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Prisons: ignore them at our peril

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Abstract

Purpose of review—People with HIV and HCV are concentrated within criminal justice settings globally, primarily related to criminalization of drug use. This review examines updated prevention and treatment strategies for HIV and HCV within prison with a focus on people who inject drugs and the challenges associated with the provision of these services within prisons and other closed settings and transition to the community.

Recent findings—The prevalence of HIV and HCV are several-fold higher in the criminal justice system than within the broader community particularly in regions with high prevalence of injecting drug use, such as Asia, Eastern Europe and North America and where drug use is criminalized. Strategies to optimize management for these infections include routine screening linked to treatment within these settings and medication-assisted treatments for opioid dependence and access to syringe services programs. We build upon the 2016 WHO Consolidated Guidelines through the lens of the key populations of prisoners. Linkage to treatment postrelease, has been universally dismal, but is improved when linked to medication-assisted therapies like methadone, buprenorphine and overdose management. In many prisons, particularly in low-income and middle-income settings, provision of even basic healthcare including mental healthcare and basic HIV prevention tools remain suboptimal.

Summary—In order to address HIV and HCV prevention and treatment within criminal justice settings, substantial improvement in the delivery of basic healthcare is needed in many prisons worldwide together with effective screening, treatment and linkage of treatment and prevention services to medication-assisted therapies within prison and linkage to care after release.

Keywords

hepatitis C virus; HIV prevention; HIV risk; HIV treatment; incarceration; prisons

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Conflicts of interest

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INTRODUCTION

An estimated 10.7 million people (average daily census = 145/100 000 population) globally are incarcerated (i.e. prisoners) on any given day [1]. (In some jurisdictions, different terms are used to denote places of detention, which hold people who are awaiting trial, who have been convicted or who are subject to other conditions of security. Similarly, different words are being used for various groups of people who are detained. In this article, the term 'prison' has been used for all places of detention and the term 'prisoner' has been used to describe all who are held in such places, including adult and juvenile men and women detained in criminal justice and prison facilities during the investigation of a crime; while awaiting trial; after conviction and before sentencing; and after sentencing. Although the term does not formally cover persons detained for reasons relating to immigration or refugee status, those detained without charge, and those sentenced to compulsory drug detention centers as they exist in some countries, nonetheless most of the considerations in this paper apply to them as well.) In many prisons, particularly in low-income and middle-income countries (LMIC), overcrowding, poor nutrition and sanitation and limited access to basic healthcare are common, contributing to a high burden of communicable diseases including HIV, hepatitis C virus (HCV) and tuberculosis [2,3]. Individuals who experience incarceration are disproportionately affected in poor health before, during and after their incarceration. Having been incarcerated is associated with chronic health conditions like cardiovascular disease, hypertension and weight gain and poor mental health outcomes [4,5]. Numerous studies have also linked incarceration to increased mortality [5]. Although the majority of prisoners globally are men, the number of female prisoners in some countries is increasing faster than their male counterparts including an increasing proportion of women with HIV [6,7]. Women prisoners constitute an especially vulnerable group and require sex-specific healthcare needs that are seldom adequately met [6,8].

Criminalization of drug use, in many countries accounting for up to 50% of prisoners, concentrates people who inject drugs (PWID) with related substance use disorders. Although estimates vary considerably, prevalence of HIV (3-8%), HCV (15-1%) chronic hepatitis virus (4-8%) and tuberculosis (2-8%) among prisoners remain high and is several-fold higher than in the general population [9]. In regions with generalized epidemics, HIV prevalence among prisoners can be as high as 15.6% in east and southern Africa and 8.2% in west and central Africa [2]. In Ugandan prisons, HIV prevalence was high for prisoners (15%) and staff (12%), with PWID accounting for 2.9% of prisoners and 1.1% of staff [10]; Despite this excessive burden, the health needs of prisoners have received very little attention and funding from the global community. Yet periods of incarceration represent a time to screen, prevent, diagnose and effectively treat these conditions, including introduction of evidence-based prevention strategies for HIV and HCV, to overcome health disparities among at risk individuals, many of whom come from disadvantaged backgrounds and are challenging to reach in communities [11,12]. Given the particular vulnerability and over-representation of PWID within prisons, like in Asia, Eastern Europe and North America, this review summarizes recent developments and strategies in the prevention and treatment of HIV and HCV in prisons with a focus on PWID.

