



## Short communication

## Antiretroviral therapy for prevention of HIV transmission: Potential role for people who inject drugs in Central Asia

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## ABSTRACT

Interest in the use of antiretroviral therapy (ART) for prevention stems from mounting evidence from research studies demonstrating that ART is associated with a decrease in sexual HIV transmission among serodiscordant couples and, perhaps, in other populations at risk. There is paucity of data on the efficacy of ART for prevention in key populations, including persons who inject drugs (PWID). In this paper, we examine the current status of HIV services for PWID in Central Asia, the use of ART by this population and explore ART for prevention for PWID in this context. We also discuss research and implementation questions with relevance to such a strategy in the region.

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## 1. Introduction

The use of antiretroviral therapy (ART) for prevention of HIV transmission is supported by evidence from research studies of its association with a decrease in sexual HIV transmission among serodiscordant couples and, perhaps, in other populations at risk. An expanding series of ecological (Porco et al., 2004; Das et al., 2010; Montaner et al., 2010; Tanser et al., 2013), observational (Melo et al., 2008; Sullivan et al., 2009; Del Romero et al., 2010; Donnell et al., 2010; Lu et al., 2010; Jia et al., 2012), and modeling studies (Granich et al., 2009; Eaton et al., 2012), as well as the randomized controlled trial HPTN 052 (Cohen et al., 2011), has sparked enthusiasm that use of ART for prevention, in combination with other prevention and treatment interventions, could lead to an AIDS-free generation. In addition, the use of antiretroviral drugs by HIV uninfected persons who inject drugs (PWID) for prevention of acquisition of HIV infection has received attention based on the findings from a recently published randomized placebo-controlled trial of antiretroviral prophylaxis, the Bangkok Tenofovir Study, which reported a 48.9% reduction in HIV incidence (95% CI 9.6–72.2%,  $p = 0.01$ ) in PWID who used daily oral tenofovir as

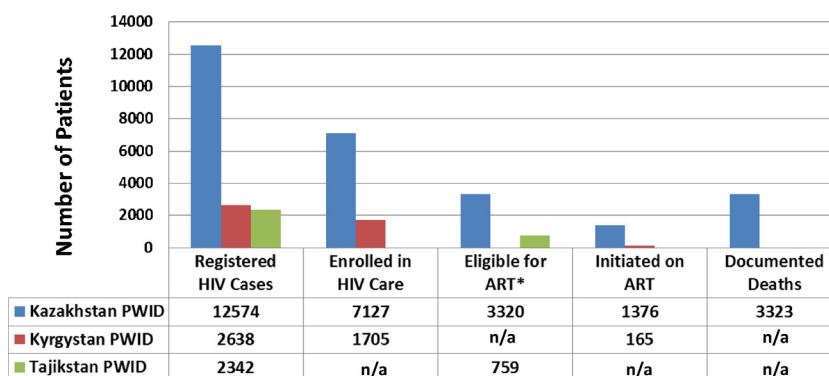
compared to PWID assigned to placebo, both in conjunction with other risk reduction interventions (Choopanya et al., 2013).

Globally, approximately one-third of new HIV infections outside of sub-Saharan Africa are attributable to injection drug use (Mathers et al., 2008). The HIV epidemic in Central Asia is driven by injection drug use which accounts for over 50% of HIV infections in the region (Republican AIDS Center of Kazakhstan, 2013a,b; Republican AIDS Center of Kyrgyzstan, 2013; Republican AIDS Center of Tajikistan, 2013). PWID in this region must be engaged in a variety of HIV prevention, care and treatment interventions which include increased access to HIV testing, behavioral and other prevention interventions, HIV care and treatment, and other necessary supportive services (World Health Organization, 2008). The majority of observational studies and the HPTN 052 study provide evidence for ART for prevention in discordant heterosexual couples but did not include PWID among the studied populations. Some ecological evidence is available from British Columbia, Canada and Baltimore, US where the epidemic is largely driven by injection drug use (Wood et al., 2009, 2012; Montaner et al., 2010). In the study from British Columbia, there was an association noted between increased ART coverage, decreased community viral load, and decreased number of annual new HIV diagnoses over the period from 1996 to 2009 (Montaner et al., 2010). The authors hypothesized that the decrease in the number of reported new annual HIV diagnoses may be driven by reductions in new cases among PWID, in whom new HIV diagnoses per year decreased by 50% over that period. The authors note that specific outreach efforts were implemented to facilitate ART uptake among PWID in conjunction with

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## HIV Care Cascade of Reported HIV-infected PWID in Select Countries in Central Asia



**Fig. 1.** HIV care cascade of reported HIV-infected PWID in selected countries in Central Asia. Cumulative data from the Republican AIDS Centers from Kazakhstan (1987 to April 2013), Kyrgyzstan (1996 to January 2013) and Tajikistan (1991 to January 2013). N/a: no data available.

expansion of needle syringe program (NSP) and opioid substitution therapy (OST) programs during this period – all of which may have contributed to the decrease in the number of new HIV diagnoses reported.

