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Title

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Permalink

<https://escholarship.org/uc/item/5tq314h1>

Journal

Current Opinion in HIV and AIDS, 9(2)

ISSN

1746-630X

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Publication Date

2014-03-01

DOI

10.1097/coh.0000000000000035

Peer reviewed



Published in final edited form as:

Curr Opin HIV AIDS. 2014 March ; 9(2): 150–155. doi:10.1097/COH.0000000000000035.

Drug use as a driver of HIV Risks: Re-emerging and emerging issues

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Abstract

Purpose of Review—We reviewed papers published in 2012–2013 that focused on re-emerging and emerging injection and non-injection drug use trends driving HIV risk behaviors and transmission in some parts of the world.

Recent Findings—While HIV incidence has declined in many countries, HIV epidemics remain at troubling levels among key drug using populations including females who inject drugs (FWID), FWID who trade sex, sex partners of people who inject drugs (SP-PWID), young PWID, and people who use non-injection drugs in a number of low- and middle- income countries such as in Central Asia, Eastern Europe, Southeast Asia, and parts of Africa.

Summary—HIV epidemics occur within contexts of global economic and political forces, including poverty, human rights violations, discrimination, drug policies, trafficking, and other multi-level risk environments. Trends of injection and non-injection drug use and risk environments driving HIV epidemics in Central Asia, Eastern Europe, Southeast Asia, and parts of Africa call for political will to improve HIV and substance use service delivery, access to combination HIV prevention, and harm reduction programs.

Keywords

injection drug use; non-injection drug use; HIV/AIDS

INTRODUCTION

Worldwide, the number of people newly infected with HIV continues to fall, with a 20% reduction in HIV acquisition between 2001 and 2011 (1). This heartening progress suggests that the global HIV pandemic has passed peak incidence (1, 2). Such progress may have transpired due to two major advancements: substantially increased access to anti-retroviral

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The authors have no conflicts of interest.

therapy (ART) has increased global coverage by 63%, thereby contributing to decreased HIV transmission (i.e., HIV treatment as prevention) (3), and increased availability and access to HIV combination prevention (e.g., behavioral and biomedical) (4).

Despite this progress, recent reports depict a different reality in some regions. For example, reductions in new HIV infections are uneven due to injection drug use (IDU) and non-injection drug use in a number of low- and middle-income countries (1, 3–6). In the past several years increases in injection and non-injection drug use have affected HIV risks and HIV incidence among key sub-populations, including females who inject drugs (FWID), FWID who engage in sex work, non-IDU sex partners of people who inject drugs (SP-PWID), young people who inject drugs, and non-injection drug users.

UNAIDS identified nine countries where HIV incidence increased 25% or more between 2001 and 2011 (2, 3). In six of these countries, the majority of which are in Eastern Europe and Central Asia (2, 3), IDU was the major mode of HIV transmission. While the highest concentration of PWID remains in Eastern Europe and Central Asia (7), South East Asia and some countries in Africa, including Kenya, Tanzania, Nigeria, Mauritius, and South Africa (8, 9) are experiencing increases in the number of people who inject drugs (PWID). Furthermore, the emergence of some forms of non-injection substance use (particularly stimulants) is occurring in a number of countries including parts of Africa. This rise of non-injection drug use may also be driving HIV transmission, due to associations between substance use and sexual risk behaviors (4, 10–13).

This paper focuses on studies published in 2012–2013 which consider 1) re-emerging and emerging injection and non-injection drug use as drivers of HIV transmission among females who inject drugs (FWID), FWID who engage in commercial sex work, non-IDU sex partners of people who inject drugs (SP-PWID), young PWID, and non-injection drug users; 2) structural risk environments that promote injection and non-injection drug use as drivers of HIV risk among key sub-populations; and 3) prevention and policy strategies to address growing concerns and challenges related to these trends.

DRUG-USING POPULATIONS AND THE HIV EPIDEMIC

Both injection and non-injection drug use are drivers of HIV infection among key populations. Drug use may lead to HIV transmission through shared syringes and drug equipment, unprotected sex while under the influence of drugs, and the influence of drug use, which can lead to heightened sexual activity and impaired judgment (10–13, 17). Moreover, gender and roles and social norms about condom use and drug sharing may influence HIV risk behavior.

Injection drug use risks for HIV transmission are of growing concern among the following four populations.

