Voux, A., et al. **"A social network typology and sexual risk-taking among men who have sex with men in Cape Town and Port Elizabeth, South Africa."** *Cult Health Sex* 2015: 1-15.

Despite the high prevalence of HIV among men who have sex with men in South Africa, very little is known about their lived realities, including their social and sexual networks. Given the influence of social network structure on sexual risk behaviours, a better understanding of the social contexts of men who have sex with men is essential for informing the design of HIV programming and messaging. This study explored social network connectivity, an understudied network attribute, examining self-reported connectivity between friends, family and sex partners. Data were collected in Cape Town and Port Elizabeth, South Africa, from 78 men who have sex with men who participated in in-depth interviews that included a social network mapping component. Five social network types emerged from the content analysis of these social network maps based on the level of connectivity between family, friends and sex partners, and ranged from disconnected to densely connected networks. The ways in which participants reported sexual risk-taking differed across the five network types, revealing diversity in social network profiles. HIV programming and messaging for this population can greatly benefit from recognising the diversity in lived realities and social connections between men who have sex with men.

45. Wagner, G. J., et al. **"Social, Relational and Network Determinants of Unprotected Anal Sex and HIV Testing Among Men Who Have Sex with Men in Beirut, Lebanon."** *Int J Sex Health* 2015 27(3): 264-275.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4628817/pdf/nihms632141.pdf>.

Social, relational and network determinants of condom use and HIV testing were examined among 213 men who have sex with men (MSM) in Beirut. 64% reported unprotected anal intercourse (UAI), including 23% who had UAI with unknown HIV status partners (UAIU); 62% had HIV-tested. In multivariate analysis, being in a relationship was associated with UAI and HIV testing; lower condom self-efficacy was associated with UAIU and HIV testing; gay discrimination was associated with UAIU; MSM disclosure was associated with UAI, UAIU and HIV testing; and network centralization was associated with HIV testing. Multi-level social factors influence sexual health in MSM.

46. Earnshaw, V. A., et al. **"Stigma Toward Men Who Have Sex with Men Among Future Healthcare Providers in Malaysia: Would More Interpersonal Contact Reduce Prejudice?"** *AIDS Behav* 2015.

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

47. Young, S. D., et al. **"Substance use and sexual risk behaviors among Peruvian MSM social media users."** *AIDS Care* 2015: 1-7.

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

Among Peruvian MSM social media users, findings suggest that alcohol use was associated with increased HIV-related sexual risk behaviors.

48. Chakrapani, V., et al. "**Syndemics of depression, alcohol use, and victimisation, and their association with HIV-related sexual risk among men who have sex with men and transgender women in India.**" *Glob Public Health* 2015: 1-16.

We examined the presence and co-occurrence of psychosocial health conditions (depression, frequent alcohol use, and victimisation) among men who have sex with men (MSM) and transgender (TG) women in India, and their cumulative association with sexual risk. A survey questionnaire was administered among a convenience sample of 600 participants (MSM = 300; TG women = 300) recruited through six non-governmental organisations in four states. Prevalences of the number of psychosocial health conditions among MSM were: none = 31.3%, one = 43%, two = 20%, and three = 5.7%; and among TG women: none = 9%; one = 35.33%, two = 38.33%, and three = 17.33%. In bivariate and multivariate models, these conditions were positively and additively related to sexual risk, providing evidence for a syndemic of psychosocial health conditions among MSM and TG women and their synergistic effect on sexual risk. In addition to the number of syndemic conditions, resilient coping and social support were significant predictors of sexual risk among MSM and TG women, respectively. HIV preventive interventions in India should screen for and address co-occurring psychosocial health conditions - experiences of violence, mental health issues, and alcohol use - among MSM and TG women.

49. Wang, X., et al. "**Targeting HIV Prevention Based on Molecular Epidemiology Among Deeply Sampled Subnetworks of Men Who Have Sex With Men.**" *Clin Infect Dis* 2015 61(9): 1462-8.

BACKGROUND: Molecular epidemiology can be useful in identifying clusters of human immunodeficiency virus (HIV) transmission that can be targeted for prevention. METHODS: Regular screening of 2000 men who have sex with men (MSM) in Beijing, China, for HIV infection every 2 months identified 179 primary infections (2007-2010). HIV-1 pol sequences were obtained and used to infer the transmission network and identify transmitted drug resistance (TDR) among these individuals. We evaluated the use of clinical and network information to target prevention efforts. Prevention efficiency was calculated as the number of infections saved per number of interventions. RESULTS: This cohort was infected with HIV-1 subtype B (28%), circulating recombinant form (CRF)\_01 AE (53%), and CRF\_07 BC (16%). The overall rate of TDR was low (5%), but the rate of clustering was high (64%), suggesting deep sampling of the subnetwork. Provision of a theoretically high-efficacy intervention like antiretroviral therapy to all participants had a prevention efficiency of 23%. The efficiency of targeting prevention based on lower CD4 counts (<200 cells/mL, <350 cells/mL, or <500 cells/mL) and higher viral loads (>100 000 copies/mL and >50 000 copies/mL) was between 10% and 18%. The efficiency of targeting prevention based on number of network connections was much higher (30%-42%). For example, treating the 33 participants with  $\geq 5$  connections in 2009 would have theoretically prevented 14 infections in 2010 (42% prevention efficiency). CONCLUSIONS: Regular HIV testing of MSM in Beijing can deeply sample the local transmission subnetwork, and targeting prevention efforts based on network connectivity may be an efficient way to deliver prevention interventions.

50. Solomon, M. M., et al. "**Transactional sex and prevalence of STIs: a cross-sectional study of MSM and transwomen screened for an HIV prevention trial.**" *Int J STD AIDS* 2015 26(12): 879-86.

Few studies have characterised the degree of engagement in transactional sex among men and transgender women who have sex with men and explored its association with sexually transmitted infections and human immunodeficiency virus in Ecuador. We screened 642 men who have sex with men and transgender women for a pre-exposure prophylaxis clinical trial (iPrEx) in Guayaquil, Ecuador, 2007-2009. We analysed the association of degree of engagement in transactional sex and prevalence of sexually transmitted infections including human immunodeficiency virus using chi-square and analysis of variance tests. Although just 6.2% of those who screened self-identified as sex workers, 52.1% reported having engaged in transactional sex. Compared to those who had never been paid for sex, those who had been paid were more likely to have a sexually transmitted infection (56.6% vs. 45.0%,  $p = 0.007$ ) and trended towards a higher human immunodeficiency virus prevalence (16.6% vs. 10.4%,  $p = 0.082$ ) at screening. Transgender women compared to other men who have sex with men were more likely to have sexually transmitted infections diagnosed at screening (75.6% vs. 50.0%,  $p = 0.001$ ). Transactional sex is practiced widely but occasionally among the men who have sex with men and transgender women in Guayaquil who screened for the iPrEx study; however, engaging in transactional sex may not lead to a sex worker self-identification. Both transactional sex and being a transgender woman are associated with sexually transmitted infections prevalence.

51. Tee, K. K., et al. **"Transmission Networks of HIV-1 Among Men Who Have Sex With Men in East and Southeast Asia."** *J Acquir Immune Defic Syndr* 2015 70(1): e28-30.

52. Tang, E. C., et al. **"Using conjoint analysis to determine the impact of product and user characteristics on acceptability of rectal microbicides for HIV prevention among Peruvian men who have sex with men."** *Sex Transm Infect* 2015.

OBJECTIVES: Men who have sex with men (MSM) are in need of novel and acceptable HIV prevention interventions. In Peru, a Phase II clinical trial was recently completed evaluating rectally applied tenofovir gel among Peruvian MSM and transgender women. If deemed safe and acceptable, the product could move into efficacy testing, but acceptability data for similar products are needed now in order to prepare for future implementation. Peru is in need of expanded, national acceptability data among likely users. METHODS: Using conjoint analysis of an online cross-sectional survey taken by 1008 Peruvian MSM and transgender women, we tested the acceptability of eight hypothetical rectal microbicide (RM) products comprising six, dual-value attributes. We also assessed the relationship of select product attributes with sample characteristics. RESULTS: Highest acceptability was found for a RM that was 90% effective, used before and after sex, without side effects, costing approximately \$0.30, had no prescription requirement and had a single-use applicator. Product effectiveness and presence of side effects were the factors most likely to drive RM acceptance and use. Education, sexual orientation, sexual role and concern for HIV infection were also related to aspects of RM acceptability. CONCLUSION: RM acceptability was high, confirming the results of earlier, smaller studies and placing confidence in the acceptability of RMs. Analysis of the relationships with product attributes and sample characteristics underscore the need to consider the impact of factors such as sexual orientation, sexual role, level of education and concern for HIV acquisition on RM acceptability.

53. Muzyamba, C., et al. **"You cannot eat rights": a qualitative study of views by Zambian HIV-vulnerable women, youth and MSM on human rights as public health tools."** *BMC Int Health Hum Rights* 2015 15(1): 26. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4595269/pdf/12914\\_2015\\_Article\\_67.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4595269/pdf/12914_2015_Article_67.pdf).

BACKGROUND: Human rights approaches now dominate the HIV prevention landscape across sub-Saharan Africa, yet little is known about how they are viewed by the populations they are designed to serve. Health interventions are most effective when they resonate with the worldviews and interests of target groups. This study examined local Zambian understandings of human rights approaches to HIV-prevention among three highly HIV-vulnerable groups: women, youth, and men-who-have-sex-with-men (MSM). METHODS: Focus groups included 23 women, youth, and MSM who had participated in activities organized by local non-governmental organizations (NGOs) using rights-based approaches, and interviews included 10 Zambian employees of these NGOs. Topics included participants' experiences and views of the utility of these activities. Thematic analysis mapped out diverse ways participants viewed the concept of human rights in relation to HIV-prevention. RESULTS: Whilst NGO workers noted the need for human rights programs to address the complex drivers of the HIV epidemic, they struggled to tailor them to the Zambian context due to donor stipulations. Women program beneficiaries noted that the concept of human rights helped challenge harmful sexual practices and domestic abuse, and youth described rights-based approaches as more participatory than previous HIV-prevention efforts. However, they criticized the approach for conflicting with traditional values such as respect for elders and 'harmonious' marital relationships. They also critiqued it for threatening the social structures and relationships that they relied on for material survival, and for failing to address issues like poverty and unemployment. In contrast, MSM embraced the rights approach, despite being critical of its overly confrontational implementation. CONCLUSIONS: A rights-based approach seeks to tackle the symbolic drivers of HIV-its undeniable roots in cultural and religious systems of discrimination. Yet, it fails to resonate with youth and women's own understandings of their needs and priorities due to its neglect of material drivers of HIV such as poverty and unemployment. MSM, who suffer extreme stigma and discrimination, have less to lose and much to gain from an approach that challenges inequitable social systems. Developing effective HIV-prevention strategies requires careful dialogue with vulnerable groups and greater flexibility for context-specific implementation rather than a one-size-fits-all conceptualization of human rights.

[Back to top](#)

## Sex Workers - 39

1. Tenni, B., et al. **"Arresting HIV: Fostering Partnerships between Sex Workers and Police to Reduce HIV Risk and Promote Professionalization within Policing Institutions: A Realist Review."** *PLoS One* 2015 10(10): e0134900. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4619424/pdf/pone.0134900.pdf>.

