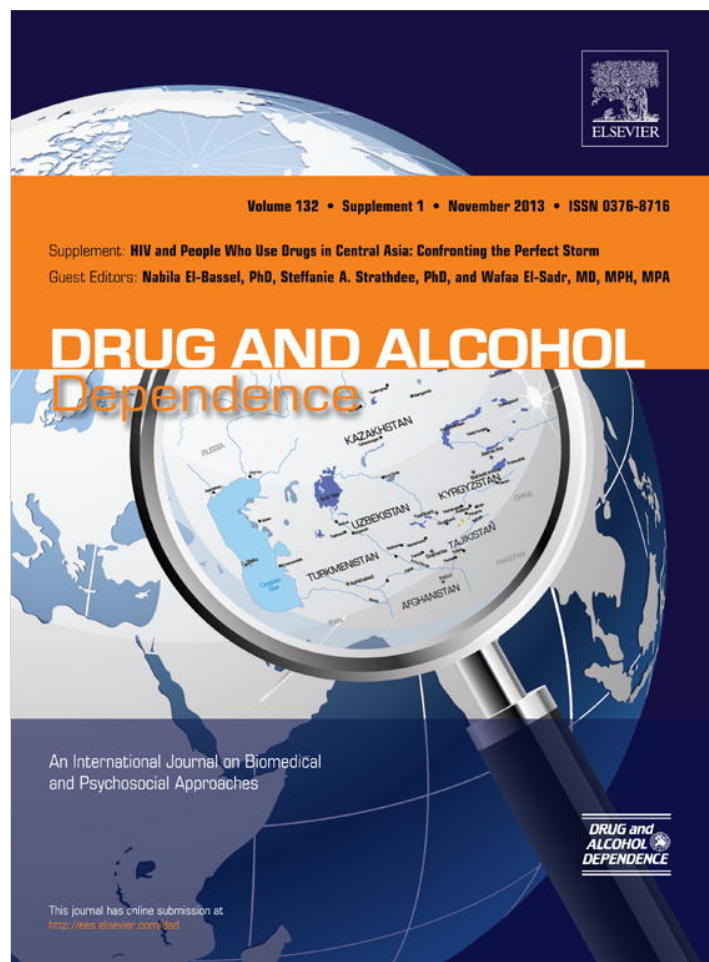


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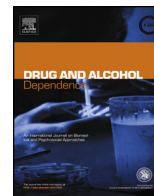
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## Scaling up HIV prevention efforts targeting people who inject drugs in Central Asia: A review of key challenges and ways forward

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## ABSTRACT

**Background:** In Central Asia, between 33% and 72% of cumulative HIV infections has been attributed to unsafe injection practices among people who inject drugs (PWID).**Methods:** We reviewed the current status and trends of national efforts in Central Asian countries to control HIV among PWID, and also reviewed the key structural and health-systems-related challenges that facilitate drug-use-related HIV risk in Central Asia.**Results:** The spectrum and scale of HIV prevention services targeting PWID vary considerably among Central Asian countries. In all countries, the potential impact of these interventions is hindered by several key features: a restrictive legal environment, poor performance of service providers, widespread opposition to harm reduction, deficient human resources and funding mechanisms, poor services integration, insufficient community involvement, and other structural factors.**Conclusions:** Scaling up HIV prevention interventions in Central Asia will demand greater attention to the structural, health-care-related and social factors that facilitate HIV risk and impede service utilization among PWID. Multi-level combination prevention interventions should be developed with a focus on the sexual partners and risk networks of PWID, aiming at early detection of HIV, timely enrollment in HIV care, and retention in HIV care.

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## 1. Introduction

Globally, Central Asia is one of the few regions where HIV prevalence continues to rise (UNAIDS, 2012). Central Asia's HIV epidemic has been inexorably linked to heroin injection and the opium traffic from nearby Afghanistan. At the end of 2012, between 33% of Uzbekistan's cumulative registered HIV cases and 72% of those in Kazakhstan were transmitted through the use of shared injection drug equipment (Yusopov, 2012; Mravcik, 2012). The regional prevalence of non-medical opiate use in Central Asia was 0.8% and continues to be greater than the global estimate of 0.3% (UNODC, 2012; IDU Reference Group, 2010). Heroin remains the drug of choice for the majority of opiate users in Central Asia (Yusopov, 2012; Mravcik, 2012; Republican AIDS Center Uzbekistan, 2011).