Females Who Inject Drugs

Recent reports show that the number of FWID has increased in many countries (3, 7). In countries where HIV prevalence is higher than 20% among FWID, Des Jarlais et al. (14)

found that HIV prevalence was significantly higher among FWID than MWID. This finding was consistent across 117 studies that included 128,745 PWID in 14 countries. In Thailand, where this trend was also observed, higher levels of risk behaviors were also found among FWID when compared to MWID, including less frequent use of sterile needles and condoms (15). One explanation for the gender disparity in HIV prevalence is that FWID are more likely to have sex partners who also inject drugs, placing them at higher risk for acquiring HIV through drug or sexual risk behaviors with their partners, while MWID are more likely to have sex partners who do not inject drugs (16, 17). Moreover, studies have identified gender-associated economic and social inequalities within the drug cultures of many countries. For example, men often influence women's drug use by introducing them to drug injection and providing drugs, contributing to social network insularity (18). Many FWID rely on their sexual partners for access to drugs, and hence lack control over injection equipment (19). Condom use remains low among some FWID and their main partners, and condoms may be used less often when couples adhere to traditional gender roles (20). These problems are further complicated by the fact that FWID in some countries face greater challenges than MWID in obtaining sterile injection equipment and accessing harm reduction programs (14), due to a reliance on intimate partners to access resources including needles (21, 22) and greater levels of discrimination experienced when seeking HIV and drug use treatment (7).

Females Who Inject Drugs and Trade Sex

Overlap between injection drug use and sex work is common worldwide (6, 23–25). Sex work has emerged as a major driver of HIV among FWID in Eastern Europe and Central Asia (24–27), where the dual risks of injection and sex trading influence HIV transmission (19, 28). Consistent access to drugs in these regions has led to increases in the number of women injecting drugs and increased engagement in sex trading due in part to difficulties maintaining other employment as a result of drug use (29).

A systematic review with data from 77 countries showed that the percentage of adult HIV-infected sex workers was a strong predictor of national adult HIV prevalence (24). FWID who trade sex may struggle to protect themselves from HIV due to sexual and physical abuse from clients, police, and their intimate sexual partners (30). Condom use among females who trade sex is often inconsistent due to clients' preferences for unprotected sex, and females who trade sex tend to not use condoms with their intimate partners (25, 27, 31). Furthermore, FWID who trade sex face social structural barriers that impede their access to HIV prevention such as a lack of access to health care and HIV services, poverty, criminalization of sex work, imprisonment, and the confiscation of condoms as evidence of commercial sex work (25, 27, 31). This situation underscores the urgent need to address sexual and drug risks and structural barriers to HIV prevention services and policies for FWID who trade sex.

Sexual Partners of People Who Inject Drugs

In many parts of the world where IDU has been a major driver of the HIV epidemic, sexual transmission of HIV from PWID to their sexual partners has increased (5, 11, 32). IDU-concentrated epidemics are likely to have initiated heterosexually transmitted epidemics in

Argentina, Brazil, China, Indonesia, the Netherlands, and Ukraine (5). Most of these countries have had fewer resources for PWID and higher levels of stigmatization towards PWID when compared to countries where this transition was not observed (Italy, Scotland, Spain, France, and Thailand). Indonesia in particular saw a ten-fold increase in HIV incidence between 2006 and 2011 (33). In 2011, heterosexual transmission represented half of all new HIV infections in Kazakhstan (34, 35), suggesting that a transition from IDU-concentrated epidemics to heterosexual HIV epidemics (5) is occurring in Central Asia. Condom use between PWID and their sex partners remains low (17, 20, 36) and non-injecting female sex partners may be at particular risk (16). This growing key population has not received sufficient attention in HIV prevention, especially in low and middle-income countries.

The extent to which PWID transmit HIV to male sexual partners is understudied, but is important in regions where IDU is endemic, particularly when homosexuality is illegal or highly stigmatized (25). Recent legislation against homosexuality in Russia (37) may lead to increases in sexual and drug risks if needles/syringes, condoms, and other HIV services become less accessible. Additionally, alcohol and non-injection drug use may be drivers of sexual transmission between men who have sex with men (13, 38).

Young People Who Inject Drugs

HIV incidence increased by 20% among young people (ages 15–24) in Eastern Europe between 2001 and 2011; the majority of this HIV-infected sub-population injects drugs (3, 39). A recent review of studies conducted in Ukraine indicated that youth who were homeless and orphaned were more likely to be HIV-positive and to engage in injecting drug use, compared to youth with stable housing who resided with their parents (40). In Western countries, adolescents have reported use of emerging drugs such as synthetic cannabinoids (e.g., “Spice”) and cathinones (e.g., “bath salts”), and over-the-counter cough medicine dextromethorphan has gained popularity in Thailand among middle and high school students (41). The extent to which these substances affect sexual behaviors such as condom use are unknown (13). Age-appropriate HIV prevention services are needed for young people who use drugs, as are additional studies to inform prevention development.

