Published in final edited form as:
*J Acquir Immune Defic Syndr*. 2010 December 1; 55(Suppl 1): S49–S55. doi:10.1097/QAI.0b013e3181f9c0f7.

# Opportunities to Diagnose, Treat, and Prevent HIV in the Criminal Justice System

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## Abstract

Persons involved with the criminal justice system are at risk for HIV and other transmissible diseases due to substance use and related risk behaviors. Incarceration provides a public health opportunity to test for HIV, viral hepatitis, and other sexually transmitted infections, provide treatment such as highly active antiretroviral therapy, and link infected persons to longitudinal comprehensive HIV care upon their release for such comorbidities as addiction and mental illness. Delivering health interventions inside prisons and jails can be challenging, yet the challenges pale in comparison to the benefits of interventions for inmates and their communities. This article reviews the current state of delivering HIV testing, prevention, treatment, and transition services to incarcerated populations in the United States. It concludes with summary recommendations for research and practice to improve the health of inmates and their communities.

### Keywords

addiction; buprenorphine; criminal justice; drug treatment; HIV/AIDS; HIV testing; HIV treatment; HIV prevention; HIV risk behaviors; jails; methadone; prisons; substance abuse

## Introduction

The prevalence of HIV is 5 times higher in state and federal correctional systems in the United Sates than in the general population, and the rate of confirmed AIDS cases in prisons is more than 2 and a half times greater than among nonincarcerated populations.[1,2] Incarcerated persons are among the most challenging to diagnose and treat for HIV, but they are also most likely to benefit from HIV prevention interventions given their high rates of substance dependence and related HIV risk behaviors.[3] Important opportunities for health interventions exist within correctional institutions despite the numerous logistical, political, and financial barriers they often face. This article reviews the delivery of HIV testing, prevention, treatment, and transition services to incarcerated populations in the United States today. It concludes with brief summary recommendations for improving the health of inmates, their families, and their communities.

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## Epidemic of Incarceration

The United States has the highest incarceration rate in the world, with more than 2.3 million people in prisons or jails, or about 750 inmates per 100,000 residents.[4,5] In 2008, more than 7.3 million people were involved with the criminal justice system, representing 3.2% of all US adults.[6] That year, more than 1.6 million individuals were in prison, and nearly 800,000 more were in jail awaiting trial or serving sentences of less than a year.[6] Since the 1980s, law enforcement efforts to control drug use have led to a 3-fold increase in drug-related arrests and a dramatic growth of the prison population, including a 239% increase in the 1990s alone.[7,8] Minority populations are vastly overrepresented in US correctional facilities, with black males seven times and Hispanic males more than 2 times as likely as white males to be incarcerated.[4,5] Blacks represented 38% and Hispanics represented 20% of all sentenced prisoners in 2008; however, they accounted for only 12% and 13%, respectively, of the US population. Female incarceration rates are also disproportionate, with rapid increases in the numbers of black and Hispanic women now behind bars.[4,5,9]

## Healthcare of Prisoners

In 1976, the US Supreme Court ruled in Estelle vs. Gamble that failing to provide prisoners with the same standard of healthcare available to those in the general population constitutes cruel and unusual punishment and is therefore unconstitutional (Estelle vs. Gamble, 429 U.S.C. 97, 105). Since the ruling, lawsuits and potential threats of litigation have improved medical care for prisoners, although the quality of care remains highly variable. Delivery of health services is challenging within jails, where the average weekly turnover rate in the US was 66.5% in 2008.[5] Given that many of those who cycle through jails and prisons have high rates of addiction, infectious diseases such as HIV, viral hepatitis, and other sexually transmitted infections (STIs), and mental illness,[10–16] correctional health programs are an increasingly important public health priority.