HIV prevalence among people who inject drugs (PWID) assessed during the national integrated bio-behavioral surveys (IBBS) ranged from 0% to 13.1% in different regions of Kazakhstan (Republican AIDS Center Kazakhstan, 2012); 3–32.4% in Kyrgyzstan; 0–27.4% in Tajikistan (Republican AIDS Center Tajikistan, 2011), and 0–25% (Republican AIDS Center Uzbekistan, 2011). Approximately 7% of female sex workers in Central Asia inject drugs, and on average, HIV prevalence among this group is 8–10 times greater than among sex workers who do not inject drugs (Zhussupov, 2009). Over the last few years, in Kazakhstan, the rate of sexual transmission of HIV has surpassed that of injection drug use HIV transmission, with recent data finding that 51% of all HIV infections registered in 2011 source from sexual transmission (Republican AIDS Center Kazakhstan, 2012). Each of the Central Asian countries has found this rise in sexual HIV transmission, including in transmission to non-drug-injecting sexual partners of PWID, with the exception of Turkmenistan, which has insufficient data on HIV and drug use. However, given the country's similar historical and geographical contexts to its neighbors, it is estimated that its HIV epidemic is not significantly different from other Central Asian nations (Médecins Sans Frontières, 2010).

This paper reviews the current status and trends of national efforts to control HIV among PWID in Central Asia. It also discusses the key structural and social challenges that facilitate HIV transmission among PWID and to their sexual partners including factors that obstruct access to harm reduction services, particularly needle and syringe programs (NSP) and opioid substitution therapy (OST). Finally, the paper provides recommendations for more effective responses to the HIV epidemic among PWID in Central Asia.

## 2. Historical context and current responses

For decades, health interventions targeting PWID in Central Asia were limited to narcologic care that consisted primarily of detoxification without psychosocial support, forced labor camps, long-term isolation from society, and heavy use of neuroleptics. These interventions were initiated prior to 1990 under the former USSR government and, as a rule, were enforced by police, entailed stigmatizing social pressure, and limited the civil rights of drug-dependent persons. Apart from ethical issues, these approaches were applied even after the collapse of the USSR, despite minimal empirical evidence of effectiveness (Mendelevich, 2012).

In the late 1990s, rapid growth of HIV among PWID inevitably impacted on the drug policies of every Central Asian nation. Currently, all Central Asia countries are signatories to the Declaration of Commitment to HIV/AIDS adopted by the United Nations General Assembly in 2001. Each country has developed and implemented a national AIDS strategy and specific programs to counteract the HIV and drug abuse epidemic. HIV prevention interventions among PWID are implemented through networks of AIDS Centers and

narcology dispensaries, as well as non-governmental organizations (NGOs). Despite existing cultural and historical similarities in Central Asian countries, each country varies in its quality and spectrum of response to the dual epidemics of HIV and drug use (IDU Reference Group, 2010; Wolfe et al., 2008). With support from the Global Fund to fight AIDS, Tuberculosis, and Malaria (GFATM), NSPs are being implemented through NGOs and Trust Points, located at territorial AIDS Centers and primary health care facilities in each of the Central Asian countries except Turkmenistan. NSP coverage of PWID ranges from 18% to 50% (see Table 1). In addition, Kyrgyzstan and Tajikistan have made NSP available to PWID in penal institutions, where HIV risk behavior is particularly high (Stoicescu, 2012). In 2002, Kyrgyzstan took the lead as the first Central Asian nation to implement OST. Approximately 1000 opioid dependent patients are supported through twenty OST sites across the country, including three sites in penitentiaries (Republican Narcology Center Kyrgyzstan, 2013). New OST programs began enrolling clients in Tajikistan in 2009, and Kazakhstan in 2010. As of April 2013, Kazakhstan operates 10 sites that have provided OST to 276 patients in Kazakhstan, and Tajikistan operates three sites that have provided OST to 260 clients. OST is currently not available in Uzbekistan and Turkmenistan. HIV counseling and testing (HCT) and antiretroviral therapy (ART) are available in Central Asian countries without formal restrictions to access for PWID.