In many countries around the world sex work is criminalised and its regulatory control is therefore often in the hands of the police. In addition to the impact of this criminalised legal environment, much literature describes the negative impact that certain police practices can have on the ability of sex workers and the programs that work with sex workers to access essential HIV prevention, treatment, care and support services. This situation has resulted in persistent concentrated HIV epidemics among sex workers in many countries of the world. The need for multi-sector partnerships between police and HIV programs is increasingly recognised in various UN declarations and resolutions yet descriptions of the process or key ingredients required to actually establish and sustain these necessary partnerships between police and sex workers [or the programs that provide essential services to sex workers] are sparse. The paper seeks to establish key considerations and critical processes that are required to foster partnerships that if further investigated and scaled up, could result in an enhanced enabling environment for the provision of essential HIV services for sex workers around the globe. This paper is based on a realist review that investigated isolated examples of partnership formation between law enforcement and HIV programs working with sex workers. This methodology research is designed to work with complex social interventions and is based on the emerging 'realist' approach to evaluation. A realist review methodology was chosen given the paucity of relevant literature in this vein and the authors' familiarity with the grey literature and relationships with experts who work in this sphere. The review found that political and police leadership, civil society strengthening and police reform in relation to HIV, are critical factors and key ingredients in changing the enabling environment in which sex work takes place to ensure that HIV prevention, individual and public health as well as HIV prevention and the promotion of human rights are the number one priority. Further research into this relationship is needed to provide evidence for effective HIV programming with police.

2. Olsthoorn, A. V., et al. **"Barriers to the uptake of postexposure prophylaxis among Nairobi-based female sex workers."** *AIDS* 2015.

**INTRODUCTION:** Female sex workers (FSWs) in sub-Saharan Africa are at a particularly high risk for HIV infection. Postexposure prophylaxis (PEP) is available as part of an HIV care and prevention program through dedicated FSW clinics in Nairobi, Kenya, but is underutilized. We evaluated PEP knowledge, access, and adherence among clinic attendees. **METHODS:** An anonymous questionnaire was administered to unselected HIV-uninfected FSWs. Participants were dichotomized into high and low HIV risk categories based on self-reported sexual practices, and prior PEP use, knowledge, and adherence were then evaluated. **RESULTS:** One hundred thirty-four HIV-uninfected FSWs participated, with 64 (48%) categorized as being at high risk for HIV acquisition. High-risk FSWs were less likely to have heard of or accessed PEP than lower risk FSWs (37.5 vs. 58.6%,  $P = 0.014$ ; and 21.9 vs. 40.6%,  $P = 0.019$ , respectively). Among higher risk FSWs, those who had accessed PEP were more likely to report treatment for a genital infection (71.4 vs. 42.0%,  $P = 0.049$ ) or sex with an HIV-infected man (62.5 vs. 37.5%,  $P = 0.042$ ) during the last 6 months. However, only 35.7% of high-risk women accessing PEP completed a full course of treatment, and noncompleters were more likely to report prior unprotected sex with an HIV-infected man ( $P = 0.023$ ). **CONCLUSION:** Despite freely available PEP for Nairobi-based FSWs, women at highest risk were less likely to have heard of PEP, access PEP, or complete the full course of therapy once initiated. Program delivery needs to be improved to ensure that FSW most at risk are able to benefit from this resource.

3. Le, L. T., et al. **"Coalition building by drug user and sex worker community-based organizations in Vietnam can lead to improved interactions with government agencies: a qualitative study."** *Harm Reduct J* 2015 12: 38. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608150/pdf/12954\\_2015\\_Article\\_70.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608150/pdf/12954_2015_Article_70.pdf).

**BACKGROUND:** Drug users and female sex workers are among the groups most vulnerable to HIV infection in Vietnam. To address the HIV epidemic within these communities, former drug users and sex workers established the first community-based organizations (CBOs) in 2009. The study provides a focused assessment of CBOs' expanding efforts to advocate for their members that identifies existing collaborations with Vietnamese government programs. This assessment explores the barriers to and facilitators of expansion in order to propose recommendations to improve the working relationship between CBOs and government programs. **METHODS:** Thirty-two individuals from drug user and sex worker CBOs ( $n = 24$ ) and relevant government programs ( $n = 8$ ) participated in face-to-face interviews in Hanoi, Ho Chi Minh City, and Hai Phong. Coded interview transcripts were analyzed qualitatively concerning the purpose of CBOs, the interactions between CBOs and government programs, and the perceived barriers, facilitators, and feasibility of future CBO-government program collaborations. **RESULTS:** Services provided by the CBOs were considered to improve members' quality of life. The formation of coalitions among CBOs increased efficiency in meeting members' specific service needs, in addition to internal capacity building. Government field staff interacted with CBOs by providing CBOs with technical and legal support. CBOs and methadone maintenance treatment (MMT) clinics collaborated to help the clinics meet patient enrollment quotas and facilitate entry into

treatment for CBO members. Barriers to CBO-government program collaboration included perceived conflicting missions on how to address drug use and sex work in the community, limited CBO-government program communication, CBO mistrust of the MMT system, and lack of legal status for CBOs. CONCLUSION: To reduce these barriers, we recommend (1) introduction of CBO consultative services at government healthcare centers, (2) enlistment of CBO outreach to ensure full access to the imminent scaled-up MMT program, and (3) establishment of standards by which CBOs can obtain legal status.

4. Le, T. T., et al. **"Correlates of HIV infection among street-based and venue-based sex workers in Vietnam."** *Int J STD AIDS* 2015.

Summary: Commercial sex work is one of the driving forces of the HIV epidemic across the world. In Vietnam, although female sex workers carry a disproportionate burden of HIV, little is known about the risk profile and associated factors for HIV infection among this population. There is a need for large-scale research to obtain reliable and representative estimates of the measures of association. This study involved secondary data analysis of the 'HIV/STI Integrated Biological and Behavioral Surveillance' study in Vietnam in 2009-2010 to examine the correlates of HIV among female sex workers. Data collected from 5298 female sex workers, including 2530 street-based sex workers and 2768 venue-based sex workers from 10 provinces in Vietnam, were analyzed using descriptive statistics, bivariate and multivariate logistic regression analyses. HIV prevalence among the overall FSW population was 8.6% (n = 453). However, when stratified by female sex worker subpopulations, HIV prevalence was 10.6% (n = 267) for street-based sex workers and 6.7% (n = 186) for venue-based sex workers. Factors independently associated with HIV infection in multivariate analysis, regardless of sex work types, injecting drug use, high self-perceived HIV risk, and age  $\geq$  25 years. Additional factors independently associated with HIV risk within each female sex worker subpopulation included having ever been married among street-based sex workers and inconsistent condom use with clients and having sex partners who injected drugs among venue-based sex workers. Apart from strategies addressing modifiable risk behaviours among all female sex workers, targeted strategies to address specific risk behaviours within each female sex worker subpopulation should be adopted.

5. Girchenko, P., et al. **"Correlates of Lifetime History of Purchasing Sex Services by Men in Saint Petersburg and Leningrad Oblast, Russia."** *J Urban Health* 2015.  
Online at: <http://link.springer.com/content/pdf/10.1007%2Fs11524-015-9990-z.pdf>.

Commercial sex workers (CSWs) in the Russian Federation are at high risk of HIV infection and transmission as a result of unsafe sexual and injecting behaviors. Their clients might be at increased risk of acquiring HIV; however, little is known about the population of men purchasing sex services. This study aims to investigate factors associated with a history of purchasing sex services by men in Saint Petersburg and Leningrad Oblast, Russian Federation. Data were collected as part of a cross-sectional study offering free anonymous rapid HIV testing in Saint Petersburg and Leningrad Oblast in 2014; in total, 3565 men aged 18 years and older provided information about their behaviors associated with risk of acquiring HIV during face-to-face interviews. Prevalence of CSW use in our study was 23.9%. Multivariable analyses using log-binomial regression were stratified by self-reported HIV testing during the 12 months preceding the study interview. In both strata, older age, multiple sex partners, and a history of sex with an injection drug user (IDU) were associated with an elevated prevalence ratio (PR) for history of purchasing sex services, although the strength of the association differed by strata. Among men who reported recent HIV testing, condom use (PR = 1.22, 90% confidence interval (CI) 1.0, 1.48) was associated with a history of purchasing sex services, and among men who did not report recent HIV testing, having a consistent sex partner was associated with purchasing sex services (PR = 1.23, 90% CI 1.1, 1.37). The high prevalence of CSW service use and associations found in this study raise serious concerns about potential for sexual HIV transmission and should be investigated more closely.

6. Cabezas, M. C., et al. **"A cross-sectional study to evaluate factors related to condom use with commercial sexual partners in workers from Ecuadorian companies."** *BMC Public Health* 2015 15: 856.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4558841/pdf/12889\\_2015\\_Article\\_2184.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4558841/pdf/12889_2015_Article_2184.pdf).

BACKGROUND: Unprotected intercourse with sex workers is one of the major risk factors for HIV infection. Consistent condom use is a prerequisite to lower the incidence of HIV. METHODS: We assessed the prevalence of condom use and its determinants among company workers engaged with commercial sexual partners in Ecuador. The study was based on a random sample of 115 companies and 1,732 workers stratified by province and working sector and utilized the "Behavioral Surveillance Surveys - Adult questionnaire" developed by Family Health International. RESULTS: Of the 1,561 sexually active workers, 311 (19.9%) reported having intercourse with sex workers. Among them 25.9% did not use a condom at the last sexual intercourse. As for condom use frequency over the last 12 months, 29/208

(13.9%) reported never, 23 (11.1%) sometimes, 24 (11.5%) almost every time and 132 (63.5%) every time. Factors adversely affecting condom use frequency over the last 12 months were female gender (OR = 4.56, 95% CI: 1.45-14.4), older age (OR = 1.07, 95% CI: 1.03-1.10), low educational level (OR = 4.69, 95% CI: 1.95-11.3) and married workers living with spouse (OR = 7.66, 95% CI: 3.08-19.1). By contrast, factors such as age at first sexual intercourse, job category, HIV transmission and prevention measure knowledge, single workers, previous exposure to HIV intervention programs and having a casual sexual partner were not affecting condom use frequency. When considering condom use during the last sexual intercourse or during the past 12 months with commercial sexual partners, results were similar. CONCLUSIONS: Workers with low education, older age, female gender and those married living with their spouse should be targeted for specific educational interventions.

7. Beattie, T. S., et al. **"Declines in violence and police arrest among female sex workers in Karnataka state, south India, following a comprehensive HIV prevention programme."** *J Int AIDS Soc* 2015 18(1): 20079. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4609649/pdf/JIAS-18-20079.pdf>.