Non-Injection Drug Use

The past decade has witnessed the emergence and acceleration of different non-injection drugs in some regions of the world. Certain non-injection drugs, particularly stimulants, lead to an elevated rate of HIV transmission due to their association with high-risk sexual behaviors (25, 26).

In Brazil and other South American countries, cocaine injection was prevalent in the late 1980s and heroin injection was prevalent in the 1990s, while methamphetamine smoking is currently emerging (13). Methamphetamine plays a role in HIV transmission in that it leads to increased sexual activity, impaired decision-making and inconsistent condom use (42, 43). Use of amphetamine-type stimulants, specifically methamphetamine, has increased in many countries within East and South-East Asia (44). A recent study among PWID in

Bangkok found that the availability of heroin, methamphetamine, crystal methamphetamine, midazolam, and illicit methadone increased substantially between 2009 and 2011 (45).

Heroin, methamphetamine, and methcathinone use has also increased in South Africa (7, 46, 47). Other countries in sub-Saharan Africa have witnessed epidemics of heroin and cocaine use (8, 17, 46), especially among FWID who trade sex (48). Recently, West Africa came to the fore as a drop-off point on a major cocaine trafficking route from South America to Western and Central Europe. High rates of cocaine and heroin use in Nigeria may result from the country's role in drug trafficking (9). West African drug trafficking organizations which historically have focused on cocaine and heroin have become increasingly involved in trafficking methamphetamine, using diverse methods to avoid detection (49).

New compounds derived from parent substances like cocaine and heroin have emerged through efforts to avoid laws addressing drug possession and distribution (50). The use of these compounds is increasing in many countries including Eastern Europe and Central Asia, both of which have seen the arrival of heroin synthetic substitutes and home made drugs such as krokodil (51, 52). Krokodil use has increased in Russia, Kazakhstan and Ukraine due to changes in heroin availability, purity, and price, all of which are associated with heroin 'droughts,' police interdiction, legislative changes targeting poppy imports, and rising poverty levels in Russia since the 2008 global economic downturn (53). In the last three to five years, an increasing number of reports suggest that drug producers in Russia, Ukraine, and other countries are making drugs with over-the-counter medications that contain codeine instead of poppies or raw opium as a starting material (49, 54, 55). Knowledge about how these newer substances affect sexual behavior is lacking (56) and needs research attention.

STRUCTURAL RISK ENVIRONMENTS

Common structural risk environments affect the re-emergence and emergence of injection drug use and HIV epidemics in some countries, including lack of access to treatment and prevention services. Few HIV prevention efforts exist in low- and middle-income countries where resources for drug treatment programs and ART are limited. Low levels of committed resources in national healthcare budgets leave dependence on international donor support for harm reduction programming (1). As a result, harm reduction program coverage remains low, especially in regions where HIV is spreading rapidly (2, 39, 57). Opioid substitution therapy (OST) has yet to become widely available in Eastern Europe and Central Asia where rates of IDU are high. Political opposition in Kazakhstan delayed the introduction and scale-up of nationwide OST programs (34) and in Uzbekistan, an OST pilot project was declared ineffective prematurely, accompanied by denial of the evidence supporting OST's effectiveness at reducing HIV (34). In Russia, OST remains illegal (57).

In addition to a lack of funding and support for harm reduction services, government policies that criminalize and restrict access to needle exchange programs and non-governmental health organization services may lead to arrests of harm reduction service clients, physical abuse or the extraction of bribes in response to possession of syringes/needles (58, 59), or sexual exploitation of FWID and sex workers who inject drugs by police

(60). Effective HIV programs require cooperation from law enforcement officials, but relationships between drug users and the police are problematic in many countries. Many countries in Eastern Europe and Central Asia have official registries of persons known to be addicted to drugs. Registered persons lose important civil rights, are subject to police brutality, and are therefore often reluctant to participate in HIV prevention services (59, 61). Even carrying sterile needles and syringes can be risky for PWID as they may be arrested for paraphernalia possession (62, 63).

Police education programs promoting harm reduction approaches with occupational safety (i.e., concerns about needlestick injuries) may be a useful avenue for addressing stigma and abuse from the police towards injecting drug users. Beletsky et al (64) recently showed that a police education program implemented in Kyrgyzstan was associated with officers being significantly more likely to support referring individuals to public health organizations, express no intent to confiscate syringes (aOR 1.92; 95%CI 1.09–3.39), better understand sex worker detention procedures, and have higher knowledge regarding occupational safety (64).

