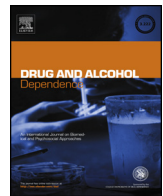




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Review

A review of medical and substance use co-morbidities in Central Asian prisons: Implications for HIV prevention and treatment

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ABSTRACT

Background: HIV incidence in Central Asia is rising rapidly. People who inject drugs (PWIDs) contribute greatest to the epidemic, with more than a quarter of all HIV cases being in the criminal justice system (CJS). This review assembled and aggregated recent data on drug-related health problems and respective healthcare services in the CJS of Central Asia and the Republic of Azerbaijan.

Methods: Online databases and published literature (peer-reviewed and gray) were reviewed. Additionally, prison officials in the 6 countries were invited to participate in a survey and prison administrators from Kazakhstan, Kyrgyzstan and Tajikistan completed it.

Results: The data on conditions and healthcare in Central Asian prisons are inconsistent and lack unbiased details. Reporting is primarily based on “official” disease registries, which markedly underestimate prevalence. Even these limited data, however, indicate that HIV prevalence and drug-related health problems are high, concentrated and, in some countries, rising rapidly in CJS. Only some of the range of HIV prevention interventions recommended by international organizations have been implemented in the region with two of the crucial interventions, needle and syringe exchange programs (NSP) and opioid substitution therapy (OST), only available in prisons in Kyrgyzstan, with Tajikistan implementing a pilot NSP and contemplating introduction of prison-based OST.

Conclusions: Despite deficiencies in routine health reporting and insufficient HIV sentinel surveillance undertaken in prisons, the data available on the concentration of HIV within at-risk populations in prisons indicate a necessity to broaden the range and increase the scale the scale of HIV prevention and treatment services.

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1. Introduction

Despite HIV transmission decreasing globally over the last decade, HIV incidence continues to increase in Central Asia (CA; [Joint United Nations Joint Programme on HIV/AIDS, 2009](#)). Of the estimated 3.1 million people who inject drugs (PWIDs) in Central and Eastern Europe and CA, one million are thought to be infected with HIV ([Mathers et al., 2008](#)) and approximately 70% of all HIV infections in CA are attributable to risky injection behavior ([Thorne et al., 2010](#)). In recent years, the number of PWIDs increased eight-fold in Uzbekistan and five-fold in Kyrgyzstan and Kazakhstan ([Ancker, 2007](#)) with opioids being the most commonly injected drug in the region ([Aceijas et al., 2004](#); [Beyrer et al., 2009](#)). Data are lacking from elsewhere in the region, but marked similarities exist throughout many countries of the Former Soviet Union (FSU).

Access to antiretroviral treatment (ART) for PWIDs remains low ([Bobrova et al., 2007](#)). While HIV treatment is complicated among PWIDs, who often experience considerable medical and psychiatric comorbidity ([Altice et al., 2010](#)), retention on treatment approaches parity with non-PWIDs for those receiving adequate access to opioid substitution therapy (OST) and integrated HIV treatment services ([Meyer et al., 2013](#); [Nguyen et al., 2013](#); [Rhodes and Sarang, 2012](#); [Sylla et al., 2007](#); [World Health Organization, 2008b](#)). Similarly, for those prescribed ART, adherence is increased when support services, OST and evidence-based interventions are used ([Binford et al., 2012](#); [Malta et al., 2010](#); [Thompson et al., 2012](#)). As in other parts of the world, PWIDs in CA often interact with the criminal justice system (CJS); more than 50% have been arrested at least once ([Jolley et al., 2012](#)) and make up a significant proportion of prisoners, contributing to over half of all new HIV infections in the region to over half of all new HIV infections in the region ([Central Asia Drug Action Program, 2013a,b,c](#)). Hence, it is essential to describe and understand the array of clinical and harm reduction services that are available to incarcerated persons with an emphasis on PWIDs, since nearly all prisoners transition back to the community without provision of effective evidence-based treatments, faring poorly post-release and contributing to ongoing HIV transmission ([Springer et al., 2011a,b](#)).