## HIV and Other Infectious Diseases Behind Bars

Of all people living with HIV in the United States, an estimated 14% or more than 150,000 passed through a correctional facility in 2006, and the proportion was closer to 20% for HIV-infected blacks and Hispanics.[17] By the end of 2006, 1.6% of male prisoners and 2.4% of female prisoners were HIV infected, which compares with a general HIV prevalence of 0.36% in the total US population that year.[18] A recent study of HIV in the New York City jailed population found that an estimated 5%–9% detainees were HIV infected, and approximately 25% were undiagnosed.[10] Other studies of HIV-infected inmates have found that being black or Hispanic, having a history of injection drug use (IDU), having an STI, being a male who has sex with other men, or having a psychiatric illness were all positive predictors of HIV infection.[19–21]

HIV-infected persons are also at risk for viral hepatitis, particularly hepatitis C and other STIs. Among inmates coinfected with HIV, the prevalence of hepatitis C ranges from 29% to 80%.[22,23] Prevalence rates in prisons and jails for syphilis (2.6%–4.3%), gonorrhea (1.0%), and Chlamydia (2.4%) are also higher than in the general population.[24,25] When New York City added STI screening to the medical evaluation of males within city jails, the number of Chlamydia cases increased 1636%, contributing to a 59% increase in the total number of cases citywide, with an additional 10-fold increase in the number of gonorrhea cases.[26]

## HIV Transmission Behind Bars

A common misperception is that HIV among prisoners is acquired in correctional facilities through high-risk sexual behaviors, risky needle use to inject drugs, or through tattooing.[27] A study of the Georgia Department of Correction prison system attributed 88 new HIV infections that occurred within the system from 1992 to 2005 to male–male sex and tattooing.[28,29] This and other studies show that HIV transmission within correctional facilities does occur,[30] but the actual numbers of such infections are dwarfed by transmission rates in the community. For example, approximately 25%–30% of all HIV infections among 446 incarcerated males were diagnosed by routine HIV testing at the Rhode Island Department of Corrections,[31,32] yet there were no incident infections observed there over 694 person-years.[33] However, transmission of viral hepatitis is more frequent within prisons and jails,[33] indicating the need to expand prison-based prevention programs for hepatitis C and other STIs. Prevention programs within correctional facilities include HIV testing and counseling and, more rarely, the distribution of condoms.[34,35] Although there may be concerns that condom provision condones sexual behaviors among inmates, a number of large correctional facilities have successful condom distribution programs, including facilities in Washington DC, Philadelphia, New York City, and Mississippi.[34]

## HIV Testing in Correctional Facilities

HIV testing policies vary in correctional facilities: it may be available upon request of the inmate, when prescribed by health care providers, when routinely offered upon entrance to/release from a facility, or when mandated by the court.[36] The Centers for Disease Control and Prevention has recommended routine opt-out HIV testing in jails and prisons as a component of the standard medical evaluation.[37] Despite this, routine HIV testing is not offered by most correctional facilities. The 2005 National Survey of Infectious Diseases in Correctional Facilities found that all state and federal correctional systems conduct HIV testing, but that only 7% do so routinely.[38]

Routine opt-out HIV testing has advantages over risk-based testing or testing upon request of the inmate or provider, and it can significantly increase the numbers of persons tested, diagnosed, and linked into care. Fear of discrimination, lack of confidentiality, or the coercive setting may inhibit inmates from testing if it is available only upon request or from disclosing behaviors such as IDU, male who has sex with other men, or high-risk heterosexual sex for risk-based testing.[19,21,31] In 1 facility that changed from testing upon the request of an inmate or physician to routine opt-out testing, the rate of testing increased from 18% to 78%, and 30% of the participating inmates reported never having been tested for HIV.[39] Another study of routine testing in five county jails reported that 1020 inmates were tested, 75 had new infections and 83 individuals were initiated on ART.[40]

Routine opt-out testing has unique ethical advantages that may help reduce health disparities among racial and ethnic minorities. Some public health professionals argue that, because individuals in the general community are not subject to mandatory testing, forcing such policies upon inmates is unethical.[22,41,42] However, others argue that mandatory testing can reduce disparities in access to and uptake of HIV testing among inmates.[43] A recent evaluation of HIV testing in the North Carolina prison system found that black inmates were 30% less likely than their white counterparts to be tested for HIV.[44] This disparity can be reduced with routine opt-out HIV testing, which preserves patient autonomy and confidentiality although also enhancing case identification, education, and linkage to HIV treatment and longitudinal care, as described in the Centers for Disease Control and Prevention's 2009 guidance on HIV testing within correctional facilities.[36]