An alarming context of structural risk is also impacting HIV acquisition in Greece. Prior to 2011, the HIV epidemic was concentrated among men who have sex with men. However, Greece saw a 15-fold increase in HIV incidence among PWID in 2011 (65, 66). This drastic change in HIV incidence likely occurred as a result of the economic collapse in 2007, demonstrating the impact of poor economic conditions on HIV risk behaviors (67).

Multi-level risk environments including economic and political conditions also play a role in fostering new drug trafficking routes, new drug compounds, and the emergence of non-injection drug use. Non-injection drug users, like PWID, may experience risk environments including stigma, discrimination, incarceration, homelessness, a lack of health insurance, harsh drug policies, and a lack of access to drug treatment and HIV prevention and services (13, 68). These risk environments may contribute to HIV transmission, drug overdose, and death among people who use drugs (69).

CONCLUSION AND WAY FORWARD

The challenges facing key populations highlighted in this paper (FWID, FWID who trade sex, SP-PWID, young PWID, and non-injection drug users) are cause for global concern. The literature highlights the re-emergence and emergence of injection and non-injection drug use as major drivers of HIV transmission, demonstrating that HIV epidemics occur within contexts of global economic and political forces including poverty, human rights violations, discrimination, drug policies, trafficking practices, and other multi-level risk environments.

Research over the past few years has called for more attention to these key populations, especially in low- and middle-income countries, and has stressed the importance of improving access to HIV behavioral and biomedical prevention, HIV treatment strategies (i.e., early initiation of ART, PrEP, etc.), OST, and syringe exchange programs. While some high-income countries have developed and implemented successful harm reduction

programs, in most low- and middle-income countries, harm reduction operates at sub-threshold levels. HIV prevention research on substance-using populations has focused primarily on PWID; however, most abused substances are administered through non-injection methods (e.g., snorting, smoking, inhaling, and ingestion) (13). Like PWID, non-injection drug users have been excluded from many trials on HIV combination prevention due to concerns over potential medication adherence problems (13). However, combination HIV prevention approaches that address non-injection drug use are needed.

This paper advances several recommendations for change: 1) Commitment by policy-makers, funders, and governments is necessary to secure access to evidence-based and optimal HIV and drug treatment programs, including increased access to combination prevention approaches for PWID, SP-PWID, FWID who trade sex, young PWID, and people who use non-injection drugs; 2) Specific contexts and drivers of re-emerging and emerging injection and non-injection drug use (e.g. drug trafficking, drug policies, economic collapse, stigma, discrimination against drug users) must be addressed on local levels with international partnerships and support; 3) Efforts should be made to reduce stigmatization by policy makers and service providers, setting aside biases that limit service availability and effectiveness and ensuring human rights protection for people who use or inject drugs; and 4) There is a serious need for comprehensive data collection on drug use and HIV throughout the world, specifically in low- and middle-income countries. Thus far, in many low- and middle- income countries no accurate estimates exist to indicate how many people use or inject drugs and no accurate surveillance systems exist. Reliable data is essential for policy-makers to make informed decisions regarding drug policies and improved access to HIV and drug treatment services for these key populations (68).

Acknowledgments

Dr. El-Bassel acknowledges the partial support received from R01 (R01DA033168) funded by the National Institute of Drug Abuse. Dr. Strathdee acknowledges the partial support from the National Institute on Drug Abuse (R37 DA019829) and from the National Institute of Health through HIV Prevention Trials Network (UM1 068619). Ms. Dasgupta acknowledges support received from National Institute on Drug Abuse Grant T32DA023356 (pre-doctoral training grant; PI: Stefanie Strathdee).

REFERENCES

1. Switzerland: UNAIDS; UNAIDS Report on the Global AIDS Epidemic: 2012.
2. Beyrer C, Abdool Karim Q. The changing epidemiology of HIV in 2013. *Curr Opin HIV AIDS*. 2013; 8(4):306–310. [PubMed: 23743721]
3. Switzerland: UNAIDS; 2012. World AIDS Day Report: 2012.
4. Des Jarlais DC, Pinkerton S, Hagan H, Guardino V, Feelemyer J, Cooper H, et al. 30 Years on Selected Issues in the Prevention of HIV among Persons Who Inject Drugs. *Adv Prev Med*. 2013; 2013:346372. [PubMed: 23840957]
5. Des Jarlais DC, Feelemyer JP, Modi SN, Arasteh K, Mathers BM, Degenhardt L, et al. Transitions from injection-drug-use-concentrated to self-sustaining heterosexual HIV epidemics: patterns in the international data. *PLoS One*. 2012; 7(3):e31227. [PubMed: 22396729] • This article examines transition patterns between IDU and heterosexual HIV epidemics, providing an important perspective on how drug use influences heterosexual HIV epidemics.
6. Dutta, A.; Wirtz, A.; Stanciole, A.; Oelrichs, R.; Semini, I.; Baral, S., et al. *The Global HIV Epidemics Among People Who Inject Drugs*. Washington DC: World Bank; 2013.
7. UNODC. *World Drug Report: 2013*. Vienna: United Nations Office on Drugs and Crime; 2013.