While the authors of this paper made every effort to collect the best available data on HIV service access and utilization, it is important to underline several restrictions related to the data indicated in Table 1. First, countries of the region define total coverage by counting PWID who had at least one contact with a service provider in the last 12 months. These calculations significantly differ from the WHO/UNODC/UNAIDS recommended definition, which specifies coverage to mean the regular at least monthly use of HIV prevention services by PWID (WHO/UNODC/UNAIDS, 2012). One additional uncertainty relates to the reliability of the estimated PWID population size. For example, the last PWID's population size estimates released in Uzbekistan in 2013 demonstrate a reduction by 40% from previous figures provided in 2006. Accepting new size estimates automatically inflates indicators of coverage achieved by HIV service providers, despite the lack of critical factors described below that enable successful HIV response.

## 3. Barriers to an effective response

The growing number of healthcare facilities in Central Asia that provide evidence-based public health interventions targeting PWID is appraisable. However, Central Asian nations have only modestly addressed structural causes of HIV risk behavior and virus transmission, which determine the success of any HIV control program (Blankenship et al., 2006). Below we summarize some of the key structural causes of risk and health-systems-related challenges, and we provide examples of current impediments as well as suggested best practices to overcome them, in order to increase access to HIV prevention services for PWID.

### 3.1. Legal environment and policing

Legal and normative regulations that discriminate and violate the civic and human rights of drug-dependent persons including those in treatment exist in all countries in the region. Criminal harassment of PWID for obtaining and possessing small amounts of drugs for personal use, police access to medical data of patients treated at narcology clinics, and deprivation of civic rights of drug-dependent persons are most common factors that increase HIV risk and hamper utilization of healthcare interventions by PWID. According to current legislation, information and education about

**Table 1**  
National coverage of PWID by HIV services.

Country	Estimated # of PWID	Percentage or number of PWID receiving HIV services			
		OST	ART	NSP	HCT
Kazakhstan <sup>a</sup>	123,640 (RAC, 2011)	0.2%	41.4% <sup>b</sup>	50%	65%
Kyrgyzstan <sup>c</sup>	25,000 (UNODC, 2006)	4.2%	165	27%	54%
Tajikistan <sup>d</sup>	25,000 (APMG, 2009)	1.1%	759	18%	46%
Uzbekistan <sup>e</sup>	80,000 (UNODC, 2006) <sup>f</sup>	0	N/A	31%	29%
Turkmenistan <sup>5</sup>	33,000 (MOH, 2007)	0	0	0	N/A

<sup>a</sup> Coverage data for Kazakhstan is as of January 1, 2013.

<sup>b</sup> Of ART eligible – CD4+ count <350 cells/ $\mu$ L or WHO stage III/VI.

<sup>c</sup> Coverage data for Kyrgyzstan is as of April 1, 2013.

<sup>d</sup> Coverage data for Tajikistan is as of April 1, 2013.

<sup>e</sup> Coverage data for Uzbekistan is as of January 1, 2012.

<sup>f</sup> New estimates of PWID in Uzbekistan became available in the course of writing this manuscript ( $n = 48,000$ ). However, authors used older figures of PWID estimates ( $n = 80,000$ ) as all coverage related data were reported by national authorities using the latter figure.

safer drug use and sex can be used by authorities as proof of an offense of promotion of drug use and sex among youth, which seriously restricts the delivery of harm reduction messages to PWID and their significant others (Dyushin, 2011; Partiff, 2006; Latypov et al., 2010).

Some countries in the region have taken exemplary steps toward liberalizing their drug laws. Tajikistan has significantly increased the minimum drug weight viable for criminal prosecution. Kazakhstan and Tajikistan have amended their existing regulations, replacing criminal prosecution with administrative charges, while in Kyrgyzstan similar amendments to the law are restricted to first-time drug offenders only (UNODC, 2009). When Kazakhstan adopted new decriminalizing regulations in early 2011, the proportion of prosecuted, drug-related crimes related to acquisition or storage of narcotic drugs without the purpose of sale significantly dropped from 51% in 2010 to less than 1% in 2011 (Yusopov, 2012). In Kyrgyzstan, however, despite the partial decriminalization of acquisition or storage of drugs in 2007, such types of offenses represented a high number of all prosecuted drug-related crimes, as high as 68% in 2010 (CADAP-5, 2011). Many Kyrgyz drug offenders, soon after their first-time administrative punishments, are seized by police again due to their dependency on narcotics and are subjected to criminal prosecution. This suggests that these partial measures are insufficient, confirming concerns expressed shortly after first adopting these amendments (UNODC, 2009).