PREVENTION OF HIV AND HEPATITIS C VIRUS IN PRISON

Prisons represent a unique risk environment that not only concentrates individuals with excess disease burden [3], but also does so such that in the absence of adequate prevention and treatment resources, promoting diseases to deteriorate and amplify within prison, resulting in a higher burden of disease upon release to the community (Fig. 1) [3,13]. Recent incarceration among PWID is associated with an 81 and 62% increased likelihood of HIV and HCV, respectively [14]. Overcrowding, unsafe drug injection, high-risk sexual behavior, and tattooing/piercing amplify these infections and facilitate onward transmission of these infections within prison and to the community upon release [13]. In mathematical modelling analyses for Ukraine, in the absence of any new interventions, incarceration would contribute to 28–55% of all new HIV infections over the next 15 years among currently or previously incarcerated PWID. Scale-up of prevention like opioid agonist therapies and retention in treatment after release would be the most effective strategy to reduce new infections [3,12].

Although mostly denied by prison authorities, within-prison drug injection (WPDI) occurs worldwide. In a survey of French prisoners, 14.5% reported WPDI, with over 40% having shared injection paraphernalia. In Australia, although WPDI decreased during incarceration, syringe-sharing increased [15,16]. In Kyrgyzstan, Ukraine and Indonesia, WPDI was reported by 86, 57 and 56% of incarcerated PWID (only HIV-positive prisoners were surveyed in Ukraine and Indonesia), respectively [17–19]. Many prisoners in Kyrgyzstan reported their first injection within prison [17], whereas 78.6% involved needle-sharing with at least 10 prisoners in Indonesia [19]. Sex within prisons, often under-reported, occurs often in the absence of condoms and lubricants with few prisons providing them [2,20]. Despite condomless sex reported by 7% of Australian prisoners and 2–4% of prisoners in the United States reporting sexual victimization [13,21,22], coverage with condoms/lubricants in prisons remains unknown [23].

Transitions from prisons to communities is extraordinarily hazardous because of medical discontinuity and disruptions in social, sexual and injection networks. Most (85%) incarcerated PWID relapse to drug injection within 1 year postrelease and opioid-related overdose is increased three-fold to eight-fold within the first 2 weeks [24]. For prisoners with HIV, even in high-income settings, transition from incarceration is associated with poor linkage (21% within 2 weeks) [25■■■] and retention in care (42.5% over 3 years) [26], low viral suppression levels [25■■■], and high HIV-related mortality related to not being engaged in HIV care [27■■■]. Factors contributing to this especially dangerous postrelease period include relapse to drug use, increased risky sexual behaviors and sex in exchange for money or goods such as drugs [13,28]. Released prisoners also have high levels of homelessness [29], suboptimal financial and family support, and heightened sexual and injection risk behaviors [13].

HIV prevention efforts globally have resulted in decreased HIV incidence and mortality in most settings except where HIV epidemics are concentrated in PWID in countries that criminalize drugs [30].

The 2016 consolidated WHO guidelines for HIV prevention and treatment provide 19 health sector recommendations and 5 key enablers; we have incorporated new data and modified recommendations for prisoners (Table 1). Although the evidence supporting the effectiveness of syringe services programs (SSPs) and maintenance with opioid agonist therapies (OAT) like methadone or buprenorphine is unequivocal, global coverage of these programs remains low. A recent systematic review of harm reduction programs found that less than 1% of PWID globally have sufficient access to these critical HIV prevention services [31,32]. In 2018, only 10 countries provided SSPs and 54 countries provided OAT in prisons, with most being pilot programs with low coverage [33]. Data on availability of PEP is not available.