8. Mbwambo J, McCurdy SA, Myers B, Lambdin B, Kilonzo GP, Kaduri P. Drug trafficking, use, HIV risk: the need for comprehensive interventions. *SAHARA J.* 2012; 9(3):154–159. [PubMed: 23237070]
9. Eluwa GI, Strathdee SA, Adebayo SB, Ahonsi B, Adebajo SB. A profile on HIV prevalence and risk behaviors among injecting drug users in Nigeria: should we be alarmed? *Drug Alcohol Depend.* 2013; 127(1–3):65–71. [PubMed: 22776443]
10. Stahlman S, Javanbakht M, Stirland A, Guerry S, Gorbach PM. Methamphetamine use among women attending sexually transmitted disease clinics in Los Angeles County. *Sex Transm Dis.* 2013; 40(8):632–638. [PubMed: 23859909]
11. Lazarini FM, Melchior R, González AD, Matsuo T. [Trends in the epidemic of AIDS cases in Southern Brazil from 1986 to 2008]. *Rev Saude Publica.* 2012; 46(6):960–968. [PubMed: 23358620]
12. Santos Cruz M, Andrade T, Bastos FI, Leal E, Bertoni N, Villar LM, et al. Key drug use, health and socio-economic characteristics of young crack users in two Brazilian cities. *Int J Drug Policy.* 2013
13. Shoptaw S, Montgomery B, Williams CT, El-Bassel N, Aramrattana A, Metsch L, et al. Not Just the Needle: The State of HIV-Prevention Science Among Substance Users and Future Directions. *J Acquir Immune Defic Syndr.* 2013; 63:S174–S178. [PubMed: 23764632] • Highlighting the need for attention to HIV prevention strategies among non-injection drug users, this article describes substance use trends that may influence HIV transmission.
14. Des Jarlais DC, Feelemyer JP, Modi SN, Arasteh K, Hagan H. Are females who inject drugs at higher risk for HIV infection than males who inject drugs: an international systematic review of high seroprevalence areas. *Drug Alcohol Depend.* 2012; 124(1–2):95–107. [PubMed: 22257753] • Using data from 117 studies, this review found that females who inject drugs were more likely to be HIV positive than males who inject, indicating the need for further research into protective factors and attention to prevention and treatment.
15. UNAIDS; 2012. Thailand AIDS Response Progress Report 2012: Status at a glance.
16. Roberts A, Mathers B, Degenhardt L. Women who inject drugs: A review of their risks, experiences and needs. University of New South Wales, Sydney, Australia: Secretariat of the Reference Group to the UN on HIV and Injecting Drug Use. National Drug and Alcohol Research Centre (NDARC). 2010
17. El-Bassel N, Gilbert L, Terlikbayeva A, Wu E, Beyrer C, Shaw S, et al. HIV Among Injection Drug Users and Their Intimate Partners in Almaty, Kazakhstan. *AIDS Behav.* 2013
18. Lazuardi E, Worth H, Saktiawati AM, Spooner C, Padmawati R, Subronto Y. Boyfriends and injecting: the role of intimate male partners in the life of women who inject drugs in Central Java. *Cult Health Sex.* 2012; 14(5):491–503. [PubMed: 22468728]
19. Wagner K, Bloom J, Hathazi S, Sanders B, Lankenau S. Control over Drug Acquisition, Preparation, and Injection: Implications for HIV and HCV Risk among Young Female Injection Drug Users. *ISRN Addiction.* 2013; 2013:9.
20. Uusküla A, Abel-Ollo K, Markina A, McNutt LA, Heimer R. Condom use and partnership intimacy among drug injectors and their sexual partners in Estonia. *Sex Transm Infect.* 2012; 88(1):58–62. [PubMed: 22056984]
21. Lazuardi E, Worth H, Saktiawati AMI, Spooner C, Padmawati R, Subronto Y. Boyfriends and injecting: the role of intimate male partners in the life of women who inject drugs in Central Java. *Culture, Health & Sexuality.* 2012; 14(5):491–503.
22. Cruz M, Mantsios A, Ramos R, Case P, Brouwer K, Ramos M, et al. A Qualitative Exploration of Gender in the Context of Injection Drug Use in Two US–Mexico Border Cities. *AIDS and Behavior.* 2007; 11(2):253–262. [PubMed: 16865542]
23. Decker MR, Wirtz AL, Moguilnyi V, Peryshkina A, Ostrovskaya M, Nikita M, et al. Female Sex Workers in Three Cities in Russia: HIV Prevalence, Risk Factors and Experience with Targeted HIV Prevention. *AIDS Behav.* 2013
24. Strathdee SA, Abramovitz D, Lozada R, Martinez G, Rangel MG, Vera A, et al. Reductions in HIV/STI Incidence and Sharing of Injection Equipment among Female Sex Workers Who Inject