### 3.2. Evidence-based public health practice

As noted earlier, all countries in the region of Central Asia have declared a commitment to evidence-based HIV prevention and drug control measures. Implementation of such interventions is accompanied by a number of challenges. In particular, OST in Central Asia is arguably the most politicized healthcare intervention, one that continues to cause debates among professional and non-professional audiences. Opponents of OST continue to promote abstinence-only approaches in the treatment of addictions, accusing OST's proponents of engaging in "immoral attempts to give patients a poison instead of real treatment" (Latypov et al., 2010; Boltaev et al., 2012). The danger of such opposition must not be underestimated. For instance, in Kazakhstan, opposition delayed the introduction and scaling-up of this life-saving intervention (Boltaev et al., 2012). In Uzbekistan, it led to the discontinuation of a pilot OST project and was declared "ineffective" despite the body of evidence supporting OST's effectiveness (Latypov et al., 2010; IDU Reference Group, 2010).

Additional challenges to greater OST access and its improved outcomes for PWID in Central Asia lie in the domains of restrictive enrollment criteria, a lack of psychosocial support for clients, sub-optimal doses of methadone that result in lower retention rates in

OST programs in Central Asia, and concurrent misuse of psychoactive drugs (ICAP, 2012a).

The belief that PWID have poorer responses and adherence to antiretroviral therapy (ART) is widespread among HIV clinicians, despite evidence to the contrary, which results in late initiation or refusals to initiate ART to otherwise eligible PWID (ICAP, 2012b).

### 3.3. Human resources

Health interventions can only benefit the public as expected when they are delivered or implemented by competently trained staff (UNAIDS, 2002). In Central Asia, curricula in medical schools still lack review of state-of-the-art, evidence-based approaches to care and treatment of drug dependence and HIV among PWID. Too often, workers in the medical field are no more knowledgeable about HIV services, particularly ART and OST, than those without a medical background. Some health practitioners are prone to providing biased and false information about these services and policies, including in the Russian-language mass media.

Personnel at HIV service sites often have insufficient knowledge and skills in psychosocial counseling, motivating patients to improve adherence to therapy, program monitoring, and treating HIV in the population of PWID. Training nurses in risk- and disease-specific information and skills does not happen regularly – in most cases, nurses working at OST and ART sites have no formal training related to providing HIV services. Social support services for key populations are underdeveloped with virtually no properly trained social workers involved in provision of services to PWID (ICAP, 2012a,b).

Even when health facilities have qualified and trained personnel, Central Asian national health systems suffer from intensive migration of health workers in search for higher wages abroad to Russia and other countries. As a result, national health authorities and international development agencies working in the region repeatedly struggle to secure resources for recruitment and training of new personnel.

### 3.4. Funding for HIV prevention

Another challenge in scaling up HIV prevention for PWID is related to the financing of HIV and drug abuse prevention and treatment services in Central Asia. Most Central Asian countries continue to depend on external support, largely from the GFATM. Kazakhstan is the only country in the region that has allocated funds in its healthcare budget to explicitly support NSP, ART and OST programs. Nevertheless, due to complicated bureaucratic procedures within the funding system, Kazakhstan's narcological dispensaries have not received money for OST since the budget allocation of 2010 (Boltaev et al., 2012).