Tuberculosis (TB), especially where HIV is concentrated, is also a critically important issue in prison settings ([World Health Organization, 2009](#)). In all of the FSU countries, 10% of all prisoners have had active TB ([Godinho et al., 2005](#)). Recent advances in prison reform and expanded directly observed treatment (DOTS), has reduced both TB incidence and mortality ([Godinho et al., 2005](#)). Simultaneously, however, multi-drug resistant TB (MDR-TB) has increased in the region, accounting for 45.1% of all previously treated TB cases in Kazakhstan ([United Nations Office on Drugs and Crime, 2010](#); [Zignol et al., 2012](#)). Incarceration is highly correlated with development of MDR-TB ([World Health Organization, 2009](#)).

Despite the high concentration of HIV and drug use in the CJS globally, there is a dearth of objective and peer-reviewed scientific data describing the scope of substance use disorders (SUDs), infectious diseases, and harm reduction services provided in CA prisons. Therefore, we reviewed the array and adequacy of health services provided in CJS facilities of the Republic of Azerbaijan and the five

Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan), in accordance with the United Nations Office on Drugs and Crime (UNODC) comprehensive package of key interventions ([United Nations Office on Drugs and Crime, 2012](#)). This review was conducted to gather current available information on SUDs and health status of the CA prison populations, with the aim of addressing the gaps in order to direct future research and prevention and treatment services.

2. Methods

In most focus countries, access to existing data describing demographics, health services, risk-taking behaviors and other prisoner statistics is limited. There is little information available on the formal and informal operations of the penitentiary systems. Working within these constraints, we aimed: (1) to gather existing data on the health of prisoners and access to health services focusing on HIV and drug-related issues; and (2) to administer a supplemental survey to the medical departments of the national prison administrations in each country to obtain the most recent data and to fill existing information deficits (such as types of facilities and prisoner demographics, prevalence of infectious diseases, health services provided, release procedures and plans for providing future services).

To obtain published information on health services provided within the framework of the evaluative criteria, PubMed and Google Scholar were queried using the following search terms: “Central Asia”, “Kazakhstan”, “Azerbaijan”, “Turkmenistan”, “Kyrgyzstan”, “Tajikistan”, “Uzbekistan”, “prison”, “criminal justice”, “prisoner”, “detention”, “SIZO”, “correctional”, “HIV”, “AIDS”, “tuberculosis”, “mortality”, “health services”, “drug use”, “methadone”, “buprenorphine”, “substance use”, “opioid”, “heroin”. Additionally, data were collected from published country-level and routine national reports, as well as from reports by international organizations. Because of the dearth of recent data, we administered a supplemental survey to the directors of the medical departments on the types of facilities and prisoner demographics, prevalence of infectious diseases, the health services provided, and plans for provision of future services including transitional care programs. Only prison administrators from Kazakhstan, Kyrgyzstan and Tajikistan completed the survey. The survey was exempt from institutional review board (IRB) oversight after approval by IRBs at Yale University and Ukrainian Institute on Public Health Policy due to lack of risks associated with survey respondents who were government officials responding to official inquiry. Data discussed are from the survey administered as part of this study, unless otherwise indicated.

3. Results

3.1. Criminal Justice System organization

In all focus countries, CJS institutions are government-operated. Police oversight and arrest with detention in lock-up facilities is primarily overseen by the Ministry of Interior ([Fig. 1](#)). The prison system, which often includes pre-trial detention is primarily under the jurisdiction of the Ministry of Justice (Azerbaijan and Tajikistan); the Ministry of Interior oversees prisons in Kazakhstan (since 2011), Turkmenistan and Uzbekistan, while the CJS in Kyrgyzstan is an independent state organization ([UNODC, 2010](#)). Importantly, and to the detriment of prisoner health, prison medical services are not overseen by Ministries of Health.

The CJS in all focus countries, derived from the Soviet system, includes pre-trial detention centers (“SIZO”), similar to jails, where detainees remain for up to two years. Sentenced detainees transition to penal colonies (including the lower security ‘settlement’ colonies and colonies for juvenile offenders) or prisons with typical cell blocks. [Table 1](#) provides an overview of CJS facilities in each country, stratified by facilities for detainees (SIZO) and sentenced prisoners, based on our survey as well as published reports. Prisons with cell blocks and penal colonies with common barracks,

Table 1

Overview of the criminal justice systems and policies and practices related to HIV infection and harm reduction in prisons of Central Asian countries and the Republic of Azerbaijan^a.