- Drugs: Results from a Randomized Controlled Trial. *PLoS One*. 2013; 8(6):e65812. [PubMed: 23785451]
25. Baral S, Beyrer C, Muessig K, Poteat T, Wirtz AL, Decker MR, et al. Burden of HIV among female sex workers in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Infect Dis*. 2012; 12(7):538–49. [PubMed: 22424777]
 26. Adimora A, Ramirez C, Auerbach JD, Aral SO, Hodder S, Wingood G, et al. Preventing HIV Infection in Women. *J Acquir Immune Defic Syndr*. 2013; 63:S168–S173. [PubMed: 23764631]
 27. Platt L, Jolley E, Rhodes T, Hope V, Latypov A, Reynolds L, et al. Factors mediating HIV risk among female sex workers in Europe: a systematic review and ecological analysis. *BMJ open*. 2013; 3(7)
 28. Wagner KD, Pitpitan EV, Chavarin CV, Magis-Rodriguez C, Patterson TL. Drug-Using Male Clients of Female Sex Workers Who Report Being Paid for Sex: HIV/Sexually Transmitted Infection, Demographic, and Drug Use Correlates. *Sex Transm Dis*. 2013; 40(8):619–623. [PubMed: 23863514] • Wagner et al closely examine the social contexts in which women initiate drug use, finding women’s lack of control over initiation events to be an important consideration for prevention interventions.
 29. Baral S, Todd CS, Aumakhan B, Lloyd J, Delegchoimbol A, Sabin K. Literature review of HIV among female sex workers in the Central Asian Republics, Afghanistan, and Mongolia: Contexts and convergence with drug use. *Drug Alcohol Depend*. 2013
 30. Morris MD, Lemus H, Wagner KD, Martinez G, Lozada R, Gómez RM, et al. Factors associated with pathways toward concurrent sex work and injection drug use among female sex workers who inject drugs in northern Mexico. *Addiction*. 2013; 108:161–170. [PubMed: 22775475]
 31. Syvertsen JL, Robertson AM, Palinkas LA, Rangel MG, Martinez G, Strathdee SA. ‘Where sex ends and emotions begin’: love and HIV risk among female sex workers and their intimate, non-commercial partners along the Mexico-US border. *Culture, Health & Sexuality*. 2013; 15(5):540–554.
 32. Morineau G, Bollen LJ, Syafitri RI, Nurjannah N, Mustikawati DE, Magnani R. HIV prevalence and risk behaviours among injecting drug users in six Indonesian cities implications for future HIV prevention programs. *Harm Reduct J*. 2012; 9(1):37. [PubMed: 22943438]
 33. Republic of Indonesia Country Report on the Follow up to the Declaration of Commitment on HIV/AIDS: Reporting Period 2010–2011. Indonesian National AIDS Commission. 2012 2012.
 34. Boltaev A, Deryabina A, Kusainov A, Howard A. Evaluation of a Pilot Medication-Assisted Therapy Program in Kazakhstan: Successes, Challenges, and Opportunities for Scaleup. *Advances in Preventive Medicine*. 2012; 2012:13.
 35. Boltaev A, El-Bassel N, Deryabina A, Terlikbaeva A, Gilbert L, Hunt T, et al. The scaling up of HIV prevention for people who inject drugs in Central Asia: a review of structural challenges and ways forward. *Drug and Alcohol Dependence*. In press.
 36. Karanikolos M, Mladovsky P, Cylus J, Thomson S, Basu S, Stuckler D, et al. Financial crisis, austerity, and health in Europe. *Lancet*. 2013; 381:1323–1331. [PubMed: 23541059]
 37. Petrelis M. Full Text: Russian Federation's Anti-Gay Statute in English. *The Petrelis Files*. 2012
 38. Wirtz AL, Kirey A, Peryskina A, Houdart F, Beyrer C. Uncovering the epidemic of HIV among men who have sex with men in Central Asia. *Drug and Alcohol Dependence*. (0)
 39. Jolley E, Rhodes T, Platt L, Hope V, Latypov A, Donoghoe M, et al. HIV among people who inject drugs in Central and Eastern Europe and Central Asia: a systematic review with implications for policy. *BMJ Open*. 2012; 2(5) • Examining risk factors and political responses to HIV among injection drug users in Central Asia and Eastern Europe, Jolley et al point to critically high rates of HIV among IDUs in these countries and the need for increased evidence and reductions in structural barriers to care and prevention.
 40. Hillis SD, Zapata L, Robbins CL, Kissin DM, Skipalska H, Yorick R, et al. HIV seroprevalence among orphaned and homeless youth: no place like home. *AIDS*. 2012; 26(1):105–110. [PubMed: 21881479]
 41. Chomchai C, Manaboriboon B. Stimulant methamphetamine and dextromethorphan use among Thai adolescents: implications for health of women and children. *J Med Toxicol*. 2012; 8(3):291–294. [PubMed: 22555762]