INTRODUCTION: Female sex workers (FSWs) frequently experience violence, harassment and arrest by the police or their clients, but there is little evidence as to the impact that such factors may have on HIV risk or whether community interventions could mitigate this impact. METHODS: As part of the evaluation of the Avahan programme in Karnataka, serial integrated behavioural and biological assessment (IBBA) surveys (four districts) (2005 to 2011) and anonymous polling booth surveys (PBS) (16 districts) (2007 to 2011) were conducted with random samples of FSWs. Logistic regression analysis was used to assess 1) changes in reported violence and arrests over time and 2) associations between violence by non-partners and police arrest and HIV/STI risk and prevalence. Mediation analysis was used to identify mediating factors. RESULTS: 5,792 FSWs participated in the IBBAs and 15,813 participated in the PBS. Over time, there were significant reductions in the percentages of FSWs reporting being raped in the past year (PBS) (30.0% in 2007, 10.0% in 2011,  $p < 0.001$ ), being arrested in the past year [adjusted odds ratio (AOR) 0.57 (0.35, 0.93),  $p = 0.025$ ] and being beaten in the past six months by a non-partner (clients, police, pimps, strangers, rowdies) [AOR 0.69 (0.49, 0.95),  $p = 0.024$ ] (IBBA). The proportion drinking alcohol (during the past week) also fell significantly (32.5% in 2005, 24.9% in 2008, 16.8% in 2011;  $p < 0.001$ ). Violence by non-partners (being raped in the past year and/or beaten in the past six months) and being arrested in the past year were both strongly associated with HIV infection [AOR 1.59 (1.18, 2.15),  $p = 0.002$ ; AOR 1.91 (1.17, 3.12),  $p = 0.01$ , respectively]. They were also associated with drinking alcohol (during the past week) [AOR 1.98 (1.54, 2.53),  $p < 0.001$ ; AOR 2.79 (1.93, 4.04),  $p < 0.001$ , respectively], reduced condom self-efficacy with clients [AOR 0.36 (0.27, 0.47),  $p < 0.001$ ; AOR 0.62 (0.39, 0.98),  $p = 0.039$ , respectively], symptomatic STI (during the past year) [AOR 2.62 (2.07, 3.30),  $p < 0.001$ ; AOR 2.17 (1.51, 3.13),  $p < 0.001$ , respectively], gonorrhoea infection [AOR 2.79 (1.51, 5.15),  $p = 0.001$ ; AOR 2.69 (0.96, 7.56),  $p = 0.060$ , respectively] and syphilis infection [AOR 1.86 (1.04, 3.31),  $p = 0.036$ ; AOR 3.35 (1.78, 6.28),  $p < 0.001$ , respectively], but not with exposure to peer education, community mobilization or HIV testing uptake. Mediation analysis suggests that alcohol use and STIs may partially mediate the association between violence or arrests and HIV prevalence. DISCUSSION: Violence by non-partners and arrest are both strongly associated with HIV infection among FSWs. Large-scale, comprehensive HIV prevention programming can reduce violence, arrests and HIV/STI infection among FSWs.

8. Han, L., et al. **"Differences in risk behaviours and HIV/STI prevalence between low-fee and medium-fee female sex workers in three provinces in China."** *Sex Transm Infect* 2015.

OBJECTIVES: To better understand risk behaviours and factors associated with low-fee female sex workers (FSW) and support HIV/sexually transmitted infections (STI) epidemic control among this key population in China. METHODS: A cross-sectional study using convenience sampling to recruit 1487 eligible low-fee and medium-fee FSW was conducted in 2012 in three provinces. The participants were interviewed using a structured questionnaire and tested for HIV-1, herpes simplex virus (HSV)-2 and syphilis antibody. Log-binomial modelling was used to estimate prevalence ratios (PR) and examine factors associated with low-fee sex work. RESULTS: Prevalence of HIV-1, syphilis and HSV-2 antibody positive were 0.5%, 4.8% and 27.8%, respectively. Low-fee FSW were more likely to have HSV-2 infection (adjusted prevalence ratio (APR)=1.3, 95% CI 1.1 to 1.7), but not more likely to have HIV-1 and syphilis infection compared with medium-fee FSW. Compared with medium-fee FSW, low-fee FSW were more likely to be  $\geq 35$  years of age (APR=2.1, 95% CI 1.3 to 3.6), engage in sex work  $\geq 6$  days/per week (APR=1.7, 95% CI 1.2 to 2.6), have  $\geq 3$  clients per day (APR=2.2, 95% CI 1.5 to 3.3), have clients decide condom use (APR=1.6, 95% CI 1.1 to 2.3), fail to persuade clients to use condoms (APR=1.6, 95% CI 1.1 to 2.6), express willingness to have unprotected sex in return for receipt of a higher fee (APR=1.8, 95% CI 1.2 to 2.8), have had genital symptoms in the past year (APR=1.4, 95% CI 1.1 to 1.8) and have migrated from another city. CONCLUSIONS: Low-fee FSW in China have unique risks for acquiring HIV/STI, in part due to greater economic pressures. Tailored interventions targeting low-fee FSW and



incorporating their prevailing perception of HIV/STI risks and condom use negotiation challenges that they face are urgently needed.

9. Yang, X., et al. **"Effectiveness of a Peer-Assisted Multicomponent Behavioral Intervention in HIV Risk Reduction Among Female Entertainment Workers in China."** *AIDS Educ Prev* 2015 27(5): 446-64.

This study examined the effectiveness of a behavioral intervention that combined cognitive and social influence approaches. The intervention consisted of small group sessions targeting HIV knowledge, protection motivation, behavioral skills, and social influences of risk reduction. The control was an attention-controlled HIV/STI health education and counseling. Two-group comparisons were conducted to assess the effectiveness of the intervention; risk reduction over time was analyzed to determine the sustainability of the effectiveness. The analyses revealed that the intervention was effective in reducing/increasing HIV risk/protective behaviors and the effect was sustainable. While participants in the control reported a greater reduction/increase in risk/protective behaviors 3-month post-intervention, the initial strong effect quickly faded and completely disappeared 12-month post-intervention. By contrast, the moderate initial effect of the intervention was not only sustained but actually strengthened over time. The intervention was well received by participants and holds promise for HIV risk reduction behavior change among female entertainment workers in China.

10. Thein, S. T., et al. **"Estimation of the number of female sex workers in Yangon and Mandalay, Myanmar."** *AIDS Behav* 2015 19(10): 1941-7.

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.

11. Mutagoma, M., et al. **"Estimation of the size of the female sex worker population in Rwanda using three different methods."** *Int J STD AIDS* 2015 26(11): 810-4.

HIV prevalence is disproportionately high among female sex workers compared to the general population. Many African countries lack useful data on the size of female sex worker populations to inform national HIV programmes. A female sex worker size estimation exercise using three different venue-based methodologies was conducted among female sex workers in all provinces of Rwanda in August 2010. The female sex worker national population size was estimated using capture-recapture and enumeration methods, and the multiplier method was used to estimate the size of the female sex worker population in Kigali. A structured questionnaire was also used to supplement the data. The estimated number of female sex workers by the capture-recapture method was 3205 (95% confidence interval: 2998-3412). The female sex worker size was estimated at 3348 using the enumeration method. In Kigali, the female sex worker size was estimated at 2253 (95% confidence interval: 1916-2524) using the multiplier method. Nearly 80% of all female sex workers in Rwanda were found to be based in the capital, Kigali. This study provided a first-time estimate of the female sex worker population size in Rwanda using capture-recapture, enumeration, and multiplier methods. The capture-recapture and enumeration methods provided similar estimates of female sex worker in Rwanda. Combination of such size estimation methods is feasible and productive in low-resource settings and should be considered vital to inform national HIV programmes.

12. Brody, C., et al. **"Factors associated with sex work among at-risk female youth in Cambodia: a cross-sectional study."** *AIDS Care* 2015: 1-8.

In Cambodia, despite great achievements in reducing the prevalence of HIV in the general population, reducing new HIV infections among young at-risk women remains a challenge. This study was designed to examine the prevalence of risky behaviors of sexually active female youth in Cambodia and to explore risk factors associated with engagement in transactional sex. We surveyed sexually active female youth aged 10-24 enrolled at risk "hotspots" in eight provinces in Cambodia. We collected data on demographic factors, sexual behavior, and factors hypothesized to be associated with transactional sex. Multivariable logistic regression was used to identify associations between demographic and sexual behavior and transactional sex. Of the 280 respondents, the mean age was 21.2, and 48.1%

had been paid for sex in the past year. After adjustment, at-risk females who were never have been married (adjusted odds ratio (AOR) 3.40, 95% confidence interval (CI) = 1.65-6.97), have completed less than 6 years of school (AOR 3.26, 95% CI = 1.60-6.66), have 1 or more parents who had died (AOR 4.34, 95% CI = 2.00-9.38), be a heavy alcohol drinker (AOR 3.58, 95% CI = 1.78-7.18), have used a condom with their boyfriend during last sexual encounter (AOR 3.50, 95% CI = 1.68-7.32), and have ever had an HIV test (AOR 3.51, 95% CI = 1.68-7.32) were more likely to engage in sex work. Our findings suggest that prevention strategies for female youth at risk of engagement in sex work should include upstream structural interventions that aim to encourage girls' education and empowerment. In addition, tailored sex education and behavior change messaging about the risks of heavy drinking, condom use with romantic partners, and the importance of frequent HIV testing for at-risk youth and sex workers should be designed and delivered to youth currently engaging in sex work.

13. Thepthien, B. O., et al. **"Factors Enabling Access to HIV Voluntary Counseling and Testing for Key Affected Populations in Thailand."** *Asia Pac J Public Health* 2015 27(7): 765-74.

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.

14. Steen, R., et al. **"Feasible, Efficient and Necessary, without Exception - Working with Sex Workers Interrupts HIV/STI Transmission and Brings Treatment to Many in Need."** *PLoS One* 2015 10(10): e0121145.  
Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4619404/pdf/pone.0121145.pdf>.

BACKGROUND AND OVERVIEW: High rates of partner change in sex work-whether in professional, 'transactional' or other context-disproportionately drive transmission of HIV and other sexually transmitted infections. Several countries in Asia have demonstrated that reducing transmission in sex work can reverse established epidemics among sex workers, their clients and the general population. Experience and emerging research from Africa reaffirms unprotected sex work to be a key driver of sexual transmission in different contexts and regardless of stage or classification of HIV epidemic. This validation of the epidemiology behind sexual transmission carries an urgent imperative to realign prevention resources and scale up effective targeted interventions in sex work settings, and, given declining HIV resources, to do so efficiently. Eighteen articles in this issue highlight the importance and feasibility of such interventions under four themes: 1) epidemiology, data needs and modelling of sex work in generalised epidemics; 2) implementation science addressing practical aspects of intervention scale-up; 3) community mobilisation and 4) the treatment cascade for sex workers living with HIV. CONCLUSION: Decades of empirical evidence, extended by analyses in this collection, argue that protecting sex work is, without exception, feasible and necessary for controlling HIV/STI epidemics. In addition, the disproportionate burden of HIV borne by sex workers calls for facilitated access to ART, care and support. The imperative for Africa is rapid scale-up of targeted prevention and treatment, facilitated by policies and action to improve conditions where sex work takes place. The opportunity is a wealth of accumulated experience working with sex workers in diverse settings, which can be tapped to make up for lost time. Elsewhere, even in countries with strong interventions and services for sex workers, an emerging challenge is to find ways to sustain them in the face of declining global resources.

15. Deering, K. N., et al. **"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* 2015 27(10): 1241-9.

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 (SWs); 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 SWs 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 SWs. 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 SWs whose main NPPs agreed to enrol in the study and the main NPP enrolled were linked; these

responses by couples (pairs of SWs and NPPs) were examined to assess sexual risk for HIV/STIs. Overall, this study included 257 SWs 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]) (versus by the SWs herself). Our study highlights the potential risk for HIV/STI acquisition and transmission between NPPs and SWs, and between NPPs and their non-SWs 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 SWs in the context of their relationships with NPPs.

16. Ramanaik, S., et al. **"Frontline Health Service Providers' Perspectives on HIV Vaccine Trials among Female Sex Workers and Men Who Have Sex with Men in Karnataka, South India."** *PLoS One* 2015 10(10): e0141822. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4627793/pdf/pone.0141822.pdf>.

