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Short communication

HIV and HCV among people who inject drugs in Central Asia

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ABSTRACT

Background: Over the last decade, Central Asia has become a focal point of HIV and hepatitis C virus (HCV) transmission among people who inject drugs (PWID). PWID account for the majority of HIV infections in most countries in the region, while a large proportion have been exposed to HCV. Shared modes of transmission of these infections point to an increasing burden of HIV/HCV co-infection in this population. HIV/HCV co-infection is more likely to result in progressive liver disease, increased mortality and hepatic complications from antiretroviral therapy (ART). While the HIV treatment response has improved, less than a quarter of people living with HIV (PLHIV) in the region are receiving ART, with treatment uptake among PWID particularly low. HCV treatment is available in some areas, though at a very high cost to patients thereby preventing access to those at most need.
Conclusion: Robust surveillance of HIV/HCV infection among PWID is needed to inform a comprehensive response to HIV and HCV prevention and treatment among PWID, including increasing coverage of opioid substitution therapy (OST) and needle and syringe programs (NSPs), improving access and uptake of ART, and lowering costs and other barriers to HCV treatment across the five republics. Optimising uptake of these initiatives by increasing prevention and treatment literacy among PWID and decreasing barriers to screening and testing will also be necessary to mitigate the increasing burden of HIV/HCV co-infection in the region.

1. Introduction

Over the last decade, Central Asia has become an epicentre of HIV and HCV transmission, leading to high rates of co-infection among people who inject drugs (PWID). While the incidence of HIV is decreasing globally, the number of new infections has risen dramatically in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan over the last decade (Thorne et al., 2010). Little data is available for Turkmenistan (WHO Euro, 2012). More than half of recently diagnosed HIV cases in the region are estimated to occur in PWID (UNAIDS, 2012a,b,c). The social contexts of injection drug use often intersect with sex work and incarceration, with up to 90% of PWID in the region estimated to have been imprisoned at some point in their lives. High rates of HIV transmission have also been observed among female sexual partners of PWID indicating the potential for spread beyond this population (El-Bassel et al., 2013). These five countries also have the highest rates of multidrug-resistant tuberculosis (MDR-TB) in the world (WHO, 2012a; Zignol et al., 2012), with PWID among those most vulnerable to infection (Getahun et al., 2012).

2. Epidemiology

Despite recent increases in the proportion of infections attributed to sexual transmission, HIV transmission across Central Asia remains driven by injecting drug use (UNAIDS, 2012a,b,c). As indicated in Table 1, PWID also account for a large proportion of all HIV cases across the region, with the actual number of cases believed to be much higher. For example in Kyrgyzstan, the estimated burden of HIV is believed to be over 3-fold higher than the 3887 registered cases in 2011 (UNAIDS, 2012b). Similarly, in Kazakhstan the actual number of PLHIV could be a third higher than the number of known HIV cases (UNAIDS, 2012a). In 2008, it was estimated that there were approximately 220,000 PWID in the Central Asian region, of which just over 26,000 were HIV positive, giving a regional HIV prevalence in this population of just under 12% (Mathers et al., 2008). Prevalence of hepatitis C virus (HCV) infection among PWID is also very high across the region. For example, prevalence among PWID in the Kyrgyz Republic is 20-fold higher than population prevalence. Data from studies of prisoners across the region indicate high HIV and HCV prevalence in this population,

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Table 1
HIV and HCV antibody prevalence among people who inject drugs in Central Asia.

	HIV + PWID as a proportion all HIV infection	Proportion of PWID who are HIV+	Proportion of PWID who are HCV+	Proportion of HIV + PWID coinfected with HCV
Kazakhstan	47%	3.8%	61–90%	85–89%
Kyrgyzstan	60%	15%	50–54%	ND
Tajikistan	53%	16%	61% (2004)	98% (2004)
Turkmenistan	ND	ND	ND	ND
Uzbekistan	44%	8.4%	29–62%	ND

Source: Beyrer et al. (2009), CDC (2011a,b), PEPFAR (2010), Ruzibakiev et al. (2001), Thorne et al. (2010), UNAIDS (2012a,b,c), Wolfe et al. (2008).
ND: no data.

a result of high rates of arrest and contact with the criminal justice system among PWID (Jolley et al., 2012). In Kyrgyzstan, where 26% of prisoners are estimated to be HIV positive, 38% have been exposed to HCV (Larney et al., 2013), while in Kazakhstan, 91% of HIV infected prisoners are HCV antibody positive and 40% of the general prison population have antibodies to HCV (PEPFAR, 2010; UNAIDS, 2012a).