42. Mathers BM, Degenhardt L, Ali H, Wiessing L, Hickman M, Mattick RP, et al. HIV prevention, treatment, and care services for people who inject drugs: a systematic review of global, regional, and national coverage. *Lancet*. 2010; 375(9719):1014–1028. [PubMed: 20189638]
43. Spicer N, Harmer A, Aleshkina J, Bogdan D, Chkhatarashvili K, Murzalieva G, et al. Circus monkeys or change agents? Civil society advocacy for HIV/AIDS in adverse policy environments. *Social Science & Medicine*. 2011; 73(12):1748–1755. [PubMed: 22036298]
44. Booth RE, Dvoryak S, Sung-Joon M, Brewster JT, Wendt WW, Corsi KF, et al. Law Enforcement Practices Associated with HIV Infection Among Injection Drug Users in Odessa, Ukraine. *AIDS Behav*. 2013
45. Odinokova, V.; Rusakova, M.; Urada, L.; Silverman, J.; Raj, A., editors. Police sexual coercion and its association with injection drug use and binge alcohol use among female sex workers in Russia. *International AIDS Conference*; Washington, D.C., USA. 2012.
46. Izenberg JM, Bachireddy C, Soule M, Kiriazova T, Dvoryak S, Altice FL. High rates of police detention among recently released HIV-infected prisoners in Ukraine: Implications for health outcomes. *Drug Alcohol Depend*. 2013
47. Beletsky L, Lozada R, Gaines T, Abramovitz D, Staines H, Vera A, et al. Syringe confiscation as an HIV risk factor: the public health implications of arbitrary policing in Tijuana and Ciudad Juarez, Mexico. *J Urban Health*. 2013; 90(2):284–298. [PubMed: 22806453] • Probing the context of HIV risk among female injection drug users who trade sex, this article highlights the role of sexual abuse by police and the need for attention to structural level risks.
48. Beletsky L, Heller D, Jenness SM, Neaigus A, Gelpi-Acosta C, Hagan H. Syringe access, syringe sharing, and police encounters among people who inject drugs in New York City: A community-level perspective. *Int J Drug Policy*. 2013
49. Beletsky L, Thomas R, Natalya, Shumskaya N, Artamonova I, Smelyanskaya M. Police Education as a Component of National HIV Response: Lessons From Kyrgyzstan. *Drug and Alcohol Dependence*. In Press.
50. Bonovas S, Nikolopoulos G. High-burden epidemics in Greece in the era of economic crisis. Early signs of a public health tragedy. *J Prev Med Hyg*. 2012; 53(3):169–171. [PubMed: 23362624]
51. Metallidis S, Pilalas D, Skoura L, Haidich AB, Tsachouridou O, Papaioannou M, et al. Time trends and correlates of late presentation for HIV care in Northern Greece during the decade 2000 to 2010. *J Int AIDS Soc*. 2012; 15(2):17395. [PubMed: 23305650]
52. Kondilis E, Giannakopoulos S, Gavana M, Ierodiakonou I, Waitzkin H, Benos A. Economic crisis, restrictive policies, and the population's health and health care: the Greek case. *Am J Public Health*. 2013; 103(6):973–979. [PubMed: 23597358]
53. Meade CS, Watt MH, Sikkema KJ, Deng LX, Ranby KW, Skinner D, et al. Methamphetamine use is associated with childhood sexual abuse and HIV sexual risk behaviors among patrons of alcohol-serving venues in Cape Town, South Africa. *Drug Alcohol Depend*. 2012; 126:232–239. [PubMed: 22717338]
54. Vosburgh HW, Mansergh G, Sullivan PS, Purcell DW. A review of the literature on event-level substance use and sexual risk behavior among men who have sex with men. *AIDS Behav*. 2012; 16:1394–1410. [PubMed: 22323004]
55. Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Asia and the Pacific. *United Nations Office on Drug and Crime*. 2012
56. Hayashi K, Nosyk B, Ti L, Suwannawong P, Kaplan K, Wood E, et al. Increasing availability of illicit drugs among people who inject drugs in Bangkok, Thailand. *Drug Alcohol Depend*. 2013
57. Hedden SL, Hulbert A, Cavanaugh CE, Parry CD, Moleko AG, Latimer WW. Alcohol, Drug and Sexual Risk Behavior Correlates of Recent Transactional Sex Among Female Black South African Drug Users. *J Subst Use*. 2011; 16(1):57–67. [PubMed: 21603063]
58. Parry CD, Plüddemann A, Myers B, Wechsberg WM, Flisher AJ. Methamphetamine use and sexual risk behaviour in Cape Town, South Africa: a review of data from 8 studies conducted between 2004 and 2007. *Afr J Psychiatry (Johannesbg)*. 2011; 14(5):372–376. [PubMed: 22183467]