	Azerbaijan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
SIZO (pre-trial detention centers)						
Facilities, N	3	19	6	6	6 ^a	11 ^b
Detainees, N	7250 ^c	7028	2081	~1500	~3920 ^b	4620 ^c
Year	(2010–2011)	(2013)	(2013)		(2010)	(2010)
Percent in SIZO ^e	12.6	13.2	20.9	15.0	12.4	11.5
NSP (Needle/Syringe Exchange Programs)	No ^c	No	Yes	No	No ^b	No ^c
Starting date			2010			
Facilities/people [*]			2/111			
OST (Opioid Substitution Therapy)	No ^c	No	Yes			
Starting date			2009	No	No ^b	No ^c
Facilities/people			2/100 ^g			
Methadone supervised withdrawal	No	No	No	No	No	No
Non-pharmacological detoxification	NA ^d	Yes	Yes	–	No ^b	Yes ^c
Starting date			2001			
Facilities/people			5/12			
Other methods of drug treatment	Yes ^c	Yes	Yes (social rehabilitation)	No	No ^b	No ^c
Starting date			2009			
Facilities/people			1/–			
Psychosocial interventions	NA	Yes	No	No	NA	NA
HIV testing & counseling	Yes ^c	Yes	Yes	Yes	Yes ^c (non-voluntary)	Yes ^c
Starting date		1997	2001	2004		
Facilities/people		19/17,102	6/5006	6/1500		
Male condom provision	No ^c	Yes	Yes	Yes	No ^c	No ^c
Starting date		2002	2010	2004		
Facilities/people		19/–	2/111	6/1500		
Targeted information on harm reduction	NA	Yes	Yes	Yes	NA	No ^c
Starting date		2002	2008	2004		
Facilities/people		19/–	2/111	6/1500		
ART (Antiretroviral Therapy)	Yes ^c	Yes	Yes	Yes	No ^c	Yes ^c
Starting date		2005	2005	2007		2008
Facilities/people		–	5/5	–/80		
TB diagnostics	Yes ^c	Yes	Yes	Yes	Yes ^c	Yes ^c
Starting date		–	2007	–		2008
Facilities/people		–	–/5979	6/1500		
TB treatment	Yes ^c	Yes	Yes	Yes	Yes ^c	Yes ^c
Starting date		–	1999	–	NA	2008
Facilities/people		–	6/41	6/17		
HCV diagnostics	NA	No	Yes	No	NA	No ^c
Starting date			2005			
Facilities/people			6/50			
Treatment of HCV	NA	No	No	No	NA	No ^c
PRISONS						
Facilities, N	20 ^c	76	25	14	14 ^b	42 ^c
For men	18	69	9	13	12	39
For women	1	6	1	1	1	1
For juveniles	1	1	1	1	1	2
Settlement-colonies	0	18	14	3	0	18
Prisoners, N	37,989 ^e	44,803	7961	~8500	8,100 ^b	42,000 ^d
Year	(2011)	(2013)	(2013)	(2013)	(2010)	(2011)
Percent women	1.7 ^e	7.7	4.0	~4.0	24.8 ^b	3.0 ^c
Year	(2011)	(2013)	(2013)	(2013)	(2010)	(2004)
Incarceration rate (Number of prisoners per 100,000 population) ^b	413 ^e	316 ^e	181 ^e	130 ^e	224 ^e	152 ^e
Year	(2011)			(2010)	(2006)	
Capacity/occupancy rate	25,953/146.4% ^f	71,900/71.8% ^e	17,724/55.5% ^e	11,950/61.5% ^e	12,882/85.0% ^e	56,300
Year	(2011)			(2010)	(2006)	/60% ^c
NSP (Needle/Syringe Exchange Programs)	No ^c	No	Yes	Yes	No ^b	No ^c
Starting date			2002	2010		
Facilities/people			10/1583	1/37		
OST (Opioid Substitution Therapy)	No ^c	No	Yes	No ^{c,h}	No ^b	No ^c
Starting date			2008			
Facilities/people			1/112 ^f			
Methadone supervised withdrawal	No	No	Yes	No ^c	No ^b	No ^c
Starting date			2012			
Facilities/people			1/24			
Non-pharmacological detoxification	NA	Yes	Yes	No	NA	Yes ^c
Starting date		–	1999			
Facilities/people		–	1/48			
Other methods of drug treatment	Yes ^c	Yes	Yes (social rehabilitation)	–	Yes ^b (forced labor)	No ^c
Starting date		–	2004		NA	
Facilities/people		–	8/–		2/NA	