**Table 2**  
Interventions for reducing HIV risk.

	Intervention	Challenge	Study	Country	Population	Outcomes
Structural	Drug decriminalization	Criminalized acquisition and storage of drugs	<a href="#">Greenwald (2009)</a>	Portugal	PWID	<ol style="list-style-type: none"> <li>17% decrease in incidence of HIV and AIDS cases among PWID</li> <li>27.5% decrease in drug related mortality</li> <li>147% increase in number of PWID receiving OST</li> </ol>
	Fostering partnerships between law enforcement and the public health sector.	Harassment of PWID by law enforcement	<a href="#">Midford et al. (2002)</a> <a href="#">Beletsky et al. (2013)</a>	Australia Kyrgyzstan	PWUD	<ol style="list-style-type: none"> <li>Improvements in police officers' attitude toward harm reduction programs</li> <li>Police started referring PWID to harm reduction services</li> </ol>
	Change of discriminatory policies	Legal discrimination	<a href="#">Greenwald (2009)</a>	Portugal	PWID	<ol style="list-style-type: none"> <li>17% decrease in incidence of HIV and AIDS cases among PWID</li> <li>27.5% decrease in drug related mortality</li> <li>147% increase in number of PWID receiving OST</li> </ol>
	Sensitization of decision makers, strengthening communities and empowerment of former inmates and spouses of inmates.	Stakeholders' misunderstanding or denial of HIV risks (drug use, unsafe sex) within penitentiary institutions and as a result lack of HIV prevention services	<a href="#">Stöver et al. (2006)</a> <a href="#">Sylla et al. (2010)</a>	European Union United States	Prison inmates who use drugs Prison inmates	<ol style="list-style-type: none"> <li>Increased number of prisons offering OST</li> <li>Decreased drug use among prison inmates</li> <li>Reduction of risky sexual practices</li> </ol>
Health care related	Development and support of medium to high coverage integrated HIV prevention, treatment and care programs (ART, OST, NSP) The continuum of response (CoR) for PWID.	Lack of or poor coordination and integration of services	<a href="#">Degenhardt et al. (2010)</a> <a href="#">Kresina et al. (2012)</a>	Mathematical modeling	PWID	<ol style="list-style-type: none"> <li>Substantial reductions in HIV incidence among PWID</li> <li>Reductions in HIV prevalence among PWID</li> </ol>
	Empowerment of PWID and their representatives	Lack of or poor community engagement/drug user activism	<a href="#">Hayashi et al. (2010)</a> <a href="#">Small et al. (2012)</a>	Vancouver, Canada	PWID	<ol style="list-style-type: none"> <li>Increased coverage of hard-to-reach PWID</li> <li>Decreased risky drug injection behaviors.</li> </ol>
	Introduction of comprehensive quality assurance mechanisms, including capacity building for staff	Poor quality of health and social services	<a href="#">Hoffman et al. (2012)</a>	USA	PWUD	<ol style="list-style-type: none"> <li>Increased satisfaction of patients</li> <li>Increased patient/client engagement</li> <li>Increased rates retention in care</li> <li>Organizational improvement</li> </ol>
	Development of staff retention plans including increased wages and support for coping with stress	High attrition rates among health workers	<a href="#">Rasschaert et al. (2011)</a>	Malawi and Ethiopia	ART program workers	<ol style="list-style-type: none"> <li>Decreased rates of attrition of staff</li> <li>Increased workforce for ART scale-up</li> </ol>



Table 2 (Continued)

	Intervention	Challenge	Study	Country	Population	Outcomes
Social	Integration of anti-stigma lessons into pre- and post-diploma training of health and law enforcement workers.	Social Stigma and Discrimination	<a href="#">Livingston et al. (2012)</a>	International	Health and law enforcement workers	
	Ensuring availability of and access to gender-sensitive HIV services.	Gender inequalities	<a href="#">Yorick et al. (2012)</a>	Russia, Ukraine	Women who inject drugs (WWID)	<ol style="list-style-type: none"> <li>1. Increased attractiveness and utilization of HIV services by WWID</li> <li>2. Reduced rates of child abandonment by WWID</li> </ol>
	Subsidization or full reimbursement/free provision of services. Outreach	Poor utilization of health services due to their unaffordability	<a href="#">Zaller et al. (2010)</a>	USA	PWID	<ol style="list-style-type: none"> <li>1. Increased utilization of treatment, specifically OST</li> <li>Improved retention in care among patients receiving OST</li> <li>2. Reduction of criminal activity among patients enrolled in OST</li> </ol>

Key funding organizations, the UK's Department for International Development (DFID) and the World Bank, ceased their funding in 2011 after having funded such programs in the past, including Central Asia's NSPs and other low-threshold HIV prevention services targeting PWID. Aiming to fill the funding gap left by the closure of those programs, the United States channeled funds to Central Asia through the President's Emergency Plan for AIDS Relief (PEPFAR); however, a federal funding ban that was reinstated by the US Congress ([Strathdee, 2012](#)) restricted PEPFAR's initially planned funding ([PEPFAR, 2010](#)). Apart from creating harmful suspicions among Central Asian policymakers regarding the United States' NSP policy, the imposed funding restrictions made outreach projects supported by PEPFAR dependent on obtaining needles and syringes procured by the GFATM-funded projects in the region, leading to data overlaps by the two donors in monitoring and evaluation.

