



Research paper

Intersecting epidemics of HIV, HCV, and syphilis among soon-to-be released prisoners in Kyrgyzstan: Implications for prevention and treatment



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ARTICLE INFO

Article history:

Received 12 November 2015

Received in revised form 31 May 2016

Accepted 6 June 2016

Keywords:

Prisons

Kyrgyzstan

HIV prevalence

Syphilis

Opioid use disorders

People who inject drugs (PWID)

ABSTRACT

Background: Central Asia is afflicted with increasing HIV incidence, low antiretroviral therapy (ART) coverage and increasing AIDS mortality, driven primarily by people who inject drugs (PWID). Reliable data about HIV, other infectious diseases, and substance use disorders in prisoners in this region is lacking and could provide important insights into how to improve HIV prevention and treatment efforts in the region.

Methods: A randomly sampled, nationwide biobehavioural health survey was conducted in 8 prisons in Kyrgyzstan among all soon-to-be-released prisoners; women were oversampled. Consented participants underwent computer-assisted, standardized behavioural health assessment surveys and testing for HIV, HCV, HBV, and syphilis. Prevalence and means were computed, and generalized linear modelling was conducted, with all analyses using weights to account for disproportionate sampling by strata.

Results: Among 381 prisoners who underwent consent procedures, 368 (96.6%) were enrolled in the study. Women were significantly older than men (40.6 vs. 36.5; $p = 0.004$). Weighted prevalence (%), with confidence interval (CI), for each infection was high: HCV (49.7%; CI: 44.8–54.6%), syphilis (19.2%; CI: 15.1–23.5%), HIV (10.3%; CI: 6.9–13.8%), and HBV (6.2%; CI: 3.6–8.9%). Among the 31 people with HIV, 46.5% were aware of being HIV-infected. Men, compared to women, were significantly more likely to have injected drugs (38.3% vs. 16.0%; $p = 0.001$). Pre-incarceration and within-prison drug injection, primarily of opioids, was 35.4% and 30.8%, respectively. Independent correlates of HIV infection included lifetime drug injection (adjusted odds ratio [AOR] = 38.75; $p = 0.001$), mean number of years injecting (AOR = 0.93; $p = 0.018$), mean number of days experiencing drug problems (AOR = 1.09; $p = 0.025$), increasing duration of imprisonment (AOR = 1.08; $p = 0.02$ for each year) and having syphilis (AOR = 3.51; $p = 0.003$), while being female (AOR = 3.06; $p = 0.004$) and being a recidivist offender (AOR = 2.67; $p = 0.008$) were independently correlated with syphilis infection.

Conclusion: Drug injection, syphilis co-infection, and exposure to increased risk during incarceration are likely to be important contributors to HIV transmission among prisoners in Kyrgyzstan. Compared to the community, HIV is concentrated 34-fold higher in prisoners. A high proportion of undiagnosed syphilis and HIV infections presents a significant gap in the HIV care continuum. Findings highlight the critical importance of evidence-based responses within prison, including enhanced testing for HIV and sexually transmitted infections, to stem the evolving HIV epidemic in the region.

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Introduction

Dramatic shifts in the political and economic landscape of Central Asia after dissolution of the Soviet Union have left a public health catastrophe in its wake. The weakened healthcare infrastructure, increased drug and sexual HIV risk behaviour, co-infection with sexually transmitted infections (STIs), and rising numbers of opioid injectors by virtue of the region's geographic proximity to drug-trafficking routes, have collectively fuelled the intersecting epidemics of HIV and STIs (Thorne, Ferencic, Malyuta, Mimica, & Niemiec, 2010). Despite a 33% reduction in the number of new HIV infections worldwide since 2001, incidence continues to increase in Eastern Europe and Central Asia (Beyrer & Abdool Karim, 2013; DeHovitz, Uuskula, & El-Bassel, 2014; Joint United Nations Programme on HIV/AIDS (UNAIDS), 2014; Thorne et al., 2010), primarily among people who inject drugs (PWID), who account for 50–70% of total HIV infections in the region (Joint United Nations Programme on HIV/AIDS, 2012; Joint United Nations Programme on HIV/AIDS (UNAIDS), 2014). Kyrgyzstan has an estimated 25,500 PWID with an HIV prevalence among them that is 20-fold higher than in the general population (Walsh & Maher, 2013). To a lesser extent, heterosexual transmission is also on the rise with recent increases in the proportion of incident HIV cases attributed to this mode of transmission (Boltaev et al., 2013; DeHovitz et al., 2014).

Central Asia markedly lags behind scale-up of recommended HIV risk-reduction strategies, like expansion of opioid agonist therapies (OAT) with methadone or buprenorphine and needle/syringe programmes (NSP), which hampers HIV prevention efforts in the region (Joint United Nations Programme on HIV/AIDS, 2012). Significant barriers to curbing the HIV epidemic, stemming from Russia's continued influence in the region, include proscriptive and punitive drug policies (El-Bassel, Strathdee, & El Sadr, 2013), stigmatization of individuals with substance use disorders (SUDs) (Spicer et al., 2011), commercial sex workers (CSW) (Baral et al., 2013), and men who have sex with men (MSM) (Latypov, Rhodes, & Reynolds, 2013), hardline policing (Beletsky, Thomas, Shumskaya, Artamonova, & Smelyanskaya, 2013) suboptimal political will, and the absence of a legal framework to support such initiatives (Thorne et al., 2010).