**BACKGROUND:** Little qualitative research is available on the role of frontline health service providers (FHSPs) in the implementation of clinical trials, particularly in developing countries. This paper presents findings from a qualitative study about the perspectives of FHSPs on future HIV vaccine trials involving female sex workers (FSWs) and men who have sex with men (MSM) in three districts of Karnataka, India. In particular, we explore FHSPs' knowledge of and views on clinical trials in general, and examine their potential willingness to play a role if such trials were introduced or implemented in the region. **METHODS:** A field team of four researchers from Karnataka—two of whom self-identified with FSW or MSM communities ("community researchers") and two with backgrounds in social work—conducted in-depth interviews with FHSPs. Including community researchers in the study helped to build rapport with FSW and MSM participants and facilitate in-depth discussions. A coding scheme for transcribed and translated data was developed using a framework analysis approach. Data was then analysed thematically using a combination of a priori and emergent codes. **RESULTS:** Over half of FHSPs demonstrated limited knowledge or understanding of clinical trials. Despite reported skepticism around the testing of HIV vaccines in developing countries and concerns around potential side effects, most FHSPs strongly advocated for the implementation of HIV vaccine clinical trials in Karnataka. Further, most FHSPs expressed their willingness to be involved in future HIV vaccine clinical trials in varying capacities. **CONCLUSION:** Given that FHSPs are often directly involved in the promotion of health and well-being of FSWs and MSM, they are well-positioned to play leadership, ethical, and communicative roles in future HIV vaccine trials. However, our findings reveal a lack of awareness of clinical trials among FHSP participants, suggesting an important area for capacity building and staff development before viable and ethical clinical trials can be set up in the region.

17. Traore, I. T., et al. **"HIV prevention and care services for female sex workers: efficacy of a targeted community-based intervention in Burkina Faso."** *J Int AIDS Soc* 2015 18(1): 20088. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4571618/pdf/JIAS-18-20088.pdf>.

**INTRODUCTION:** Although interventions to control HIV among high-risk groups such as female sex workers (FSW) are highly recommended in Africa, the contents and efficacy of these interventions are unclear. We therefore designed a comprehensive dedicated intervention targeting young FSW and assessed its impact on HIV incidence in Burkina Faso. **METHODS:** Between September 2009 and September 2011 we conducted a prospective, interventional cohort study of FSW aged 18 to 25 years in Ouagadougou, with quarterly follow-up for a maximum of 21 months. The intervention combined prevention and care within the same setting, consisting of peer-led education sessions, psychological support, sexually transmitted infections and HIV care, general routine health care and reproductive health services. At each visit, behavioural characteristics were collected and HIV, HSV-2 and pregnancy were tested. We compared the cohort HIV incidence with a modelled expected incidence in the study population in the absence of intervention, using data collected at the same time from FSW clients. **RESULTS:** The 321 HIV-uninfected FSW enrolled in the cohort completed 409 person-years of follow-up. No participant seroconverted for HIV during the study (0/409 person-years), whereas the expected modelled number of HIV infections were 5.05/409 person-years (95% CI, 5.01-5.08) or 1.23 infections per 100 person-years ( $p=0.005$ ). This null incidence was related to a reduction in the number of regular partners and regular clients, and by an increase in consistent condom use with casual clients (adjusted odds ratio (aOR)=2.19; 95% CI, 1.16-4.14,  $p=0.01$ ) and with regular clients (aOR=2.18; 95% CI, 1.26-3.76,  $p=0.005$ ). **CONCLUSIONS:** Combining peer-based prevention and care within the same setting markedly reduced the HIV incidence among young FSW in Burkina Faso, through reduced risky behaviours.

18. Risher, K., et al. **"HIV treatment cascade in MSM, people who inject drugs, and sex workers."** Curr Opin HIV AIDS 2015 10(6): 420-9.

PURPOSE OF REVIEW: People who inject drugs (PWID), sex workers, and MSM simultaneously bear a high burden of HIV and stigma and discrimination. The purpose of this review was to summarize recent information about the understanding of the HIV care cascade among PWID, sex workers, and MSM populations around the globe. RECENT FINDINGS: A review of the published literature relating to the care cascade in these three key populations was conducted. Data on the care cascade among key populations are sparse, particularly for PWID and sex workers. In the 12 countries in which a study or report of the care cascade was available stratified by these populations, all three populations have care cascade outcomes that are far below the 90-90-90 target set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) for 2020. Culturally tailored interventions, including colocation of services and peer navigators, can improve care cascade outcomes among key populations. SUMMARY: Key populations' care cascade outcomes must be included in international reporting metrics to expand cascade data for these groups. Improving care cascade outcomes in these key populations through culturally tailored interventions should be a priority in the coming years.

19. Moayedi-Nia, S., et al. **"HIV, HCV, HBV, HSV, and syphilis prevalence among female sex workers in Tehran, Iran, by using respondent-driven sampling."** AIDS Care 2015: 1-4.

To find out the prevalence of HIV, HCV, HBV, HSV, and syphilis infections among female sex workers (FSWs) in Tehran, a cross-sectional study by using respondent-driven sampling (RDS) method was conducted. From December 2012 to April 2013 FSWs in Tehran were recruited. Inclusion criteria consisted of trading sex during the 12 months prior to this study and selling sex for at least 6 months in participants' lifetime. Among 161 consenting participants, 5% were infected with HIV. Moreover, 8.1% of FSWs were HCV positive, 37.9% were of HSV type1/type2, 1.2% of participants were infected with HBV, and none of the participants were infected with syphilis. HIV-positive participants were significantly more likely to be co-infected with HSV type1/type2, be younger, have more sexual partners and especially more clients during seven days prior to this study and report more history of having at least one of sexually transmitted infections symptoms in 12 months prior the study. In the multiple logistic regression analysis, being infected with HSV and also being under 25 years of age were found to be independently associated with HIV infection. Compared with the prevalence of HIV among general population of Tehran, relatively high prevalence of HIV and other viral infections among FSWs should be considered. All in all, it is critical to commence effective counter-measures for this high-risk group if the aim is to prevent spreading of these viruses to general population.

20. Colby, D. J., et al. **"HIV, Hepatitis C, and Other Sexually Transmitted Infections Among Male Sex Workers in Ho Chi Minh City, Vietnam."** AIDS Behav 2015.

There is little data on the burden of HIV and other infections that affect male sex workers (MSW) in Vietnam. We conducted behavioral and biological sexual health surveys with 300 MSW in Ho Chi Minh City. Generalized estimating equation models were built to assess factors associated with HIV, hepatitis C, and other sexually transmitted infections (STI). Of 300 MSW, 19 (6.3 %) were diagnosed seropositive for HIV, 11 (3.7 %) had hepatitis C, and 26 (8.7 %) had at least one prevalent STI. In a multivariable model, opiate use was significantly associated with HIV infection (aOR 6.46, 95 % CI 1.28-32.7) and hepatitis C (aOR = 19.6, 95 % CI 2.35-163.6). Alcohol dependency was associated with increased odds of hepatitis C (aOR = 4.79, 95 % CI 1.02-22.5) and decreased odds of other STI (aOR = 0.30, 95 % CI 0.10-0.97). These findings suggest that MSW in Vietnam would benefit from regular HIV and STI testing, as well as linkage to care and substance use rehabilitation services.

21. Xiao, Z., et al. **"Mass Media and HIV/AIDS Prevention Among Female Sex Workers in Beijing, China."** J Health Commun 2015 20(9): 1095-106.

The current study aimed to identify the sources of HIV prevention information for female sex workers in Beijing and assess the associations between levels of mass media exposure of HIV/AIDS prevention information and HIV/AIDS knowledge as well as condom use-related attitudes, beliefs, and behaviors. Cross-sectional data were collected from 359 female sex workers in Beijing, China. Chi-square tests and one-way ANOVA tests were employed. Female sex workers sampled in Beijing were more likely to obtain HIV/AIDS prevention information from television and street posters than radio and the Internet. However, a higher level of exposure to and a lasting impression on online information were significantly associated with a higher level of condom use self-efficacy and more consistent condom use among the participants. Exposure to HIV/AIDS prevention information delivered by radio, street posters, and the Internet was found to be associated with sexual communication about HIV or condom use with sexual partners.

Overall, this study provides preliminary evidence of the utility of various mass media outlets in delivering HIV/AIDS prevention information among female sex workers in China. Future studies are needed to systematically examine the effectiveness of mass media-based prevention education on HIV/AIDS related attitudes and behaviors among female sex workers and other populations in China.

22. Chevrier, C., et al. **"No one was there to care for us': Ashodaya Samithi's community-led care and support for people living with HIV in Mysore, India."** *Glob Public Health* 2015: 1-14.

Under the umbrella of the Bill and Melinda Gates-funded HIV initiative in India, the Mysore-based sex workers' (SWs) collective Ashodaya Samithi focused on improving its members' living and working conditions through community-led structural interventions, including community mobilisation, advocacy, peer-led support, and health promotional activities. Based on four months of ethnographic fieldwork, this article examines the care and support activities of one of its sub-wings, Ashraya, which specifically focuses on people living with HIV and AIDS (PLHIV). We first discuss the stigma-related perceptions and experiences of participants in relation to health-care settings and work environment, families and communities, and within varied HIV support networks. We then explore how Ashraya's community-led interventions attempt to challenge the structural forces feeding on and creating stigma. We argue that the current policy focus on the involvement of SWs' collectives in sexually transmitted infection (STI) prevention in India is rather limited and should be expanded along the continuum of care and support offered to PLHIV. As suggested in this paper, SWs' organisations may have greater potential to contribute to more than STI prevention work, both within and outside their communities, than currently recognised.

23. Lopez-Entrambasaguas, O. M., et al. **"Perception of HIV Prevention Programs Among Ayoreo Sex Workers in Bolivia."** *J Transcult Nurs* 2015 26(5): 458-65.

The Ayoreo population constitutes one of Bolivia's most vulnerable ethnic groups in terms of HIV/AIDS. Being a woman, indigenous, and a sex worker signifies belonging to a high-risk group. The aim of this study is to explore the Ayoreo sex workers' and health agents' perceptions of HIV/AIDS prevention programs in order to identify variables that could influence their success or failure. This study used an ethnographic methodology that included participant observation and semistructured interviews. In the data collection, participant observation and semistructured interviews with sex workers and key informants were conducted. Three themes emerged from the inductive data analysis: health prevention efforts, cultural inadequacy of prevention programs, and the eventuality of interventions. We conclude that nursing can develop culturally-adequate HIV/AIDS prevention interventions and programs as well as promote health within these populations.

24. Shukla, P., et al. **"Perception of sex workers of Lucknow City, Uttar Pradesh, India towards sexually transmitted infections."** *Indian J Public Health* 2015 59(4): 318-22.

The prevention, control, and management of sexually transmitted infections/reproductive tract infection (STI/RTI) are well-recognized cost-effective strategies for controlling the spread of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS). A cross-sectional descriptive study was done over a period of 1 year to assess the prevalence of STI, knowledge level about STI, and the STI-HIV link among the female sex workers (FSWs) of Lucknow city, Uttar Pradesh, India along with their biosocial characteristics. Most of the FSWs were illiterate, married, Hindus, and belonged to general category. The prevalence rates of STI among street-based and home-based FSWs were 50.6% and 29.8%, respectively. Knowledge about the role of condom in prevention of STI and the STI-HIV link was significantly less among home-based FSWs than those who are street-based. There is a great lack in the awareness among FSWs regarding STI and their prevention. Behavior change communication (BCC) and advocacy strategy were developed, especially for the home-based group, to strengthen their knowledge regarding the STI-HIV link.

25. Dixon, T. C., et al. **"Pharmacology, physiology and performance: occupational drug use and HIV risk among female entertainment and sex workers in Cambodia."** *Harm Reduct J* 2015 12: 33.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608294/pdf/12954\\_Article\\_68.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608294/pdf/12954_Article_68.pdf).