59. Wechsberg WM, Myers B, Kline TL, Carney T, Browne FA, Novak SP. The Relationship of Alcohol and Other Drug Use Typologies to Sex Risk Behaviors among Vulnerable Women in Cape Town, South Africa. *J AIDS Clin Res.* 2012; S1(15)
60. UNODC. Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Asia and the Pacific. United Nations Office on Drug and Crime. 2012
61. Fass JA, Fass AD, Garcia AS. Synthetic cathinones (bath salts): legal status and patterns of abuse. *The Annals of pharmacotherapy.* 2012; 46(3):436–441. [PubMed: 22388331]
62. Grund JP, Latypov A, Harris M. Breaking worse: The emergence of krokodil and excessive injuries among people who inject drugs in Eurasia. *Int J Drug Policy.* 2013
63. El-Bassel N, Strathdee S, El Sadr W. People who inject drugs in Central Asia and HIV: Confronting the perfect storm. *Drug and Alcohol Dependence.* 2013
64. Rapoza K. Disturbing trend for Putin, Russian Poverty Rising. *Forbes.* 2012
65. Skowronek R, Celinski R, Chowaniec C. “Crocodile”-new dangerous designer drug of abuse from the East. *Clinical Toxicology.* 2012; 50(4):269-. [PubMed: 22385107]
66. Gahr M, Freudenmann RW, Hiemke C, Gunst IM, Connemann BJ, Schönfeldt-Lecuona C. “Krokodil”-revival of an old drug with new problems. *Substance Use & Misuse.* 2012; 47(7):861–863. [PubMed: 22468632]
67. (CEWG) CEWG. Epidemiologic trends in drug abuse. 71st semiannual meeting of the National Institute on Drug Abuse (NIDA); San Antonio, Texas. 2012.
68. Degenhardt L, Hall W. Extent of illicit drug use and dependence, and their contribution to the global burden of disease. *Lancet.* 2012; 379(9810):55–70. [PubMed: 22225671]
69. Mathers BM, Degenhardt L, Bucello C, Lemon J, Wiessing L, Hickman M. Mortality among people who inject drugs: a systematic review and meta-analysis. *Bull World Health Organ.* 2013; 91(2):102–123. [PubMed: 23554523] •Drug overdose and AIDS related causes are identified as primary causes of death among injection drug users. The high mortality rates and differences in these rates by location urge the necessity for multi-level response

Key points

- The literature highlights the re-emergence and emergence of injection and non-injection drug use among various populations as major drivers of HIV transmission.
- Key populations affected by trends in injection and non-injection drug use include females who inject drugs (FWID), FWID who trade sex, sex partners of people who inject drugs (SP-PWID), young PWID, and people who use non-injection drugs in many low and middle income countries.
- HIV epidemics occur within contexts of global economic and political forces, including poverty, human rights violations, discrimination, drug policies, trafficking practices, and other multi-level risk environments.