HCV transmission is also driven mainly by the sharing of injecting equipment, though concomitant HIV co-infection may increase the likelihood of HCV sexual transmission (Danta et al., 2007; Terrault, 2005; Yaphe et al., 2012). While robust data on the magnitude and geography of HIV/HCV co-infection in the region are lacking, the higher background prevalence and increased risk of HCV relative to HIV transmission through sharing contaminated injecting equipment suggests that the majority of PWID infected with HIV will be co-infected with HCV. A 2004 sample of 491 injectors in Dushanbe, Tajikistan reported HCV prevalence of 61%, with 50 of 51 (98%) HIV positive PWID also testing HCV antibody positive, indicating near universal HIV/HCV co-infection (Beyrer et al., 2009). In Kazakhstan, the prevalence of HIV/HCV co-infection among PWID is 21%, while 89% of HIV infected PWID are estimated to be co-infected with HCV (El-Bassel et al., 2013). However, as indicated in Table 1, surveillance of HIV and, in particular, HCV among PWID in the region remains poor, limiting our understanding of the true nature of these epidemics.

3. Responses

3.1. Prevention

While there is consensus within the medical and scientific research community that needle and syringe programs (NSP) alone are effective in preventing the transmission of HIV among PWID (WHO, 2004), prevention or reduction of HCV transmission requires multi-component interventions combining high coverage NSP and opioid substitution therapy (OST) (Hagan et al., 2011; Pouget et al., 2011; WHO, 2012b; WHO et al., 2012). Evidence from The Netherlands indicates that full engagement with this combination of interventions led to a reduction in risk behaviour at a population level and a reduction in HCV transmission and incidence (Van Den Berg et al., 2007). Given shared modes of transmission, this same combination of interventions would also prevent parenteral transmission of HIV/HCV co-infection among PWID. However, OST coverage currently remains very low in areas with programs – such as Kazakhstan, where only 112 individuals were enrolled in OST in 2011 (UNAIDS, 2012a) – and non-existent elsewhere, including in Turkmenistan and Uzbekistan. Across the region, it has been estimated that less than 5% of PWID have access to OST (Mathers et al., 2010).

Recent reports indicate moderate intensity needle and syringe provision in three countries: Kyrgyzstan, Kazakhstan and Uzbekistan. In the Kyrgyz Republic, the average number of syringes received per PWID increased from 151 in 2010 to 220 in 2011, with 72% of PWID in 2011 reporting that they last injected with a sterile syringe (UNAIDS, 2012b). In the same year, the mean number of syringes distributed per injector was 154 in Kazakhstan, while in Uzbekistan, the mean was 173 (UNAIDS, 2012a,c). A modelling study examining the effectiveness of NSPs in Central Asia concluded that 20–31% of HIV infections and 22–30% of HCV infections in Tajikistan and 33–38% of HIV infections and 21–24% of HCV infections in Kazakhstan had been potentially avoided due to NSPs (Wilson et al., 2012). These data suggest that approximately a quarter of HIV/HCV co-infection cases could be averted by effective NSP, given the closely related epidemiology of these viruses. However, even in areas where NSP coverage has recently expanded there remains a need for improved coverage. For example in Kazakhstan and Tajikistan, there are currently less than two NSPs per 1000 PWID (UNAIDS et al., 2011) and it is estimated that across Central Asia only 36% of PWID have access to sterile needles and syringes (Mathers et al., 2010).

3.2. Treatment

The disease course and management of HIV/HCV co-infection is more complex than either HIV or HCV monoinfection. Compared with HCV monoinfection, individuals are less likely to clear HCV spontaneously in the context of HIV infection (Soriano et al., 2008). HCV-related liver disease and fibrosis is accelerated in co-infected patients (Kirk et al., 2013; Mohsen et al., 2003) and mortality is increased by 12% compared to HIV monoinfected counterparts (Branch et al., 2012; Chen et al., 2009). Mortality may even be higher in PWID (van der Helm et al., 2013), underscoring the importance of addressing HCV infection in co-infected PWID. Effective HIV treatment (combination antiretroviral therapy – cART), while crucial, is itself associated with hepatic side effects, particularly in the context of co-infection (Fuping et al., 2010). In addressing HCV in HIV/HCV co-infection, early HCV treatment or effective cART is needed to maintain adequate immune function (i.e., CD4 > 350 cells/mm^3) to maximise the likelihood of a sustained virological response, although recent work has demonstrated that SVR in HCV treatment can be achieved even the context of lower (<250 cells/mm^3) CD4 cell counts (Mira et al., 2009). Effective HCV treatment may also improve HIV disease status through immune mediated mechanisms resulting in a reduction of liver and non-liver related complications of HIV while on cART (Berenguer et al., 2012) and leading to improved outcomes even among those with cirrhosis (Mira et al., 2013), while also improving adherence to ART among PWID (Roux et al., 2012).

The HIV treatment response in Central Asia is heavily dependent on international donors, particularly the Global Fund to Fight AIDS, Tuberculosis and Malaria, with attendant sustainability implications. And while the region has seen recent improvements in access to HIV treatment, coverage remains inadequate with just 23% of PLHIV receiving ART and the proportion of PWID receiving treatment substantially lower, accounting for only 22% of all ART recipients, despite accounting for a large proportion of all HIV infections (Donoghoe, 2012; Mathers et al., 2010; UNAIDS et al., 2011). Poor OST coverage across the region also threatens to undermine