In this paper, we examine the current status of HIV services for PWID in select countries in Central Asia and current use of ART for treatment of HIV-infected PWID. We also explore the potential role of ART use for prevention of HIV transmission within Central Asian context, and discuss key research and implementation questions with relevance to ART for prevention in this setting.

## 2. The HIV epidemic among PWID in Central Asia

Central Asia is one region in the world where the HIV epidemic, as measured by HIV incidence, is still on the rise ([World Health Organization, 2011](#)), despite investment in increasing HIV services by ministries of health and international donors. Central Asia includes the Republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. This article focuses primarily on the three countries of Kazakhstan, Kyrgyzstan and Tajikistan as data from Turkmenistan and Uzbekistan is limited. Although the overall prevalence among the general population remains low, i.e., 117.9, 86.8 and 77.9 per 100,000 in Kazakhstan, Tajikistan, and Kyrgyzstan, respectively ([Republican AIDS Center of Kazakhstan, 2013a,b](#); [Republican AIDS Center of Kyrgyzstan, 2013](#); [Republican AIDS Center of Tajikistan, 2013](#)), the number of people newly diagnosed with HIV in the Central Asia region in 2011 was 14 times higher than in 2000 ([World Health Organization, 2011](#)). Injection drug use accounts for 62.6% of all registered HIV infections in Kazakhstan, 57.2% in Kyrgyzstan, and 50.3% in Tajikistan ([Republican AIDS Center of Kazakhstan, 2013a,b](#); [Republican AIDS Center of Kyrgyzstan, 2013](#); [Republican AIDS Center of Tajikistan, 2013](#)). In addition, sentinel surveillance surveys conducted among PWID demonstrated that the proportion of PWID who engage in unsafe sexual behaviors remains high. In 2011, 53% of PWID in a survey conducted in Kazakhstan and 47% of PWID in Tajikistan reported not using condoms during last sex ([Republican AIDS Center of Kazakhstan, 2012a,b](#); [Republican AIDS Center of Tajikistan, 2012a,b](#)). As a result, sexual partners of HIV-infected PWID constitute a relatively large group among newly detected HIV cases (e.g., 12% of all cases registered in 2012 in Kazakhstan; [Republican AIDS Center of Kazakhstan, 2012a,b](#)). There are no published statistics on serodiscordant relationships among PWID in this region, but there are likely a large number of undocumented

HIV serodiscordant sexual relationships among PWID and their sexual partners.

With regards to HIV treatment, the ministries of health in countries in Central Asia currently recommend ART for HIV-infected individuals with CD4+ count  $\leq 350$  cells/ $\mu$ L or WHO clinical stage III/VI, which aligns with the 2010 WHO guidelines ([World Health Organization, 2010a,b](#)). In April 2012, WHO released revised guidelines that recommended that all HIV-infected partners in serodiscordant couples should be offered ART regardless of their CD4+ count ([World Health Organization, 2012](#)). However, Kyrgyzstan is the only country in Central Asia that has officially recommended ART for the infected partner in serodiscordant couples. The extent of informal use of this intervention in such couples across the region is unknown.

## 3. Current context of HIV services for PWID in Central Asia

PWID in general, and those with HIV infection, face prevailing stigma and marginalization which limits their access to existing health services. Police targeting, required “name-based” registers for drug treatment and HIV services, and mistreatment by the medical establishment hinder PWID health seeking behaviors, access to prevention and care services ([Izenberg and Altice, 2010](#); [Krusi et al., 2010](#); [Mimiaga et al., 2010](#)), use of drug treatment services, and enrollment in OST programs ([Boltaev et al., 2012a,b, 2013](#)). A review of studies from Eastern Europe and Central Asia reported that between half and three-quarters of PWID have experienced an arrest ([Jolley et al., 2012](#)). Incarceration of PWID also pose specific threats for those with HIV infection due to interruptions in care and treatment ([Milloy et al., 2011](#)). A modeling study estimated that elimination of repressive police practices against PWID in the Ukraine, whose epidemic and political practices are relatively similar to the countries in Central Asia, could avert 2–9% of HIV infections in this group ([Strathdee et al., 2010](#)). Ultimately, a fundamental shift is needed in the organization of the health services in order to provide PWID-friendly services that de-stigmatize HIV among PWID and integrate HIV services within other health services in order to enhance outcomes for PWID and their families ([Wu et al., 2013](#)).

Any future use of ART for prevention will need to be integrated within existing HIV services, which must include HIV testing for PWID, linkage of PWID who test HIV-infected to HIV care programs, their assessment for ART eligibility and prompt initiation of ART if eligible, and retention of PWID in life-long care and treatment with attention to optimizing medication adherence and monitoring of

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