Preexposure prophylaxis (PrEP) is mostly absent in prisons despite data from the only PrEP study in PWID [33–36,37] that found higher adherence levels in prisoners relative to community PWID [38]. Despite PrEP's potential to decrease HIV transmission among prisoners engaging in risk during and after incarceration, no studies currently inform implementing PrEP in these settings.

TREATMENT OF HIV AND HEPATITIS C VIRUS IN PRISON

HIV treatment as prevention (TasP) effectively improves individual and public health and [39], including in prisons. Whenever patients take antiretroviral therapy (ART) and successfully suppress viral replication, they not only improve individual and public health [39,40], but also reduce mortality [41]. Consequently, U = U (Undetectable equals Untransmissible) campaign has been a key strategy to reduce stigma [42]. Few studies have carefully examined HIV transmission within prison, but large outbreaks of HIV, HCV and HBV have been documented [9,43].

Comprehensive screening for HIV and HCV within prisons linked to universal treatment has the potential to reduce HIV mortality and eliminate HCV within prisons. Unfortunately, despite high-disease burden, a substantial proportion of prisoners with HIV and HCV are unaware of being infected [12,44]. For example, the proportion of soon-to-be-released prisoners with HIV who were unaware of being positive was high in Ukraine (49.3%) [45], Kyrgyzstan (53.5%) [46] and Azerbaijan (26%) [47]. Low HIV detection stems in part from differing HIV testing recommendations. The United States Centers for Disease Control and Prevention (US CDC) recommends routine HIV testing without pretest counseling of all prisoners [48] with documented high detection rates and immediate ART upon prison entry [49–52]. Meanwhile, risk-based HIV testing is recommended by the European Centre for Disease Prevention and Control (ECDPC) despite risk often being under-reported based on stigma and discrimination. WHO recommends that people at high risk, including prisoners, retest for HIV at least annually and after an exposure incident whereas the ECDPC recommends provider-initiated HIV testing at entry and to high-risk groups like MSM and PWID, at regular intervals or after an exposure incident [12]. In the absence of more robust testing policies, Sustainable Development Goals targets are unlikely to be met.

Incarceration provides an ability to identify new patients and engage new or previously unengaged PWH into care. Though many successful models exist, many settings continue to

experience challenges in treatment delivery, including a critical shortage of healthcare providers, ART availability, treatment interruptions because of supply chain disruption or inter-prison transfers, food insecurity, continued injecting drug use and lack of privacy and confidentiality [53,54]. Beyond structural impediments, prisoners may be reluctant to take ART because of discrimination concerns with fear about safety and interpersonal violence [55] and perceived threats to privacy [56].

Successful HIV treatment outcomes within prisons have been demonstrated in high and LMIC settings [57], given the highly structured setting that can ensure consistent ART delivery of simple, well tolerated ART regimens and where alcohol and drug use are lower relative to the community [54,57–59]. For example, in Malaysia, implementing a comprehensive ART and tuberculosis (TB) program resulted in a decrease in all-cause and HIV-related mortality by 50 and 75.7%, respectively [60]. In Malawi, where HIV prevalence is 37% among 2500 prisoners and low ART coverage levels (35%), 81.4% of treated patients achieved viral suppression [54]. A recent systematic review of 11 studies reporting data from 1992 to 2011, however, showed lower levels (54.6%) of optimal ART adherence (95%) by prisoners [61], perhaps reflecting ART options with more side effects and more complex regimens.