**BACKGROUND:** In Cambodia, HIV prevalence among female entertainment and sex workers (FESW) is up to twenty times higher than in the general population. Use of amphetamine-type stimulants (ATS) has been associated with increased risk of HIV and other sexually transmitted infections in key populations, including FESW. While one in four Cambodian FESW report recent ATS use, little attention has been paid to how the occupational contexts of sex work shape patterns of use. Currently, no HIV prevention interventions target ATS use in this population. **METHODS:** We

conducted in-depth interviews with FESW (n = 30) with the goal of exploring experiences and motivations for ATS use and informing the development of a conditional cash transfer (CCT) intervention designed to reduce ATS use and HIV risk. Interviews were conducted and transcribed in Khmer and translated into English. Interview narratives were read and re-read and emerging themes reviewed and refined to develop an initial coding scheme. Data were formally coded using both open and axial coding to clarify and consolidate initial themes. RESULTS: The most common driver of ATS use among FESW was increased functionality. ATS was seen as a performance enhancer, acting as an appetite suppressant and enabling women to meet the physiological demands of sex work, including long working hours, multiple clients and extended sexual transactions. While our results are consistent with studies linking ATS use to heightened sexual risk, via unprotected and/or prolonged sex, for women in the current study, the negative consequences of ATS use were outweighed by perceived functional benefits. CONCLUSIONS: FESW in Cambodia harness the pharmacological properties of ATS to meet the physiological demands of sex work in a context of limited economic opportunities. There is an urgent need to both provide Cambodian women with options for income generation that do not risk their health and to better regulate the conditions of sex work to provide safer working environments. Structural and economic interventions, including CCT programmes, combined with awareness and enforcement of sex workers' rights, are also necessary to facilitate harm reduction and occupational health and work safety within the Cambodian sex and entertainment industry.

26. Muldoon, K. A., et al. "**Policing the epidemic: High burden of workplace violence among female sex workers in conflict-affected northern Uganda.**" Glob Public Health 2015: 1-14.

Sex workers in sub-Saharan Africa experience a high burden of HIV with a paucity of data on violence and links to HIV risk among sex workers, and even less within conflict-affected environments. Data are from a cross-sectional survey of female sex workers in Gulu, northern Uganda (n = 400). Logistic regression was used to determine the specific association between policing and recent physical/sexual violence from clients. A total of 196 (49.0%) sex workers experienced physical/sexual violence by a client. From those who experienced client violence the most common forms included physical assault (58.7%), rape (38.3%), and gang rape (15.8%) Police harassment was very common, a total of 149 (37.3%) reported rushing negotiations with clients because of police presence, a practice that was significantly associated with increased odds of client violence (adjusted odds ratio: 1.61, 95% confidence intervals: 1.03-2.52). Inconsistent condom use with clients, servicing clients in a bar, and working for a manager/pimp were also independently associated with recent client violence. Structural and community-led responses, including decriminalisation, and engagement with police and policy stakeholders, remain critical to addressing violence, both a human rights and public health imperative.

27. Wilson, K. S., et al. "**Prevalence and correlates of intimate partner violence in HIV-positive women engaged in transactional sex in Mombasa, Kenya.**" Int J STD AIDS 2015.

Summary: We evaluated the prevalence and correlates of intimate partner violence in the past year by a regular male partner in HIV-positive female sex workers in Mombasa, Kenya. This cross-sectional study included HIV-positive women  $\geq 18$  years old who reported engagement in transactional sex at the time of enrolment in the parent cohort. We asked 13 questions adapted from the World Health Organization survey on violence against women about physical, sexual, or emotional violence in the past year by the current or most recent emotional partner (index partner). We used standardised instruments to assess socio-demographic and behavioural characteristics as possible correlates of intimate partner violence. Associations between intimate partner violence and these correlates were evaluated using univariate and multivariate logistic regression. Overall, 286/357 women (80.4%) had an index partner, and 52/357 (14.6%, 95% confidence interval 10.9%-18.2%) reported intimate partner violence by that partner in the past year. In multivariate analysis, women with severe alcohol problems (adjusted odds ratio 4.39, 1.16-16.61) and those experiencing controlling behaviours by the index partner (adjusted odds ratio 4.98, 2.31-10.74) were significantly more likely to report recent intimate partner violence. Recent intimate partner violence was common in HIV-positive female sex workers. Interventions targeting risk factors for intimate partner violence, including alcohol problems and partner controlling behaviours, could help to reduce recurrent violence and negative health outcomes in this key population.

28. Schwartz, S. R., et al. "**Reproductive health needs of female sex workers and opportunities for enhanced prevention of mother-to-child transmission efforts in sub-Saharan Africa.**" J Fam Plann Reprod Health Care 2015.

INTRODUCTION: HIV infection and pregnancy are both common among female sex workers (FSW), indicating the need for prevention of mother-to-child transmission (PMTCT) among FSW. METHODS: FSW were enrolled into studies in Swaziland, Burkina Faso and Togo using respondent-driven sampling. Women completed interview-administered socio-behavioural surveys and HIV counselling and testing. This secondary analysis describes contraceptive use and

attempted pregnancy among reproductive-aged FSW (16-49 years). Robust Poisson regression with generalised estimating equations to account for clustering within recruitment networks was used to separately estimate associations between current unmet contraceptive need and attempted pregnancy among FSW. RESULTS: Overall 1666 FSW were enrolled, 1372 (82.4%) of whom had ever been pregnant. In Togo and Burkina Faso, 83 FSW reported a prior HIV diagnosis and having a child, of which 12.1% (10/83) reported a child known to be HIV-positive. Twenty-five per cent of FSW had an unmet need for contraception; 9% of FSW employed dual contraception, including highly effective non-barrier methods and consistent condom use. Consistent condom use varied substantially by partner type and was higher with clients than non-paying partners. Nineteen per cent (n=313/1666) of FSW were trying to conceive. HIV-positive, undiagnosed FSW were more likely to be trying to conceive as compared to HIV-negative FSW; among 98 HIV-positive women trying to conceive, 25.5% were on antiretroviral therapy. CONCLUSIONS: FSW have varying reproductive goals and contraceptive usage. Efforts to improve coverage of comprehensive family planning - including efforts to increase HIV testing and engagement in treatment among FSW trying to conceive - are necessary for PMTCT.

29. Zhang, X. D., et al. "**Sexual and reproductive health risks amongst female adolescents who use amphetamine-type stimulants and sell sex: a qualitative inquiry in Yunnan, China.**" *Harm Reduct J* 2015 12: 34.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608054/pdf/12954\\_2015\\_Article\\_65.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608054/pdf/12954_2015_Article_65.pdf).

BACKGROUND: China, as other Southeast Asian countries, has witnessed an increased use in amphetamine-type stimulants (ATS) amongst urban youth. Amongst female adolescents who both sell sex and use ATS, risk behaviours are compounded resulting in even poorer health outcomes. However, limited knowledge exists on ATS use patterns and ATS-related risk behaviours, particularly in this context. This research aimed to improve the understanding of these issues amongst female adolescents who use ATS and sell sex, and to inform future programming. METHOD: This study utilised monthly focus group discussions (four in total) with the same study participants in Yunnan, China. From within a drug-treatment programme, female adolescents who reported both a history of drug use and selling sex were purposively enrolled in the study. RESULTS: Participating adolescent females were aged 17-19 years and were all internal-migrants with low literacy. All reported polydrug use (mainly methamphetamine and heroin, whereas ecstasy and ketamine have been infrequently employed). Being less informed about risks of drug use and lack of sexual and reproductive health knowledge seemed to contribute to problematic drug use, rough and prolonged sexual intercourse, inconsistent condom use and ineffective contraceptive practice. For their income, participants largely relied on selling sex, which was frequently coupled with drug sharing services to clients. However, despite the practices, women did not self-identify as sex workers, and therefore did not think that existing intervention services targeting female sex workers were relevant to them. Moreover, criminalization and stigmatisation of drug use and selling sex impeded their access to care services. CONCLUSION: Current harm reduction and HIV/sexually transmitted infection (STI) prevention services are unlikely to address the demand of female adolescents engaged in drug use and commercial sex. Our findings highlight that a comprehensive and coordinated harm reduction and sexual and reproductive health response should be conducted involving these most vulnerable adolescents.

30. Sawal, N., et al. "**Sexual Practices, Myths and Misconceptions among Long distance truck drivers in North India.**" *QJM* 2015.

BACKGROUND: - Long distance truck drivers and helpers constitute a high risk group for HIV/AIDS. Despite increasing awareness of HIV/AIDS and safe sex practices, they still have a high incidence of new cases of HIV. AIMS: - This study carried out at an ART (Anti-retroviral treatment) centre in North India aimed to evaluate the sexual myths and misconceptions prevalent among long distance drivers and helpers. DESIGN: - This was a retrospective study carried out at apex ART centre. METHODS: - Data was collected retrospectively from ART records of 129 long distance Truck drivers and 68 helpers. Details of socio-demographic characteristics, contact with commercial sex workers (CSW'S), pattern of condom usage with CSW'S and factors influencing it were studied. RESULTS: - We found that a significant number of drivers and helpers had sexual contact with CSW'S and out of these, 30% of drivers and 50% of helpers reported not using condoms and instead resorting to methods like washing genitalia after sex with battery water/urine to avoid getting HIV. There was no significant relationship between pattern of condom usage and educational status, marital status and age. We also found that certain myths like sex with young CSW'S was less likely to cause sexually transmitted diseases (STD'S) and HIV were also widespread. CONCLUSION: - Owing to continuing prevalence of such sexual myths, long distance truck drivers and helpers do not use condoms while having sex with commercial sex workers(CSW'S) as they feel that they can enjoy sex with CSW'S and still stay protected against STD'S /HIV. It is imperative that this battery water/urine antiseptic myth be specifically targeted for better HIV control in this high risk group.



31. Khuat, O. T., et al. "**Social context, diversity and risk among women who inject drugs in Vietnam: descriptive findings from a cross-sectional survey.**" *Harm Reduct J* 2015 12: 35.  
Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608123/pdf/12954\\_2015\\_Article\\_67.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608123/pdf/12954_2015_Article_67.pdf).

BACKGROUND: Women who inject drugs (WWID) are neglected globally in research and programming yet may be likelier than males to practise sexual and injecting risks and be infected with HIV and more stigmatised but seek fewer services. Little is known about characteristics, practices and nexus between drugs and sex work of WWID in Vietnam, where unsafe injecting has driven HIV transmission, and commercial sex and inconsistent condom use are prevalent. This was the first quantitative investigation of Vietnamese WWID recruited as injecting drug users. This article summarises descriptive findings. FINDINGS: A cross-sectional survey was conducted among WWID in Hanoi (n = 203) and Ho Chi Minh City (HCMC) (n = 200) recruited using respondent-driven sampling. Characteristics varied within and between sites. Twenty-two percent in Hanoi and 47.5 % in HCMC had never sold sex. Almost all commenced with smoking heroin, some as children. Most injected frequently, usually alone, although 8 % (Hanoi) and 18 % (HCMC) shared equipment in the previous month. Some had sex--and sold it--as children; most had multiple partners. Condom use was high with clients but very low with intimate partners, often injecting drug users. HIV knowledge was uneven, and large minorities were not tested recently (or ever) for HIV. Nearly all perceived intense gender-related stigma, especially for drug use. CONCLUSION: This ground-breaking study challenges assumptions about characteristics and risks based on anecdotal evidence and studies among men. Most WWID were vulnerable to sexual HIV transmission from intimate partners. Interventions should incorporate broader sociocultural context to protect this highly stigmatised population.