Table 1 (Continued)

	Azerbaijan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Psychosocial interventions	NA	Yes	Yes	Yes	NA	NA
Starting date		–	2006	–		
Facilities/people		–	11/732	–		
HIV testing & counseling	Yes ^c	Yes	Yes	Yes	Yes ^c (non-voluntary)	Yes ^c
Starting date		1997	2001	2003		
Facilities/people		76/–	11/2897	14/5000		
Male condom provision	No ^c	Yes	Yes	Yes	No ^c	No ^c
Starting date		2002	2000	2003		
Facilities/people		–	10/1357	14/10,000		
Targeted info on harm reduction	Yes	Yes	Yes	Yes	Yes	No ^c
Starting date		2006	2003	2004	2006	
Facilities/people		–	10/–	14/4500		
ART (Antiretroviral Therapy)	Yes ^c	Yes	Yes	Yes	No ^c	Yes ^c 2008
Starting date	NA	2005	2005	2007		
Facilities/people	NA/78	76/–	10/68	14/80		
TB diagnostics (fluorography)	Yes ^c	Yes	Yes	Yes	Yes ^c	Yes ^c 2004
Starting date		1998	–	–		
Facilities/people		–	11/775	14/1500		
TB treatment	Yes ^c	Yes	Yes	Yes	Yes ^c	Yes ^c 2008
Starting date		–	–	–		
People		1736	188	134		
HCV diagnostics	NA	No	Yes	No	NA	No ^c
Starting date			2005			
Facilities/people			8/15			
Treatment of HCV	NA	No	No	No	NA	No ^c
Overdose prevention	NA	–	Yes	Yes	NA	NA
Starting date			2008	2004		
Facilities/people			1/406	–		
Overdose management	NA	Yes	Yes	–	NA	NA
Starting date		–	2004			
Facilities/people		–	1/5			

Legend: NSP = needle/syringe exchange programs; OST = opioid substitution therapy; ART = antiretroviral therapy; TB = tuberculosis.

^a All values are from survey administered for this study and refer to 2012, unless otherwise specified.

^b Turkmenistan's Penitentiary Facilities, Turkmenistan's Independent Lawyer's Association, Turkmen Initiative for Human Rights, February 2010.

^c Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and policy analysis and recommendations for reform. United Nations Office on Drugs and Crime, Regional Office for Central Asia, 2010.

^d A cell is left blank if the information was not filled out in the survey. Otherwise, it is noted "NA" if the data is generally unavailable.

^e International Center for Prison Studies, School of Law, King's College, University of London, UK: (<http://www.prisonstudies.org/info/worldbrief>), accessed May 2013.

^f Azerbaijan Fact Sheet, United Nations Office on Drugs and Crime, Regional Office for Central Asia, 2011.

^g The values are for the second half of 2012.

^h In 2012, the Ministry of Justice approved a plan for introducing a pilot OST program into the penitentiary system of Tajikistan.

dedicated to housing sentenced prisoners, are generally divided into minimum, medium, and maximum security facilities. “Prison” will be used as the umbrella term to include all facilities for sentenced prisoners herein. Prisoners with HIV are housed in the same facilities as the rest of the prison population, while those with TB are isolated in specialized medical wards, or dedicated TB colonies.