Despite high levels of within-prison treatment outcomes, transition to the community poses the greatest challenge in HIV treatment for prisoners [25,26,27,62–65], especially for women [66]. Prior studies have shown that up to 80% of released prisoners with HIV fail to access ART medications [25] because of multiple individual, community, and organization-level barriers that complicate HIV care and treatment adherence postrelease. The abrupt transition from prison propels many prisoners with HIV to prioritize basic needs like housing, family reconciliation, and avoidance of substance use relapse over managing secondary needs like health insurance in order to continue HIV care, which is not eminently dangerous [67,68]. Evidence-based treatment of substance use disorders especially with medication-assisted treatments is seldom available, and in the absence of treatment, relapse is near-universal and undermine HIV care postrelease [25,62,67]. Unequivocal strategies that link relapse prevention using methadone [69,70], or buprenorphine [71,72] are recommended with newer emergent strategies using extended-release naltrexone that not only reduce opioid use in released prisoners [73], but also significantly improves HIV outcomes in released prisoners with HIV with alcohol [74] and opioid [75] dependence using placebo-controlled designs [76,77].

For those not engaged in HIV care before incarceration, community and structural barriers, such as the lack of a community healthcare provider, health insurance and support to navigate community re-entry and linkage to care can result in treatment interruptions and delays [25,62,63]. Such transitional programs should incorporate initiation and linkage to treatment for psychiatric and substance dependence as well as address social challenges like housing, employment and family integration [25,78]. Two prospective clinical trials have suggested that bridging case management with multilevel components after release is no more effective than prerelease discharge planning for PWH [79,80]. These studies, however, were limited by settings where the enabling resources needed to meet patient needs (e.g. housing, effective treatment for psychiatric or substance dependence) were insufficient.

In a large US study of 1350 PWH released from prisons where enabling resources were available, timely linkage to care was more likely when medical, psychiatric, and case management needs were identified and addressed before release. The delivery of tailored case management services including short-term provision of medications, especially targeting those with the most need, significantly improved outcomes [25[■]]. These studies show that transitional services may not be needed for all PWH, but should be channeled to those who need them most and incorporate strategies that overcome documented postrelease obstacles [63,80[■]].

Women prisoners living with HIV are especially vulnerable and face numerous challenges including sexual abuse and violence, lack of access to ante-natal care, prevention of mother-to-child-transmission of HIV. Postrelease stigmatization, victimization and abandonment by their families add to the burden on women prisoners [6]. A recent systematic review on the implication of incarceration on HIV outcomes and engagement in care for women with HIV did not reveal sex differences in HIV outcomes during periods of incarceration; however, postrelease outcomes showed that women fared poorly along the entire HIV continuum of care [7].

Hepatitis C virus treatment

Direct acting antiviral agents (DAA) have revolutionized HCV treatment through use of pangenotypic medications taken daily with minimal side effects and 95% efficacy and viral suppression (and cure) that can be achieved within 8–12 weeks. This is especially true with extraordinary concentrations of HCV within prison [81,82]. Studies in the pre-DAA era have shown HCV cure rates equivalent to or better than in the community [83]. Universal opt-out testing of inmates for HCV is highly cost-effective and reduces ongoing HCV transmission and the incidence of advanced liver disease [84]. Different models of care exist, which include self-administered and directly administered therapy, telemedicine, collaborative learning models like Project ECHO, and nurse-based care delivery models [85[■],86–88]. Micro-elimination strategies for HCV within the prison population creates creative opportunities to address international strategies to eliminate viral hepatitis by 2030 [89,90]. A micro-elimination project in an Australian prison showed HCV prevalence within prison decline from 12 to 1% in less than 2 years [91]. Such strategies may be more challenging elsewhere where HCV prevalence is higher and will require considerable political will and financial resources. In order to achieve micro-elimination goals in prisons, however, we must transition from voluntary or risk-based HCV testing to routine HCV testing, which has been piloted upon prison entry and implemented through a nurse-led model. Treatment was linked to supervised therapy combined with counselling on preventing re-infection and linkage to care after release. Given the short duration of treatment needed now, there were no restrictions on access to treatment, such as length of incarceration. During this 22-month observational study (2016–2017), ~90% of prisoners were tested, though treatment coverage and postrelease infection is unknown [92].