32. Urada, L. A., et al. "**Socio-structural and behavioral risk factors associated with trafficked history of female bar/spa entertainers in the sex trade in the Philippines.**" *Int J Gynaecol Obstet* 2015.

OBJECTIVE: To explore factors associated with trafficking (deceptive/coercive entry to sex trade) among female bar/spa entertainers who traded sex in the Philippines. METHOD: Female bar/spa entertainers who traded sex in the past 6months were recruited from 25bar/spa venues in Metro Manila (April 2009-January 2010) and assessed via cross-sectional survey data collection for HIV-risk-related socio-structural factors associated with deceptive/coercive entry into the sex trade. The study employed hierarchical linear modeling. RESULTS: Of 166bar/spa entertainers assessed, 19 (11.4%) reported being deceived/coerced (i.e. trafficked) into their first jobs. Trafficking history was independently associated with current drug use (adjusted odds ratio [AOR] 2.05; 95% confidence interval [CI] 1.00-3.97) decreased availability of condoms at venues for entertainers (AOR 0.18; 95% CI 0.05-0.71) and, conversely, increased peer support for practicing safer sex behaviors (AOR 3.08; 95% CI 1.63-5.09). Those deceived/coerced into their positions were more likely than non-trafficked women to have been recruited by an agency who came to their rural province (AOR 12.07; 95% CI 1.77-82.25) as opposed to getting the job from advertisement (AOR 0.10; 95% CI 0.02-0.65) or a friend/acquaintance (AOR 0.02; 95% CI 0.00-0.48). CONCLUSION: The findings have implications for designing interventions to prevent and target trafficked women in the Philippines who may be more vulnerable to substance use and, potentially, HIV infection.

33. Erickson, M., et al. "**Structural determinants of dual contraceptive use among female sex workers in Gulu, northern Uganda.**" *Int J Gynaecol Obstet* 2015 131(1): 91-5.

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.

34. Zhang, L., et al. **"A systematic review and meta-analysis of the prevalence, trends, and geographical distribution of HIV among Chinese female sex workers (2000-2011): implications for preventing sexually transmitted HIV."** *Int J Infect Dis* 2015 39: 76-86.

Online at: [http://ac.els-cdn.com/S1201971215002106/1-s2.0-S1201971215002106-main.pdf?\\_tid=abff59e0-9935-11e5-90ce-0000aacb361&acdnat=1449089330\\_2062a2247a023692372d90f85447b25b](http://ac.els-cdn.com/S1201971215002106/1-s2.0-S1201971215002106-main.pdf?_tid=abff59e0-9935-11e5-90ce-0000aacb361&acdnat=1449089330_2062a2247a023692372d90f85447b25b).

**OBJECTIVE:** The aim of this meta-analysis was to investigate temporal and geographical trends in the HIV epidemic among female sex workers (FSWs) recruited from various venues in China. **METHODS:** Chinese and English peer-reviewed articles published between January 2000 and February 2013 were systematically searched. Standard meta-analysis methods were used to calculate the pooled HIV prevalence, in accordance with the PRISMA guidelines. **RESULTS:** The national HIV prevalence among FSWS declined from 0.74% (95% confidence interval (CI) 0.37-1.49%) in 2000-2002 to 0.40% (95% CI 0.31-0.53%) in 2009-2011. All Chinese regions demonstrated significant declines in HIV prevalence, apart from the East and South Central regions, in which the epidemics stabilized at low/moderate levels. Despite a significant decline from 1.92% (95% CI 0.86-4.24%) to 0.87% (95% CI 0.65-1.18%) during 2000-2011, Southwest China still bore the greatest HIV disease burden. Nationwide, FSWS recruited from detention centres had the highest HIV prevalence (0.92%, 95% CI 0.46-1.88%), followed by voluntary counselling and testing sites (0.80%, 95% CI 0.46-1.67%) and entertainment venues (0.61%, 95% CI 0.47-0.79%). The prevalences among FSWS in high-, middle-, and low-tier entertainment venues were 0.59% (95% CI 0.32-1.45%), 0.92% (95% CI 0.50-1.77%), and 1.10% (95% CI 0.71-2.16%), respectively. High- and middle-tier FSWS had a significantly lower risk of HIV infection than lower-tier FSWS (high/low: odds ratio (OR) 0.48, 95% CI 0.40-0.59; middle/low: OR 0.49, 95% CI 0.37-0.66). **CONCLUSIONS:** The HIV epidemic has shown a gradual declining or stabilizing trend among Chinese FSWS. Intervention efforts should be diverted to high-risk subgroups of FSWS, such as drug-using and low-tier FSWS.

35. Tan, S. Y., et al. **"A systematic review and metasynthesis of barriers and facilitators to negotiating consistent condom use among sex workers in Asia."** *Cult Health Sex* 2015: 1-16.

Female sex work accounts for about 15% of the global HIV burden in women. Asia is the region with the second highest attributable fraction of the HIV epidemic after sub-Saharan Africa. This review synthesises studies that depict the barriers and facilitators encountered by sex workers in Asia when negotiating consistent condom use. A total of 18 studies published between January 1989 and May 2015 were included in the review. Data were extracted, critically appraised and analysed using a thematic analysis approach. Individual-level factors related to sex workers' knowledge, perception and power, as well as interpersonal-level factors that encompassed dynamics with clients and peer-related factors, presented as both barriers and facilitators to sex workers' condom negotiation process. In addition, the structural environment of sex work, access to resources, poverty, stigma, the legal environment and the role of media were also identified as factors in influencing the condom negotiation process of sex workers. A multisectoral interventional approach that addresses the multilevel barriers encountered by sex workers in condom negotiation is needed. Awareness of safe-sex practice should be collectively enhanced among sex workers, clients and brothel managers.

36. Solomon, M. M., et al. **"Transactional sex and prevalence of STIs: a cross-sectional study of MSM and transwomen screened for an HIV prevention trial."** *Int J STD AIDS* 2015 26(12): 879-86.

Few studies have characterised the degree of engagement in transactional sex among men and transgender women who have sex with men and explored its association with sexually transmitted infections and human immunodeficiency virus in Ecuador. We screened 642 men who have sex with men and transgender women for a pre-exposure prophylaxis clinical trial (iPrEx) in Guayaquil, Ecuador, 2007-2009. We analysed the association of degree of engagement in transactional sex and prevalence of sexually transmitted infections including human immunodeficiency virus using chi-square and analysis of variance tests. Although just 6.2% of those who screened self-identified as sex workers, 52.1% reported having engaged in transactional sex. Compared to those who had never been paid for sex, those who had been paid were more likely to have a sexually transmitted infection (56.6% vs. 45.0%,  $p = 0.007$ ) and trended towards a higher human immunodeficiency virus prevalence (16.6% vs. 10.4%,  $p = 0.082$ ) at screening. Transgender women compared to other men who have sex with men were more likely to have sexually transmitted infections diagnosed at screening (75.6% vs. 50.0%,  $p = 0.001$ ). Transactional sex is practiced widely but occasionally among the men who have sex with men and transgender women in Guayaquil who screened for the iPrEx study; however, engaging in transactional sex may not lead to a sex worker self-identification. Both transactional sex and being a transgender woman are associated with sexually transmitted infections prevalence.

37. Lopez Entrambasaguas, O. M., et al. **"Understanding Sociocultural Factors Contributing to HIV Risk Among Ayoreo Bolivian Sex Workers."** *J Assoc Nurses AIDS Care* 2015 26(6): 781-93.

The Bolivian indigenous Ayoreo ethnic people are vulnerable to sexually transmitted infections and HIV. Ayoreo women who also work in sex trades belong to an extremely high-risk group, and prevention programs are not delivering effective outcomes for them. The aim of our study was to explore, describe, and understand behavioral and cultural patterns related to sexual and reproductive health in Ayoreo sex workers. A qualitative-ethnographic study was designed; data were collected through participant observation and in-depth interviews with sex workers and key informants. Two fundamental themes contributing to HIV risk for female Ayoreo sex workers in Bolivia emerged: reproductive/sexual freedom and sociocultural risk determinants. We concluded that the in-depth examination of the sexual-reproductive culture amongst the Ayoreo has provided useful information, which might contribute to the cultural adaptation and design of future policies and prevention programs for sexually transmitted infections and HIV in this group.

38. Kaufman, M. R., et al. **"Understanding the Experiences and Needs of Female Commercial Sex Workers in Kathmandu, Nepal."** *Health Care Women Int* 2015: 0.

Through this exploratory study, we sought to better understand Nepali female commercial sex workers' (FCSWs) experiences in order to inform HIV prevention and health promotion interventions for this vulnerable and hard-to-reach population. Data were collected through phenomenological interviews with eight FCSWs. Through analysis we reveal promising intervention points to enhance FCSW health, empowerment, and overall well-being. Researchers suggest a combination of structural and individual programs is essential to improving the circumstances of Nepali FCSWs and preventing the spread of HIV. Given Nepal's limited resources and complex environment, it is imperative future prevention programs are focused and guided by FCSWs' lived experiences.

39. Lubega, M., et al. **"Understanding the socio-structural context of high HIV transmission in kasensero fishing community, South Western Uganda."** *BMC Public Health* 2015 15(1): 1033.

Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4599692/pdf/12889\\_2015\\_Article\\_2371.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4599692/pdf/12889_2015_Article_2371.pdf).

**BACKGROUND:** In Kasensero fishing community, home of the first recorded case of HIV in Uganda, HIV transmission remains high with an incidence of 4.3 and 3.1 per 100 person-years in women and men, respectively, and an HIV prevalence of 44 %, reaching up to 74 % among female sex workers. We explored the social contextual factors for the high HIV transmission at Kasensero to inform future policy and preventive interventions. **METHODS:** We conducted 20 in-depth interviews, including both HIV positive and HIV negative respondents, and 12 focus-group discussions involving a total of 92 respondents from the Kasensero fishing community from April-September 2014. Content analysis was performed to identify recurrent themes. **RESULTS:** Our findings suggest that the high HIV transmission in Kasensero is a complex function of eight themes including; positive/negative attitudes about HIV and combination HIV prevention such as the demand for services versus ART/circumcision disinhibition; HIV depository; Multiple partners; Frequent unprotected sex; Clothing; Parental behaviors; Pressure within the sex industry; and Cross generational sex. **CONCLUSIONS:** The current combination HIV prevention services by the RHSP need to be enhanced with more government involvement including ensuring sustainable supply of ART and circumcision services since they are reportedly highly demanded. Community involvement through the engagement of popular peers could also help in the campaign to change the HIV predisposing culture, misconceptions and risky social norms of the population. Social Context HIV Transmission Fishing Community.

[Back to top](#)

## Transgender People - 7

1. Deutsch, M. B., et al. **"HIV pre-exposure prophylaxis in transgender women: a subgroup analysis of the iPrEx trial."** *Lancet HIV* 2015 2(12): e512-9.