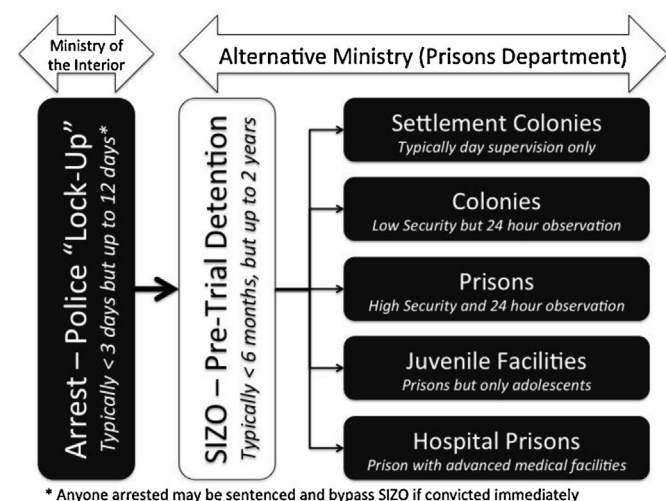


Fig. 1. An overview of the criminal justice system in the countries of Central Asia and Azerbaijan.

3.2. Health characteristics of prisoners

The health characteristics reported by prison officials relate only to those individuals whose diagnoses are officially “registered” by the government and do not typically include sentinel surveillance data. Official “registration” for health conditions requires medical certification and is typically thought under-reported. Table 2 highlights the prevalence of infectious diseases among prisoners in the focus countries. Compared to the general population in the region, the prevalence of “registered” drug dependent individuals is relatively high in prisons: 5% in Kyrgyzstan, 4.7% in Tajikistan and 7.4% in Kazakhstan, with half of the registered drug-dependent prisoners in Kazakhstan registered as opioid dependent. No data, however, was reported for those with alcohol use disorders, which are associated with increased HIV risk behaviors, transmission, delayed HIV diagnosis retention in care, and reduced ART adherence (Azar et al., 2011). Scarce data are available for HCV prevalence in prisons, HCV testing is only available in Kyrgyzstan and covers a small proportion of the incarcerated population, with treatment being unavailable.

Official prison data, disappointingly, are widely divergent from sentinel surveillance studies conducted from 2008 to 2012, which reveal a much higher prevalence of HIV (i.e., 7.8% in Tajikistan in 2008, 2.2% in Kazakhstan in 2012, 13.7% in Kyrgyzstan in 2010), HCV (18–57%) and sexually transmitted infections (STIs) (on average, around 8% for syphilis) are reported for prisoners (data from respective countries’ sentinel surveillance reports, available [in

Table 2Health characteristics of sentenced prisoners in Central Asia and the Republic of Azerbaijan^a.

	Azerbaijan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
HIV prevalence						
Community (Year)	0.10% ^b	0.20% ^b	0.40% ^b	0.30% ^b	<0.20% ^b	0.10% ^d (2009) 520 ^d (4.7%)
Prison	(2011)	(2011)	(2011)	(2011)	(2003)	
(% of prison population, year)	751 ^c	1526 (2.2%, 2012)	358 (4.5%, 2013)	~205 (2.4%, 2013)	0 ^c	
	(20%, 2009)					
HIV fold increase in prisons	200.0	17.0	11.3	8.0	NA ^e	47.0
Prisoners on ART, N (Year)	85 ^d (2011)	278 (2013)	78 (2013)	70 (2013)	NA	NA
TB prevalence (% of prison population, year)	521 ^d (3.2%, 2010)	1736 (3.9%, 2013)	359 (4.5%, 2013)	34 (0.04%, 2013)	NA	4.7% ^d (2007)
Registered drug users (Year)	2,576 ^c (2009)	3295 (2013)	–	405	2999 received treatment ^d (2006)	3,352 ^f (2004)
Opioid users (Year)	NA	1655 (2013)	–	–	NA	NA
New OST patients in prisons	NA	NA	102	NA	NA	NA

Legend: ART = antiretroviral therapy; OST = opioid substitution therapy; TB = tuberculosis.

^a All values are from survey administered for this study and refer to 2012, unless otherwise specified.^b AIDSinfo Country Factsheets: UNAIDS.^c Fact Sheet Azerbaijan (UNODC Regional Office for Central Asia, 2011).^d Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and policy analysis and recommendations for reform. United Nations Office on Drugs and Crime, Regional Office for Central Asia, 2010.^e A cell is left blank if the information was not filled out in the survey. Otherwise, it is noted "NA" if the data is generally unavailable.^f Kerimi, N., 2011. Drug use and HIV in closed settings in Central Asia: situation, opportunities and challenges. Regional workshop "HIV Prevention, Care and Treatment for People who Inject Drugs", Kyiv, Ukraine.