Ultimately, Central Asian countries remain dependent on external donor support for capacity development of their harm reduction workforce, and have no committed resources in their national healthcare budgets for such purposes.

### 3.5. Integration and coordination of HIV services

Service integration and linkages can significantly improve HIV care for target populations, particularly PWID. They can also reduce missed opportunities for key interventions such as HIV testing, ART, OST, adherence support, and STI and TB screening and treatment ([WHO, 2008](#)). In Central Asia, HIV services are poorly integrated, making it harder for PWID to move through a continuum of care, especially when they present with multiple medical problems. Often this leads PWID to drop out from HIV care before or soon after initiating ART, or even immediately after their initial HIV test ([ICAP, 2012a](#); [El-Bassel et al., 2013](#)). In most cases, such gaps continue to exist, largely due to vertical nature of the organization of the healthcare systems, though revising this is not a panacea; the horizontal structure of healthcare system recently implemented in Kyrgyzstan also fails to fully address this problem. In a recent report, ICAP drew attention to cases of OST patients remaining unaware of

NSP site availability in the same health care facility where OST was provided, while continuing occasional risky injection practices. This report explained this by pointing out the poor cooperation between these same-site services ([ICAP, 2012b](#)).

Despite the fact that 30–60% of registered HIV infections in the region of Central Asia are identified as among PWID, it is estimated that small fraction of HIV-positive PWID in Central Asia receive ART ([McNairy et al., in this issue](#)). Considering that less than 1% of PWID can access OST in Central Asia, the low ART-uptake rate is no surprise. Even in instances where PWID receive both OST and ART, these therapies are poorly integrated – clinicians prescribing OST might not be aware of concurrent ART taken by their patients. When clinicians are aware of a patient's ART status, narcologists often take no action to monitor ART adherence or adjust the patient's methadone dose due to lack of basic knowledge about ART ([ICAP, 2012b](#)). However, there are a few good examples of integration of services. In Tajikistan, a Dushanbe OST site has successfully integrated TB counseling and treatment into a spectrum of services available to PWID, resulting in better outcomes for both TB treatment and drug use treatment ([ICAP, 2013](#)). Another good example is related to the integration of HCT into outreach programs in Kyrgyzstan: the NGO "Pravo na Zhizn" implemented a project aimed to encourage PWID to seek HCT in Sokoolook rayon, a suburb of the Kyrgyz capital that was never considered a potential HIV hotspot. In a relatively short period of time, HCT initiated by outreach workers attracted large numbers of PWID, of whom 37% tested HIV positive, which put Sokoolook on the map as the second HIV epicenter in the country, after the capital city of Bishkek ([NGO "Pravo Na Zhizn", 2011](#)).

### 3.6. Community mobilization

Community mobilization is increasingly recognized as a key strategy of effective HIV prevention among the most-at-risk populations (MARPs), particularly PWID ([SAMHSA, 1997](#); [Ngaihte, 2007](#); [Schwartländer et al., 2011](#)). But with few exceptions, engagement of PWID in HIV-prevention programs in Kazakhstan and

Uzbekistan has remained limited to harnessing active and former PWID to deliver prevention messages and tools. In contrast, Tajikistan and (to a larger extent) Kyrgyzstan have mobilized PWID, along with other MARP members, to set up community-based NGOs. These individuals not only effectively implement a wide range of HIV prevention activities, but they also participate in the decision-making process on national and sub-national levels. The NGOs established by former and current OST patients in Pavlodar, Kazakhstan and Bishkek, Kyrgyzstan are actively engaged in service planning, implementation, quality assurance and evaluations. These are rare examples, however; otherwise the role of PWID communities in biomedical treatment services, such as ART and OST, remains limited. This often results in poorer adherence due to unaddressed psychological and social problems (ICAP, 2012a,b).

The limited space of this manuscript does not allow us to review a number of other structural and implementation issues that are important for an effective HIV response. Such causes include, but are not restricted to: gender inequalities, stigma and discrimination, service quality assurance, and HIV risks in penal institutions that are universal across settings where PWID exist. Key evidence-based interventions aimed to address these challenges are listed in Table 2.