CONCLUSION

Recent advances in HIV and HCV testing and treatment now allow for potential gains in individual and public health in prisons. Given the concentration of people with HIV and HCV within prison and the structured environment that can potentially ensure universal treatment, such settings should be optimized for evidence-based screening and treatment. Such treatments within prisons must meet community standards of equivalence and adhere to human rights standards. Further, such benefits derived in prisons must be continued after release through effective transitional services that bring together an array of medical, social and substance dependence treatment. In addition to treatment, evidence-based HIV and HCV prevention must be incorporated into this process, including MAT for substance dependence and access to SSPs that incorporate overdose education and naloxone distribution. Each of these strategies as well as condoms and PEP have great potential to reduce primary and secondary infections, and PrEP may be an effective primary prevention strategy both within prison and postrelease.

Global goals of Universal Health Coverage and the Sustainable Development Goals commits to 'leave no one behind,' including prisoners. With more than 30 million people cycling through prisons globally each year, the provision of diagnosis yoked to evidence-based prevention and treatment services is not only a health right for prisoners but also addresses health disparities and public health needs. Despite multiple complex challenges in providing treatment and care during the continuum between prisons and communities, individual, community and structural factors must be addressed to strengthen healthcare systems, including better collaboration between criminal justice and public health systems. Ultimately the global aim should be to reduce the number of people unnecessarily incarcerated for nonviolent crimes. Decriminalization policies would be a major step towards this goal given that community treatment is more effective and cost-effective for treating most substance use disorders relative to incarceration [92], and if successfully implemented, would reduce HIV and HCV transmission, reduce crowding and related TB transmission and promote better health [3,14].

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KEY POINTS

- The prevalence of HIV and HCV are several-fold higher in the criminal justice system than within the broader community.
- Provision of low-cost prevention tools, such as condoms and lubrications and sterile injecting equipment remain suboptimal in the majority of countries globally.
- Antiretroviral and HCV treatment can be successfully initiated in prison; however, multiple challenges exist in the postrelease period and in ensuring linkage to care.
- Optimization of treatment and prevention services within prison and strengthening of linkages to community services are crucial in achieving the global goals of HIV and HCV elimination.
- To overcome barriers to success, prerelease and postrelease programs must address substance dependence treatment, psychosocial support and reintegration programs in addition to HIV and HCV treatment.