**BACKGROUND:** Pre-exposure prophylaxis (PrEP) with oral emtricitabine and tenofovir disoproxil fumarate is used to prevent the sexual acquisition of HIV in groups at high risk such as transgender women. We used data from the iPrEx study to assess PrEP efficacy, effectiveness, and adherence in transgender women. **METHODS:** The iPrEx trial was a randomised controlled trial of PrEP with oral emtricitabine plus tenofovir disoproxil fumarate compared with placebo in men who have sex with men (MSM) and transgender women, followed by an open-label extension. Drug concentrations were measured in blood by liquid chromatography and tandem mass spectroscopy. We did unplanned

exploratory analyses to investigate differences in PrEP outcomes among transgender women and between transgender women and MSM. FINDINGS: Of the 2499 participants enrolled in the randomised controlled trial, 29 (1%) identified as women, 296 (12%) identified as trans, 14 (1%) identified as men but reported use of feminising hormones, such that 339 (14%) reported one or more characteristics and are classified as transgender women for the purpose of this study. Compared with MSM, transgender women more frequently reported transactional sex, receptive anal intercourse without a condom, or more than five partners in the past 3 months. Among transgender women, there were 11 HIV infections in the PrEP group and ten in the placebo group (hazard ratio 1.1, 95% CI 0.5-2.7). In the PrEP group, drug was detected in none of the transgender women at the seroconversion visit, six (18%) of 33 seronegative transgender women ( $p=0.31$ ), and 58 (52%) of 111 seronegative MSM ( $p<0.0001$ ). PrEP use was not linked to behavioural indicators of HIV risk among transgender women, whereas MSM at highest risk were more adherent. INTERPRETATION: PrEP seems to be effective in preventing HIV acquisition in transgender women when taken, but there seem to be barriers to adherence, particularly among those at the most risk. Studies of PrEP use in transgender women populations should be designed and tailored specifically for this population, rather than adapted from or subsumed into studies of MSM. FUNDING: US National Institutes of Health and the Bill & Melinda Gates Foundation.

2. Galea, J. T., et al. **"Rectal Douching Prevalence and Practices Among Peruvian Men Who have Sex with Men and Transwomen: Implications for Rectal Microbicides."** *AIDS Behav* 2015.

Peruvian men who have sex with men (MSM) and transwomen (TW) could benefit from a rectal microbicide (RM) formulated as a rectal douche to prevent HIV infection. However, little is known about rectal douching practices among Peruvian MSM and TW, information necessary to inform RM douche development and future uptake. Using a self-administered interview, we examined the prevalence of and factors associated with rectal douching among a convenience sample of 415 Peruvian MSM and 68 TW. In the previous 6 months, 18 % of participants reported rectal douching using pre-filled commercial kits or plastic bottles or enema bags filled with water, water/soap or saltwater. Multivariate logistic analysis found that "equally insertive and receptive" or "exclusively/mainly receptive" sex roles were associated with douche use. Rectal douching among Peruvian MSM and TW is similar to reports from other studies and supports the potential uptake of a douche-formulated RM in these populations.

3. Peitzmeier, S. M., et al. **"Sexual Violence against Men Who Have Sex with Men and Transgender Women in Mongolia: A Mixed-Methods Study of Scope and Consequences."** *PLoS One* 2015 10(10): e0139320. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4592264/pdf/pone.0139320.pdf>.

The role of sexual violence in health and human rights-related outcomes, including HIV, is receiving increasing attention globally, yet the prevalence, patterns, and correlates of sexual violence have been little-studied among men who have sex with men (MSM) and transgender women in low and middle income countries. A mixed-methods study with quantitative and qualitative phases was conducted among MSM and transgender women in Ulaanbaatar, Mongolia. Methods included respondent-driven sampling (RDS) with structured socio-behavioral surveys (N = 313) as well as qualitative methods including 30 in-depth interviews and 2 focus group discussions. Forced sex in the last three years was reported by 14.7% of respondents (RDS-weighted estimate, 95%CI: 9.4-20.1; crude estimate 16.1%, 49/307) in the quantitative phase. A descriptive typology of common scenarios was constructed based on the specific incidents of sexual violence shared by respondents in the qualitative phase (37 incidents across 28 interviews and 2 focus groups). Eight major types of sexual violence were identified, most frequent of which were bias-motivated street violence and alcohol-involved party-related violence. Many vulnerabilities to and consequences of sexual violence described during the qualitative phase were also independently associated with forced sex, including alcohol use at least once per week (AOR = 3.39, 95% CI:1.69-6.81), and having received payment for sex (AOR = 2.77, 95% CI:1.14-6.75). Building on the promising strategies used in other settings to prevent and respond to sexual violence, similar strengthening of legal and social sector responses may provide much needed support to survivors and prevent future sexual violence.

4. Prabawanti, C., et al. **"A survey on HIV-related health-seeking behaviors among transgender individuals in Jakarta, based on the theory of planned behavior."** *BMC Public Health* 2015 15(1): 1138. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4647823/pdf/12889\\_2015\\_Article\\_2480.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4647823/pdf/12889_2015_Article_2480.pdf).

BACKGROUND: Male-to-female transgender (waria) individuals are at high risk for HIV. This study aims at mapping the psychological determinants of four HIV-related health-seeking behaviors. This knowledge can be used to develop effective interventions to prevent the spread of HIV/AIDS. METHODS: The study involved 209 waria from five districts in Jakarta, selected with a cluster sampling procedure. Cross-sectional data were gathered through structured

interviews. The four examined behaviors are, visiting sexually transmitted infections (STIs) services regularly, adherence to STI treatment, taking an HIV test and picking up the result of HIV test. For all four behaviors, specific measures of the psychological determinants as defined by the Theory of Planned Behavior were developed: attitudes, subjective norms and perceived behavioral control (PBC). Logistic regression analyses were conducted with these three psychological measures as independent variables and the behaviors as dependent variables. RESULTS: Of the 209 waria, 20.6 % had never visited STI services in the last 6 months, while 56.5 % had visited the services once or twice, and 23 % had visited the service three or more times. A HIV test had been taken by 90.4 % of the waria, and of those, 64.6 % had picked up the results. About 85 % of the waria who did a HIV test had been tested for HIV one or two times in the last 6 months and 10 % had been tested three to four times. The variance in behaviors that was explained by the concepts defined in the Theory of Planned Behavior ranged from 15 to 70 %; PBC was the most powerful predictor. Furthermore, the results showed that in several cases the relationships of attitudes or subjective norms with the dependent variable were mediated by one or both other independent variables. CONCLUSIONS: The results regarding the prominent role of PBC suggest that interventions should increase waria's control over the behavior: Engaging in specific desired behaviors should be made easier for them. Besides, waria's attitudes and subjective norms should be addressed, by education, but possibly also by providing waria with a positive experience with the behavior, for example, by designing a professional and friendly health care system.

5. Chakrapani, V., et al. "**Syndemics of depression, alcohol use, and victimisation, and their association with HIV-related sexual risk among men who have sex with men and transgender women in India.**" Glob Public Health 2015: 1-16.

We examined the presence and co-occurrence of psychosocial health conditions (depression, frequent alcohol use, and victimisation) among men who have sex with men (MSM) and transgender (TG) women in India, and their cumulative association with sexual risk. A survey questionnaire was administered among a convenience sample of 600 participants (MSM = 300; TG women = 300) recruited through six non-governmental organisations in four states. Prevalences of the number of psychosocial health conditions among MSM were: none = 31.3%, one = 43%, two = 20%, and three = 5.7%; and among TG women: none = 9%; one = 35.33%, two = 38.33%, and three = 17.33%. In bivariate and multivariate models, these conditions were positively and additively related to sexual risk, providing evidence for a syndemic of psychosocial health conditions among MSM and TG women and their synergistic effect on sexual risk. In addition to the number of syndemic conditions, resilient coping and social support were significant predictors of sexual risk among MSM and TG women, respectively. HIV preventive interventions in India should screen for and address co-occurring psychosocial health conditions - experiences of violence, mental health issues, and alcohol use - among MSM and TG women.

6. Solomon, M. M., et al. "**Transactional sex and prevalence of STIs: a cross-sectional study of MSM and transwomen screened for an HIV prevention trial.**" Int J STD AIDS 2015 26(12): 879-86.

Few studies have characterised the degree of engagement in transactional sex among men and transgender women who have sex with men and explored its association with sexually transmitted infections and human immunodeficiency virus in Ecuador. We screened 642 men who have sex with men and transgender women for a pre-exposure prophylaxis clinical trial (iPrEx) in Guayaquil, Ecuador, 2007-2009. We analysed the association of degree of engagement in transactional sex and prevalence of sexually transmitted infections including human immunodeficiency virus using chi-square and analysis of variance tests. Although just 6.2% of those who screened self-identified as sex workers, 52.1% reported having engaged in transactional sex. Compared to those who had never been paid for sex, those who had been paid were more likely to have a sexually transmitted infection (56.6% vs. 45.0%,  $p = 0.007$ ) and trended towards a higher human immunodeficiency virus prevalence (16.6% vs. 10.4%,  $p = 0.082$ ) at screening. Transgender women compared to other men who have sex with men were more likely to have sexually transmitted infections diagnosed at screening (75.6% vs. 50.0%,  $p = 0.001$ ). Transactional sex is practiced widely but occasionally among the men who have sex with men and transgender women in Guayaquil who screened for the iPrEx study; however, engaging in transactional sex may not lead to a sex worker self-identification. Both transactional sex and being a transgender woman are associated with sexually transmitted infections prevalence.

7. Tang, E. C., et al. "**Using conjoint analysis to determine the impact of product and user characteristics on acceptability of rectal microbicides for HIV prevention among Peruvian men who have sex with men.**" Sex Transm Infect 2015.

OBJECTIVES: Men who have sex with men (MSM) are in need of novel and acceptable HIV prevention interventions. In Peru, a Phase II clinical trial was recently completed evaluating rectally applied tenofovir gel among Peruvian MSM

and transgender women. If deemed safe and acceptable, the product could move into efficacy testing, but acceptability data for similar products are needed now in order to prepare for future implementation. Peru is in need of expanded, national acceptability data among likely users. METHODS: Using conjoint analysis of an online cross-sectional survey taken by 1008 Peruvian MSM and transgender women, we tested the acceptability of eight hypothetical rectal microbicide (RM) products comprising six, dual-value attributes. We also assessed the relationship of select product attributes with sample characteristics. RESULTS: Highest acceptability was found for a RM that was 90% effective, used before and after sex, without side effects, costing approximately \$0.30, had no prescription requirement and had a single-use applicator. Product effectiveness and presence of side effects were the factors most likely to drive RM acceptance and use. Education, sexual orientation, sexual role and concern for HIV infection were also related to aspects of RM acceptability. CONCLUSION: RM acceptability was high, confirming the results of earlier, smaller studies and placing confidence in the acceptability of RMs. Analysis of the relationships with product attributes and sample characteristics underscore the need to consider the impact of factors such as sexual orientation, sexual role, level of education and concern for HIV acquisition on RM acceptability.

[Back to top](#)

## Young Key Populations - 7

1. Nerlander, L. M., et al. **"Behaviors Associated With a Risk of HIV Transmission From HIV-Positive Street Youth to Non-Street Youth in Ukraine."** *Sex Transm Dis* 2015 42(9): 513-20.