Russian] from the national AIDS Centers upon request; CARISA, 2007; Kazakhstan AIDS Center, 2013; Kerimi, 2011; Natsional'nyi koordinatsionyi komitet po profilaktiki i bor'be s VIH/SPID tuberkulezom i malariie v Respublike Tadzhikistan, 2008).

3.3. Prison health services

3.3.1. Drug treatment. Treatment for opioid dependence varies markedly between countries. While limited community OST sites exist in Kyrgyzstan, Kazakhstan, and Tajikistan, only Kyrgyzstan provides OST to prisoners. All Kyrgyz prisoners who are officially registered as opioid dependent are eligible to initiate methadone in a single prison facility, which is designated as an official OST site. Other focus countries employ non-evidence-based drug treatments, including non-structured group counseling, occupational training, and administration of vitamins and analgesics. Kyrgyzstan first introduced prison-based needle and syringe exchange programs (NSP) in 2002 (Canadian HIV/AIDS Legal Network, 2006) which are now run in ten prisons and two SIZO facilities. NSPs serve multiple harm reduction purposes, including access to clean needles and syringes, provision of condoms, and targeted information on harm reduction and overdose prevention. Tajikistan started a NSP in one male prison in 2010.

3.3.2. HIV, HCV and TB diagnostics and treatment. HIV education and voluntary testing is available to prisoners in all focus countries except Turkmenistan. ART is "officially" provided in all focus prisons except Turkmenistan, where, officially, only two HIV cases among non-prisoners have been reported (United Nations Office on Drugs and Crime, 2010). According to our survey, ART is prescribed only to 11–34% of registered HIV-infected prisoners in Kazakhstan, Kyrgyzstan and Tajikistan. HCV diagnostics became available in Kyrgyzstan in 2005 but only 15 people were tested in 2012 and no treatment was provided. Incarceration is a known risk factor for TB incidence, especially among HIV-infected prisoners (Margolis et al., 2013; Stuckler et al., 2008). TB diagnostics are available in all focus countries. Azerbaijan, Kyrgyzstan and Tajikistan report providing onsite fluorography, sputum examination, and sputum culture. Azerbaijan, with assistance from the International Committee of the Red Cross, implemented a particularly successful TB screening program that achieved the highest TB cure rates in the region (World Health Organization, 2013).

3.3.3. Community re-entry services. The focus countries provide a range of community re-entry services. All three responding prison departments link prisoners to AIDS centers, non-government organizations (NGOs), and TB clinics and help them reconnect with family. Evidence of successful transition, however, is not available. Kyrgyzstan initiates limited prison-based OST and prisoners prescribed OST are linked directly to community-based methadone programs upon release. Based on our survey, when ranking the types of prison health services from most to least important, Kyrgyzstan's prison department chose "provide clean needles and/or syringes for prisoners" as the most important task while Kazakhstan chose starting eligible HIV-infected prisoners on ART. Routine HIV testing, an evidence-based practice, was listed as least important in Kyrgyzstan. In Tajikistan, all tasks except for providing OST to all prisoners were ranked as important. These opinions, however, reflect knowledge and beliefs of the surveyed officials and not necessarily official government positions.

3.3.4. Other health issues. According to our survey, educational workshops, HIV peer education, psychosocial interventions (including psychological counseling and legal help) and drug-related risk reduction are also available in the region. Condoms are provided to prisoners in Kyrgyzstan, Tajikistan, and Kazakhstan by NGOs. Azerbaijan and Kazakhstan have both voluntary and compulsory drug treatment programs that only provide counseling and detoxification, while Turkmenistan, Tajikistan and Uzbekistan only have compulsory detoxification programs. Typically these detoxification programs include infusions with analgesics, tranquilizers, and vitamins for opioid dependent prisoners. People living with HIV/AIDS (PLWHA) are not considered eligible for transfers to less restrictive facilities, even if it would facilitate transitional care or medically necessary treatment. Theoretically, PLWHA with advanced illness are eligible for early compassionate release in all six countries, but this rarely happens (United Nations Office on Drugs and Crime, 2010).