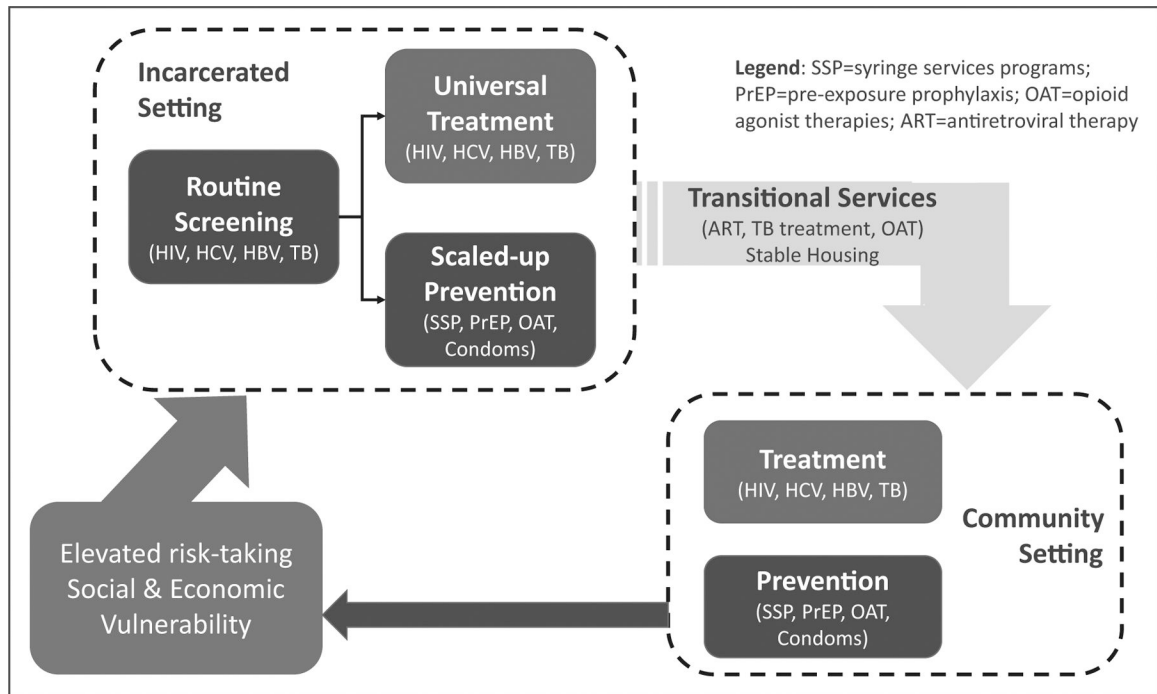


FIGURE 1. Opportunities for treatment and prevention in individuals interacting with criminal justice settings.

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Table 1.

Key interventions and services necessary for people who are incarcerated

HIV testing services	HIV testing should be made routinely available for all prisoners, combined with posttest counseling for those testing positive, and then linkage to recommended HIV prevention, care and treatment services (see below).
Treatment of HIV and related comorbidities	All prisoners with HIV should be treated with antiretroviral therapy, including pregnant women, irrespective of CD4 lymphocyte count, and monitored according to international guidelines. ^a
Antiretroviral therapy	All prisoners irrespective of HIV status should be screened for tuberculosis and provided preventive treatment for latent tuberculosis and treatment for active tuberculosis. ^a
Tuberculosis	All prisoners with HIV should be screened for viral hepatitis (HBV and HCV) and provided treatment.
Viral hepatitis	All prisoners with HIV should be screened for opportunistic infections as indicated by symptoms and risk based on CD4 testing. ^a
Other opportunistic infections	All prisoners with HIV should be screened for and treated for underlying psychiatric conditions because when not treated, they contribute to suboptimal HIV treatment outcomes like low antiretroviral therapy medication adherence. ^a
Mental health	Prisoners with HIV should be screened for sexually transmitted infections, and when present, they should be treated.
Sexually transmitted infections	Women with HIV should be screened for cervical cancer and when present, treated accordingly
Women prisoners with HIV	All women with HIV should have access to reproductive health services, including access to contraception (for conjugal visits) and pregnancy services, including abortion services.
Cervical cancer screening	All prisoners with opioid use disorder, irrespective of HIV status, should be offered treatment with opioid agonist therapies. Extended-release naltrexone can be considered to reduce overdose and improve HIV treatment outcomes in patients with alcohol and opioid use disorder. Naltrexone, either as oral or injectable formulations, should be considered for the treatment of alcohol use disorder. Brief interventions and evidence-based psychosocial counseling, including assessment, specific feedback and advice, should also be part of the treatment strategy. ^a
Reproductive health	All prisoners who inject drugs should have access to an adequate supply of sterile syringes and related injection paraphernalia. People who inject drugs and others in the prison setting who are likely to witness an opioid-related overdose should have access to naloxone and instructed in its use to emergently reverse opioid overdose. ^a
HIV prevention and harm reduction services	Condoms should be made easily available, along with compatible lubricants, to prisoners who have sex within the incarcerated setting.
Treatment for substance dependence	PEP should be made easily available to any prisoner who is potentially exposed to HIV.
Syringe services programs	PrEP should be made available to any prisoner without HIV at substantial risk for HIV. ^a
Condoms and lubricants	
Postexposure prophylaxis (PEP)	
Preexposure prophylaxis (PrEP)	
Transitional care services	Prisoners with or at substantial risk for HIV should be not only be provided treatment and prevention services within the incarcerated setting, but should establish an effective transitional plan to continue those services after release.
Transition to the community ^a	

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HBV, hepatitis B virus; HCV, hepatitis C virus.

^aShould reinforce the need and use of necessary evidence-based strategies to ensure continuity of care after release to the community.