BACKGROUND: Little is known about the extent to which HIV-infected street youth (living part or full time on the streets) exhibit behaviors associated with HIV transmission in their interactions with youth not living on the streets ("non-street youth"). We aimed to determine prevalences and predictors of such "bridging behaviors": inconsistent condom use and needle sharing between HIV-positive street youth and non-street youth. METHODS: A total of 171 street youth in 3 Ukrainian cities were identified as HIV infected after testing of eligible participants aged 15 to 24 years after random selection of venues. Using data from these youth, we calculated prevalence estimates of bridging behaviors and assessed predictors using logistic regression. RESULTS: Overall, two-thirds of HIV-infected street youth exhibited bridging behaviors; subgroups with high prevalences of bridging included females (78.3%) and those involved in transactional sex (84.2%). In multivariable analysis, inconsistent condom use with non-street youth was associated with being female (adjusted prevalence ratio [aPR], 1.2; 95% confidence interval [CI], 1.1-1.4), working (aPR, 1.2; 95% CI, 1.03-1.4), multiple partners (aPR, 1.4; 95% CI, 1.2-1.6), and "never" (aPR, 1.4; 95% CI, 1.1-1.6) or "sometimes" (aPR, 1.3; 95% CI, 1.02-1.8) versus "always" sleeping on the street. Needle sharing with non-street youth was associated with being male (aPR, 1.4; 95% CI, 1.02-2.0), orphaned (aPR, 2.3; 95% CI, 1.8-3.0), and 2 years or less living on the streets (aPR, 1.8; 95% CI, 1.5-2.1). CONCLUSIONS: Bridging behaviors between HIV-infected street youth and non-street youth are common. Addressing the comprehensive needs of street and other at-risk youth is a critical prevention strategy.

2. Brody, C., et al. **"Factors associated with sex work among at-risk female youth in Cambodia: a cross-sectional study."** *AIDS Care* 2015: 1-8.

In Cambodia, despite great achievements in reducing the prevalence of HIV in the general population, reducing new HIV infections among young at-risk women remains a challenge. This study was designed to examine the prevalence of risky behaviors of sexually active female youth in Cambodia and to explore risk factors associated with engagement in transactional sex. We surveyed sexually active female youth aged 10-24 enrolled at risk "hotspots" in eight provinces in Cambodia. We collected data on demographic factors, sexual behavior, and factors hypothesized to be associated with transactional sex. Multivariable logistic regression was used to identify associations between demographic and sexual behavior and transactional sex. Of the 280 respondents, the mean age was 21.2, and 48.1% had been paid for sex in the past year. After adjustment, at-risk females who were never have been married (adjusted odds ratio (AOR) 3.40, 95% confidence interval (CI) = 1.65-6.97), have completed less than 6 years of school (AOR 3.26, 95% CI = 1.60-6.66), have 1 or more parents who had died (AOR 4.34, 95% CI = 2.00-9.38), be a heavy alcohol drinker (AOR 3.58, 95% CI = 1.78-7.18), have used a condom with their boyfriend during last sexual encounter (AOR 3.50, 95% CI = 1.68-7.32), and have ever had an HIV test (AOR 3.51, 95% CI = 1.68-7.32) were more likely to engage in sex work. Our findings suggest that prevention strategies for female youth at risk of engagement in sex work should include upstream structural interventions that aim to encourage girls' education and empowerment. In addition, tailored sex education and behavior change messaging about the risks of heavy drinking, condom use with romantic partners, and the importance of frequent HIV testing for at-risk youth and sex workers should be designed and delivered to youth currently engaging in sex work.



- de Lind van Wijngaarden, J. W., et al. **"Identity management and sense of belonging to gay community among young rural Thai same-sex attracted men: implications for HIV prevention and treatment."** *Cult Health Sex* 2015: 1-14.

Young Thai men who have sex with men continue to have high HIV prevalence and incidence in spite of much investment in community-based prevention approaches. To make HIV services more appropriate for same-sex attracted young men in Thailand, it needs to be considered how target groups view themselves and manage their identities. This paper derives from a qualitative study of 25 same-sex attracted rural young Thai men. It identifies five tactics men employed to manage the discrepancy between their preferences and parental/societal expectations regarding gender and sexuality, and discusses how the young men viewed themselves in the wider context of Thai society, including whether they felt part of a separate gay community. Participants usually did not adopt a gay social identity and were reluctant to join in gay community activities beyond dating. Hence, they would likely experience barriers in accessing gay community-based HIV services. HIV services targeting young same-sex attracted Thai men need to be diversified if they are to be more inclusive, appropriate and effective.

- Zembe, Y. Z., et al. **"Intimate Partner Violence, Relationship Power Inequity and the Role of Sexual and Social Risk Factors in the Production of Violence among Young Women Who Have Multiple Sexual Partners in a Peri-Urban Setting in South Africa."** *PLoS One* 2015 10(11): e0139430.

Online at:

<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0139430&representation=PDF>

**INTRODUCTION:** This paper aims to assess the extent and correlates of intimate partner violence (IPV), explore relationship power inequity and the role of sexual and social risk factors in the production of violence among young women aged 16-24 reporting more than one partner in the past three months in a peri-urban setting in the Western Cape, South Africa. Recent estimates suggest that every six hours a woman is killed by an intimate partner in South Africa, making IPV a leading public health problem in the country. While there is mounting evidence that levels of IPV are high in peri-urban settings in South Africa, not much is known about how it manifests among women who engage in concomitantly high HIV risk behaviours such as multiple sexual partnering, transactional sex and age mixing. We know even less about how such women negotiate power and control if exposed to violence in such sexual networks. **METHODS:** Two hundred and fifty nine women with multiple sexual partners, residing in a predominantly Black peri-urban community in the Western Cape, South Africa, were recruited into a bio-behavioural survey using Respondent Driven Sampling (RDS). After the survey, focus group discussions and individual interviews were conducted among young women and men to understand the underlying factors informing their risk behaviours and experiences of violence. **FINDINGS:** 86% of the young women experienced IPV in the past 12 months. Sexual IPV was significantly correlated with sex with a man who was 5 years or older than the index female partner (OR 1.7, 95% CI 1.0-3.2) and transactional sex with most recent casual partner (OR 2.1, 95% CI 1.1-3.8). Predictably, women experienced high levels of relationship power inequity. However, they also identified areas in their controlling relationships where they shared decision making power. **DISCUSSION:** Levels of IPV among young women with multiple sexual partners were much higher than what is reported among women in the general population and shown to be associated with sexual risk taking. Interventions targeting IPV need to address sexual risk taking as it heightens vulnerability to violence.

- Embleton, L., et al. **"Once you join the streets you will have to do it": sexual practices of street children and youth in Uasin Gishu County, Kenya."** *Reprod Health* 2015 12(1): 106.

Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4647324/pdf/12978\\_2015\\_Article\\_90.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4647324/pdf/12978_2015_Article_90.pdf)

**BACKGROUND:** Adolescents living in HIV endemic settings face unique sexual health risks, and in the context of abject poverty, orphanhood, social marginalization, and discrimination, adolescents may be particularly at-risk of horizontal HIV transmission. Street-connected children and youth are a particularly vulnerable and marginalized population and therefore may be a key population at-risk. **METHODS:** We sought to describe the sexual behaviours of street-connected children and youth in order to comprehend their sexual practices and elucidate circumstances that put them at increased risk of contracting HIV utilizing qualitative methods from a sample of street-connected children and youth in Eldoret, Kenya. We recruited participants aged 11-24 years who had lived on the street for  $\geq 3$  months to participate in 25 in-depth interviews and 5 focus group discussions stratified by age and sex. **RESULTS:** In total we interviewed 65 street-connected children and youth; 69 % were male with a median age of 18 years (IQR: 14-20.5 years). Participants identified both acceptable and unacceptable sexual acts that occur on the streets between males and females, between males, and between females. We grouped reasons for having sex into four categories based on common themes: pleasure, procreation, transactional, and forced. Transactional sex and multiple concurrent partnerships were frequently described by participants. Rape was endemic to street life for girls. **CONCLUSION:** These findings have important policy and programming implications, specifically for the government of Kenya's adolescent reproductive health policy, and highlight the need to target out-of-school youth. There is an urgent need for social



protection to reduce transactional sex and interventions addressing the epidemic of sexual and gender-based violence.

6. Goldblatt, A., et al. "**Prevalence and Correlates of HIV Infection among Street Boys in Kisumu, Kenya.**" *PLoS One* 2015 10(10): e0140005. Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4604137/pdf/pone.0140005.pdf>.

INTRODUCTION: Despite their perceived vulnerability to HIV, East African street youth have been neglected in HIV prevention research. We examined HIV seroprevalence and correlates of HIV infection in a sample of male street youth in Kisumu, Kenya. METHODS: We enrolled a street-recruited sample of 13-21 year old street youth. Participants completed a survey followed by voluntary HIV counseling and testing. Survey items included demographics, homelessness history, survival activities, sexual behavior and substance use. We examined the relationship between predictor variables, markers of coercion and marginalization and HIV. RESULTS: The sample included 296 males. Survival activities included garbage picking (55%), helping market vendors (55%), begging (17%), and working as porters (46%) or domestic workers (4%). Forty-nine percent of participants reported at least weekly use of alcohol and 32% marijuana. Forty-six percent of participants reported lifetime inhalation of glue and 8% fuel. Seventy-nine percent of participants reported lifetime vaginal sex, 6% reported lifetime insertive anal sex and 8% reported lifetime receptive anal sex. Twelve (4.1%; 95% CI: 2.3-7.0) participants tested positive for HIV. Of those, all had been on the street for at least one year and all had engaged in vaginal sex. Occupations placing youth at particular risk of coercion by adults, including helping market vendors (prevalence ratio (PR) = 8.8; 95% CI: 1.2-67.5) and working as domestic workers (PR = 4.6; 95% CI: 1.1-19.0), were associated with HIV infection. Both insertive anal sex (PR = 10.2; 95% CI: 3.6-29.4) and receptive anal sex (PR = 3.9; 95% CI: 1.1-13.4) were associated with HIV infection. Drug use, begging, and garbage picking were not associated with HIV infection. CONCLUSIONS: Although HIV prevalence in our sample of street youth is comparable to that of similarly-aged male youth in Nyanza Province, our findings highlight behavioral factors associated with HIV infection that offer opportunities for targeted prevention among street youth in East Africa.

7. Zhang, X. D., et al. "**Sexual and reproductive health risks amongst female adolescents who use amphetamine-type stimulants and sell sex: a qualitative inquiry in Yunnan, China.**" *Harm Reduct J* 2015 12: 34. Online at: [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608054/pdf/12954\\_2015\\_Article\\_65.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4608054/pdf/12954_2015_Article_65.pdf).

BACKGROUND: China, as other Southeast Asian countries, has witnessed an increased use in amphetamine-type stimulants (ATS) amongst urban youth. Amongst female adolescents who both sell sex and use ATS, risk behaviours are compounded resulting in even poorer health outcomes. However, limited knowledge exists on ATS use patterns and ATS-related risk behaviours, particularly in this context. This research aimed to improve the understanding of these issues amongst female adolescents who use ATS and sell sex, and to inform future programming. METHOD: This study utilised monthly focus group discussions (four in total) with the same study participants in Yunnan, China. From within a drug-treatment programme, female adolescents who reported both a history of drug use and selling sex were purposively enrolled in the study. RESULTS: Participating adolescent females were aged 17-19 years and were all internal-migrants with low literacy. All reported polydrug use (mainly methamphetamine and heroin, whereas ecstasy and ketamine have been infrequently employed). Being less informed about risks of drug use and lack of sexual and reproductive health knowledge seemed to contribute to problematic drug use, rough and prolonged sexual intercourse, inconsistent condom use and ineffective contraceptive practice. For their income, participants largely relied on selling sex, which was frequently coupled with drug sharing services to clients. However, despite the practices, women did not self-identify as sex workers, and therefore did not think that existing intervention services targeting female sex workers were relevant to them. Moreover, criminalization and stigmatisation of drug use and selling sex impeded their access to care services. CONCLUSION: Current harm reduction and HIV/sexually transmitted infection (STI) prevention services are unlikely to address the demand of female adolescents engaged in drug use and commercial sex. Our findings highlight that a comprehensive and coordinated harm reduction and sexual and reproductive health response should be conducted involving these most vulnerable adolescents.

[Back to top](#)