NGOs are allowed access to prisoners in all focus countries, excluding Uzbekistan and Turkmenistan, but their role is usually limited to providing health education and distributing minimal personal care items (e.g., toiletries). In most of the focus countries, the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) provides funding, mainly for harm reduction programs and TB

prevention and treatment (United Nations Office on Drugs and Crime, 2010).

4. Discussion

HIV prevalence data from CA show continued increases over the last decade (Thorne et al., 2010). Given the well-established link between PWIDs, HIV, and HCV infections (Altice et al., 2010), these two infectious diseases are, not surprisingly, concentrated within the CJS. In addition, confined space in prisons adds to the risk for TB outbreaks, especially where HIV is concentrated (Aerts et al., 2006). Prison-based healthcare information in this region remains limited and our survey provides additional insights. Non-biased surveillance that does not limit reporting to disease-based registries is necessary to define the extent of these public health problems and their consequences. Particularly, HCV diagnostics is restricted and treatment remains unavailable. While limited, the credibility of existing data is not verifiable, yet it documents concentration of medical and SUD comorbidities and underscores the importance of prisons as essential sites for unbiased surveillance and implementation of HIV risk reduction and treatment services. At a minimum, accurate statistics on the prevalence of SUDs and infectious diseases, both of which are amenable to evidence-based treatments, are the primary prerequisites for designing appropriate public health interventions to address these issues.

Despite the dearth of information, all available data confirm the concentration of the syndemic of HIV, TB, and SUDs within the CJS and underscore the need to introduce evidence-based strategies to address all three epidemics simultaneously, preferably using integrated approaches (World Health Organization, 2008a). Compartment modeling data from Ukraine where the epidemic is similar suggests that OST is the single most cost-effective intervention to control an evolving epidemic and additional ART expansion for PLWHA would be the most effective, but at an increased cost (Alistar et al., 2011). Since the HIV epidemic in these countries is concentrated primarily among PWIDs who often interface with the CJS, there is an urgent need to divert PWIDs to community-based treatment and to initiate and scale-up existing prison-based OST programs and ensure post-release continuity (Wickersham et al., 2013b). Additionally, HIV-infected prisoners face an inordinate number of community re-entry challenges after prison-release (Morozova et al., 2013; Springer et al., 2011a,b), so interventions facilitating post-release continuity community care are indispensable. Data from other countries confirm that HIV-infected prisoners prescribed OST who continue treatment after release have better health outcomes (Springer et al., 2010; Springer et al., 2012), especially when doses (e.g., methadone dose >80 mg/day) are therapeutic (Wickersham et al., 2013a; Wickersham et al., 2013b). Low doses and mandatory tapering, however, result in potential relapse and overdose and death post-release (Kinlock et al., 2009).

All focus countries are struggling to meet international standards, and provide increased openness and accuracy with information reporting. Despite some improvements in accessibility of HIV-related and general health services information over the past decade, inadequate access to essential prevention and effective interventions (especially NSP, OST, and ART) in most CA prisons leaves inmates with minimal realistic options for addressing drug use and preventing transmission of HIV and other blood-borne infections.

5. Recommendations

Introduce non-biased data collection, reporting, and comprehensive analysis of the health status of detainees and prisoners in order to guide public health treatment and prevention practices.

Systematically screen for and treat medical, SUDs, and psychiatric co-morbidities within the CJS and to provide internationally accepted evidence-based treatment and prevention.

Plan and conduct evaluations of the efficacy and effectiveness of the implemented prevention and treatment programs within the CJS according to international standards and adapted to the local context to ensure the further improvement of health and safety in prisons.

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Contributors

PV: researched literature, analyzed data, wrote paper; LA: designed survey, researched literature, analyzed data, wrote paper; MP: analyzed data, edited paper; NK: edited paper, designed survey, analyzed data, key role in administering surveys; MM: edited paper, key role in administering surveys; SD: contributed in planning study, edited paper; FLA: conceived and planned study, analyzed data, designed survey, edited paper, principal investigator. All authors read and approved the final text.

Conflict of interest

None

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