Incarceration disproportionately affects individuals with or at risk for HIV (Fu et al., 2013), interrupts care for HIV and SUDs (Kamarulzaman & Altice, 2015; Springer, Spaulding, Meyer, & Altice, 2011) and fuels HIV transmission through the disruption of social and injection networks (Maru, Basu, & Altice, 2007). Where society favours incarceration over community rehabilitation of PWID, the criminal justice system (CJS) has been underutilized as a crucial platform for HIV prevention and treatment efforts (Flanigan et al., 2010). This is especially true since the CJS is a structured setting where the related epidemics of SUDs and incarceration intertwine to drive the spread of infectious diseases (Jurgens, Ball, & Verster, 2009). In Central Asia, socially marginalized individuals are incarcerated for crimes associated with increased HIV and STI risk, including CSW and drug trafficking (Vagenas et al., 2013). Incarceration is a common occurrence in the lives of PWID, with up to 90% of PWID in the region being estimated to have been incarcerated (World Health Organization, 2012). Kyrgyzstan has been a regional leader in HIV prevention and harm reduction efforts, bolstered by political and legal support from NGOs, international donors and several state agencies (Ancker & Rechel, 2015; Schonning & Stuijke, 2009). It is the only country in Central Asia and one of only seven countries worldwide that integrates both OAT and NSP into its nationwide HIV prevention strategy for both communities and prisons, albeit with suboptimal coverage (Boltaev, Deryabina, Howard, & Aizberg, 2012; Degenhardt et al.,

2010; International AIDS Society, 2011). High OAT coverage is effective for both primary (Altice, Kamarulzaman, Soriano, Schechter, & Friedland, 2010) and secondary HIV prevention by increasing antiretroviral therapy (ART) utilization (Altice et al., 2011a; Lucas et al., 2010; Uhlmann et al., 2010), improving HIV treatment outcomes (Altice et al., 2011b; Palepu et al., 2006) within prison (Haig, 2003) and during the post-release period (Springer, Chen, Altice, & 2010), as well as reducing HIV risk behaviours (Altice et al., 2006; Metzger et al., 1993).

Despite these policy initiatives, HIV prevalence continues to rise in Kyrgyzstan, especially among PWID (Thorne et al., 2010), and increasingly sexual transmission increasingly accounts for newly-reported cases (Ministry of Health of the Kyrgyz Republic, 2014a). Co-infection with syphilis exacerbates HIV transmission to bridge populations through increased genital ulcers (Lynn & Lightman, 2004) to bridge populations, which can spread HIV to the general population, enabling a generalizing HIV epidemic (Thorne et al., 2010). Previous studies have showed an association between syphilis and drug injection, suggesting a possible causal relationship between the two (Platt et al., 2007). Syphilis rates increased dramatically after the collapse of the Soviet Union (Uuskula, Puur, Toompere, & DeHovitz, 2010), but national surveillance data is limited (Herbert & Middleton, 2012) and hampered by incomplete reporting (Riedner, Dehne, & Gromyko, 2000).

In settings where governments favour incarceration over community treatment, periods of imprisonment provide critical access to hard-to-reach populations, as well as opportunities for diagnosing, initiating and sustaining treatment. Consequently, it is crucial to obtain reliable and accurate information on the prevalence of SUDs, mental illness, and infectious diseases among prisoners, most of whom will return to community settings. While there are recent HIV prevalence data (7.6%) from prisoners in Kyrgyzstan (Ministry of Health of the Kyrgyz Republic, 2014b), data on the health of prisoners in Central Asia is often inconsistent (Vagenas et al., 2013) and most sentinel surveillance methods are fraught with considerable selection bias (Nashkhoev & Sergeyev, 2008). Furthermore, there are no recent data on other transmissible infections in the region, specifically ones that are recommended to be addressed in prisons by international agencies such as STIs and viral hepatitis (United Nations Office on Drugs and Crime (UNODC), 2012; WHO/UNODC/UNAIDS, 2007, 2008; World Health Organization (WHO), 2015). Importantly, this study addresses gaps in data on prisoner health in Central Asia (Vagenas et al., 2013) by providing the: (1) first comprehensive, scientifically rigorous behavioural and serosurvey among prisoners in the region and 2) independent correlates of HIV and syphilis and their inter-relationships with socio-demographic characteristics, structural factors (incarceration, access to harm reduction services), mental health, and substance use.

Methods

A comprehensive, nationally representative, biobehavioural survey assessing health status, addiction, and infectious diseases (HIV, hepatitis C [HCV], hepatitis B [HBV], and syphilis) was conducted in all 8 of Kyrgyzstan's non-specialty prisons from July 15 to November 15 2014.

Setting

In Kyrgyzstan, the State Service for the Enforcement of Punishment (SSEP), operated under the auspices of the Ministry of Justice, oversees the CJS, including prisoner health. Kyrgyzstan's incarceration rate is 166 prisoners per 100,000 population (International Centre for Prison Studies, 2015), exceeding the world average of 146 prisoners per 100,000 population. At the time

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