#### 4. Conclusions

Evidence-based HIV intervention approaches used in Central Asian countries are steadily improving their responses to the HIV epidemic, and these approaches are increasingly accounting for spread by injection drug use. Although most of these efforts supported by international donors are focused on scaling-up the spectrum and availability of HIV prevention service sites, there is much more to achieve in terms of ensuring adequate coverage of most-at-risk populations with quality HIV interventions (Degenhardt et al., 2010; Hoffman et al., 2012). So far insufficient consideration has been given to underlying reasons for drug users' continued engagement in risky behaviors, as well as their low utilization levels of and poor adherence to available HIV services. In order to effectively decrease the epidemic, Central Asian governments must constantly monitor and properly address all existing, as well as any new and emerging, factors that facilitate HIV risk among PWID. New programming must increase PWID's chances of enrollment and adherence to HIV prevention, treatment and care. Particular emphasis should be paid to decriminalization of drug use (as well as its acquisition and storage for personal use) and to law enforcement's support of harm reduction interventions. Research suggests that such shifts in drug policy will facilitate increased healthcare utilization by PWID, decrease HIV risk, and will not increase drug use prevalence (Greenwald, 2009; Midford et al., 2002). Beletsky et al. (2013) in a remarkable study conducted in Kyrgyzstan found a strong correlation between local police officers' positive attitudes toward harm reduction and a special policy document accepted by the Ministry of Interior that instructs all police staff to support operation of such services.

Kazakhstan, Turkmenistan and Uzbekistan are lagging behind in their reform of their prison healthcare systems. Progress seems to require continuous efforts to sensitize of decision makers (Stöver et al., 2006; Sylla et al., 2010), strengthen communities, and empower former inmates; these will ensure access to basic HIV services within penitentiaries in these countries, as is happening in Kyrgyzstan and Tajikistan.

Effective responses to the concurrent HIV and drug use epidemics will require social transformations in order to eliminate or, at least, significantly reduce, stigma and discrimination of affected people. Although more research is needed to identify best

approaches for reducing stigma and discrimination, a recent review by Livingston et al. (2012) provides strong support for integration of anti-stigma topics into the training of health and law enforcement workers. Such initiatives are already underway through police training in Kyrgyzstan supported by AIDS Foundation East-West (Beletsky et al., 2013; Zelichenko, 2010) and capacity building for health care staff carried out by USAID's Quality Health Care Project (QHCP, 2010).

Women who inject drugs (WWID), especially those who also engage in sex work, remain the most vulnerable group for the spread of HIV. Reduction of HIV risk among WWID will require multilevel interventions (El-Bassel et al., 2012) responding to specific health, social, and other needs of this population (Yorick et al., 2012).

Kyrgyz and Tajik experiences confirm international research (Hayashi et al., 2010; Small et al., 2012) that indicates that empowerment of PWID and their representatives proved to be an effective approach in strengthening HIV service delivery, transformation of civic policies, and social values. Such efforts need to be embraced by other neighboring countries of the region, expanding policies and programs to motivate mobilization of PWID communities, along with other most-at-risk populations groups, for active HIV prevention among PWID sex partners and drug risk networks.

Greater coverage of a combination of services, including OST, ART, and NSP can reduce HIV incidence and sexual risk among PWID (Degenhardt et al., 2010; Kresina et al., 2012; IDU Reference Group, 2010). Central Asian countries need to recognize this, and to identify the best strategies to implement such multi-level interventions in local contexts. As most of the problem that drug users represent impacts a particularly impoverished part of population in Central Asia, it will be essential to ensure free or low-cost access to essential HIV services (IDU Reference Group, 2010; Zaller et al., 2010).

While international funding for HIV programs is gradually ceasing, the donor community should strengthen its advocacy with national governments in order to secure in-country funding for continuing the current programs without compromising their scale and quality. In light of inspiring developments highlighted in "treatment as prevention" (Cohen et al., 2011), a commitment of national resources to programs aimed at early detection and treatment of new HIV infections among PWID and their continued engagement in prevention programs represents the most effective public health investment.

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#### Contributors

A.B. and N.E. designed the study. A.B. wrote the first draft of the manuscript. All authors contributed their expert opinion regarding structural barriers to HIV prevention in Central Asia. A.D., A.T., L.G., T.H., S.S., and S.P. conducted literature searches and data extraction from previous related publications. A.D. conducted proofreading. S.S. and N.E. conducted edited the final paper. All authors contributed to and have approved the final manuscript.

#### Conflict of interests

The authors declare no conflict of interests.

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