HIV testing in jail facilities is limited, primarily by the transiency and turnover of the detainee population.[45,46] In 2005, no city or county jail systems reported conducting mandatory or routine HIV testing and 15% reported not providing any HIV testing services.[38] Another study found that only 25% of North Carolina county jails tested more than 1 inmate for HIV per month, and that 66% of the surveyed facilities reported no HIV testing in a typical month.[47] A study of STIs, HIV, and hepatitis services in Illinois county jails found that, of 80 (89%) facilities surveyed, 46% did not provide HIV testing services, and only 4 offered routine HIV testing.[48]

The advent of rapid testing assays created new opportunities for HIV testing within jails. These tests produce final negative and preliminary positive results in about 20 minutes and most are highly sensitive and specific.[49] A study that implemented voluntary rapid HIV testing in the jails of four states found that 99.9% of 33,211 individuals tested received their test results; 35% had never been tested for HIV, and 269 (0.8%) were newly diagnosed.[50] A pilot study of jail-based rapid testing in Rhode Island was able to deliver test results and prevention counseling to 100% of the participants.[51] A prospective controlled trial of routine opt-out testing in jails found that 44% of men accepted rapid HIV testing and that it was more commonly accepted if offered early in the incarceration: inmates offered testing immediately or within 24 hours, of incarceration were, respectively, 2.6 and 2.3 times more likely to accept testing compared to inmates offered testing 7 days postentry.[52] A parallel study among jailed women found that 59% of women accepted testing, with highest acceptance by the early group (73%).[53] The cumulative results of these studies show that routine opt-out testing in jails is feasible that more inmates agree to it when it is offered within 24 hours, and that jail facilities prefer to offer testing within 24 hours of incarceration because of their high turnover rates.[52,53] A retrospective review provides added support for routine HIV testing within 24 hours of incarceration, finding that 49 (29%) of 169 persons newly diagnosed with HIV were released within 48 hours of entering Rhode Island jail facilities.[31]

## HIV Care of Prisoners

Correctional settings can facilitate access to and delivery of effective HIV treatment to patients because they are relieved from the financial burden of medical care and are directly accessible by health care professionals.[43] For example, a 1998 survey of Texas correctional facilities found that access to highly active antiretroviral therapy (HAART) was more equitable among prisoners compared with the general population.[54] A 2005 national survey of correctional facilities found that 59% of city and county systems and 71% of state and federal systems had provided HAART to inmates with CD4 counts of 300 or higher.[38] Still later, in 2007, an estimated 33% of prisoners with HIV were estimated to be receiving HAART in the United States.[55] The beneficial effects of HAART on the incidence of opportunistic infections and AIDS-related mortality have also been replicated in correctional settings.[56] And in Connecticut, 59% of HIV-infected prisoners receiving HAART had achieved undetectable HIV viral loads before the time of their release.[57]

Despite these achievements, barriers to treating HIV in the correctional setting remain. The annual estimated cost of HAART, about $10,500 per patient, can be a major obstacle.[58] Eighty-one percent of state and federal correctional facilities that provide HIV care must pay for it from their own budgets,[38] although this is partially offset by reductions in treatment costs for HIV-related complications associated with untreated HIV.[55] Directly observed antiretroviral therapy is beneficial in some settings, but there are mixed results for adherence in correctional settings due to a lack of confidentiality and concerns over stigma.[47,59–64] The 2005 survey of correctional facilities found that 33% of state and federal facilities and 68% of city and county facilities used “pill lines” that required inmates to retrieve their

medications from a central location where there was little if any confidentiality. Eighteen percent of state and federal facilities and 6% of city and county facilities in 2007 were found to have medication “keep on person” policies,[55] which may help ease concerns over confidentiality and stigma and increase the acceptability of treatment.[62] A study of correctional staff and service providers found that stigmatization and misunderstanding about HIV were significant barriers to the delivery of HIV-related services.[60] In-prison service providers reported difficulties in maintaining the confidentiality of inmates' HIV status and poor internal coordination between service providers. Staff members reported not knowing about the HIV-related services provided within the institution, and those responsible for postrelease planning reported not having information about inmates' HIV status or the HIV-related services available in the community.[60]

## Linkage to Care After Release from Incarceration

Maintaining viral suppression among prisoners on HAART is even more challenging after their release because many have limited or no access to health services in the community.[65,66] Research has shown that inmates receiving HAART had better virological outcomes if they remained incarcerated compared with those released and reincarcerated, underscoring the risks for treatment interruptions associated with transitions between corrections and the community.[65,67] A study of released prisoners in Texas found that only 5% filled antiretroviral prescriptions in time to avoid an interruption in therapy, and only 30% had filled prescriptions 60 days after release.[54] Interruptions in treatment and care are associated with HIV risk behaviors. A survey of individuals released and reincarcerated in San Francisco jails found that failure to access care and adhere to treatment were strongly correlated with relapses to IDU.[68] These cumulative findings underscore the importance of linking individuals to community-based HIV care and other health and social services upon their release to ease major stressors that can lead to relapse to drug use, other risk behaviors, HAART disruptions, and rebounds in viral load.

Case-management interventions can improve linkage to community care for HIV-infected inmates[69,70]; collaborations between community-based organizations and correctional facilities to integrate and facilitate service provision for released inmates have proven particularly effective.[71] Project Bridge in Rhode Island, for example, employs colocated medical and social work staff to support linkages to HIV care for people released from prison. In its first 3 years, 90% of enrolled offenders were successfully followed for 18 months after release, 75% of those in need of medical care received specialty care from community providers, 100% received HIV-related medical services, and among those who requested substance use treatment, 67% kept their appointments at community drug treatment programs.[72] Another study adapted an evidence-based intervention that targeted drug use, risky sex, and medication adherence to create a linkage to care program for prisoners released to the community.[73] And a multicenter Special Project of National Significance, “Enhancing Linkages to HIV Primary Care in Jail Settings,” is currently evaluating integrated case management models of linkage that are specific for jail facilities.[74]

The Health Resources and Services Administration implements the Ryan White C.A.R.E. Act, which funds most of the community care for HIV-infected persons involved in the criminal justice system. Health Resources and Services Administration has recently mandated these programs to report client level data by unique identifier, which will improve the evaluation of HIV-related services for persons who have been incarcerated, including community care and HAART initiation or maintenance. Correctional systems that link HIV-infected inmates to community care for HIV, including access and maintenance on HAART,

can serve as models of best practices, which can be disseminated and adapted by other communities and correctional systems.

## HIV Prevention

Community reentry is a time of multiple stressors with heightened risks of relapse to substance use and sexual risk behaviors.[3,15,75–83] Many studies have attempted to address this problem through effective case management-based primary prevention programs. An example is the Maryland Prevention Case Management model, now implemented in more than 12 jails throughout the state to provide client-centered HIV risk reduction, substance use education and counseling, and case management services to inmates within 6 months of release.[84] Another is Project START, a multi-session sexual risk reduction intervention with a community reentry component that reduced significantly more high-risk sexual behaviors among young men released from prison compared with men receiving a prerelease, single-session intervention.[85] Reductions in sexual risk were also found among participants in the "Get Connected" HIV prevention case management program, which linked individuals recently released from 3 California state prisons to client-centered needs assessment and care, referrals to community resources, and HIV risk reduction education and counseling.[86] Peer-based prevention interventions have also been utilized for HIV prevention education in correctional settings;[87–89] a peer-led intervention found increased willingness to be HIV tested and higher rates of testing among participants in the subsequent year.[90]

Methadone maintenance treatment for opioid dependence has been shown to reduce HIV risk behaviors, particularly drug use, drug injection, and sharing of injection equipment,[91–94] and extended Methadone maintenance treatment is strongly associated with decreases in HIV incidence.[95–97] Studies of substance dependence treatment for correctional populations in the cities of Baltimore, New York, and Providence found significant benefits in linking prisoners to methadone and to buprenorphine/naloxone upon release.[98–104] However, during incarceration, only 14% of state correctional facilities provide buprenorphine and an estimated 55% provide methadone to inmates; upon release, 30% of facilities provide referrals for buprenorphine treatment to inmates although 45% do so for methadone treatment. Fewer than 2000 inmates nationwide (<1%) undergo treatment during incarceration and most are in the process of detoxification or are pregnant.[105] These findings highlight the gaps in knowledge about substance dependence treatment generally and about its use with correctional populations in particular.

Case-management–based prevention programs focus on linking individuals to HIV care, but they can also provide referrals and linkages to addiction treatment and other services for the postrelease period.[105] The integration of treatment for substance dependence and HIV can enhance HAART adherence and reduce relapse to drug use among HIV-infected drug users.[106] Outcome evaluation studies suggest that coupling case-management with targeted risk reduction interventions can be more effective for achieving sustained risk reduction among high-risk individuals than case-management alone.[66,107] An integrated case-management and multisession client-centered risk-reduction counseling prevention intervention for HIV-positive individuals found that both sexual and drug using HIV risk behaviors were reduced, from 41% at baseline to 29% at follow-up.[108] Input from prisoners, correctional facilities, and community-based organizations was used to adapt an evidence-based intervention that targets HIV risk reduction and adherence to HAART to the needs of HIV-positive prisoners returning to their communities and to the structural capacities of participating organizations.[73]

HIV prevention programs for correctional populations have broadened to include the partners of incarcerated individuals. The absence of primary male partners may lead female

partners to develop other partnerships to fill their social, sexual, or financial needs.[80] When rates of incarceration are high, gender ratios may be skewed, serving as a kind of pressure not to negotiate safer sex with their partner.[109] Female partners of incarcerated men have been found to have increased risks for substance use and unprotected sexual intercourse and low rates of HIV testing.[77,78,110] The incarceration of female partners has also been associated with increases in risky sex among their male partners.[111] These findings suggest that couples-based interventions for incarcerated individuals and their partners may be appropriate and potentially effective approaches to reducing HIV risk.[77,78,111,112]

## Conclusions

US criminal justice institutions incarcerate large numbers of people with, or at risk for, substance dependence, HIV infection, and other transmissible diseases. These institutions are uniquely situated to provide HIV testing, counseling, and care and to deliver effective substance dependence treatment and HIV prevention interventions. Accomplishing these and also enhancing linkages to care for individuals upon their release will help improve the health of inmates, their families, and the communities to which they return.

This article has reviewed the current state of delivering HIV testing, prevention, treatment, and transition services to incarcerated populations in the United States. In so doing, it has highlighted critical areas for research and implementation science, which lend themselves to summary recommendations. These include the following: (1) expand the use of routine opt-out HIV testing in these settings, particularly the use of rapid HIV testing in jails in particular; (2) assess the impacts of integrating substance dependence treatment as HIV prevention for correctional populations during incarceration, including opiate replacement therapy; (3) establish best practices to train the next generation of clinicians and researchers in HIV treatment and addiction medicine for correctional populations; (4) assess strategies to improve and implement linkages to care for HIV and comorbidities (ie, other STIs, addiction, mental illness) for individuals released to the community; and (5) reduce racial health disparities and stigma associated with substance dependence and HIV among criminal justice-involved individuals (eg, by implementing routine opt-out HIV testing services).

## Acknowledgments

Supported by the Lifespan/Tufts/Brown Center for AIDS Research (NIH grant P30 AI42853), and by grants from the National Institute on Drug Abuse (K23DA021095, K24DA022112, P30DA013868, R01DA18641 and R01DA027211).

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