

Testing for HIV, Sexually Transmitted Infections, and Viral Hepatitis in Jails: Still a Missed Opportunity for Public Health and HIV Prevention

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Abstract: Jails provide an underutilized public health opportunity for screening for HIV, sexually transmitted infections (STIs), and viral hepatitis, and for such other infectious diseases as tuberculosis. Incarcerated individuals are more likely to be men, poor, persons of color, and at high risk for HIV. The vast majority of jails in the United States do not screen routinely for HIV or STIs, thereby missing an opportunity for HIV and STI diagnosis, treatment, and prevention. Nesting HIV testing within STI testing and treatment in conjunction with testing and treatment for other infectious diseases, as appropriate based on community prevalence, provides a public health opportunity and will enhance HIV prevention. HIV testing and linkage to care, both within corrections and in the community, comprise an important component of the “seek and treat” strategy to further prevent HIV infection. Jail-based screening of infectious diseases, especially for HIV and STIs, in conjunction with treatment and linkage to community care has thus far been a neglected component of HIV prevention among high-risk communities.

Key words: HIV, STI, viral hepatitis, testing, prevention, jails

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INTRODUCTION

The United States has extraordinarily high rates of incarceration. In 2008, more than 4% of the adult population

passed through a jail.¹ These individuals are primarily poor and male, have comorbid substance use disorders, and have had poor access to the health care system^{2–4}; collectively, these same characteristics correlate with higher risks for HIV and other infectious diseases. Individuals passing through jails are also likely to be estranged from traditional medical care systems and therefore may not have accessed HIV prevention services. Jails, therefore, provide a key opportunity to implement brief interventions that are widely accepted by the public health and medical communities and that are recommended by the Centers for Disease Control and Prevention (CDC). Yet many US jails do not adhere to these recommendations for routine screening for HIV and sexually transmitted infections linked to medical evaluation. We therefore provide an overview of potential impediments to routine testing and suggest mechanisms to mobilize and to implement infectious diseases screening as part of a comprehensive HIV prevention strategy within this correctional setting.

Epidemiology of Incarceration, Substance Use, and Infectious Diseases

In 2009, approximately 12.8 million men and women passed through jails within the United States. Jails are typically under city, county, or other local jurisdiction and house inmates for short periods. As a result, jails are often chaotic, with high turnover. For example, the average daily inmate population for the New York City Department of Corrections ranges between 13,000 and 18,000.⁵ Although the average length of stay in New York City Department of Corrections facilities is 45 days, 50% of the population is released within 10 days.^{5,6} Most jail stays are days to weeks, making it challenging to deliver health care services during incarceration. Furthermore, substance-use disorders, including alcohol, cocaine, methamphetamine, or opioid use, and mental illness are common comorbidities among those incarcerated.^{7–9} For example, the Office of National Drug Control Policy reported that 33% of prisoners were under the influence of an illegal drug at their time of arrest, and 57% reported use of any illicit substance in the month before arrest.¹⁰ Mental illness remains a critical comorbidity among those who interface with jails such that 38.7% of those entering jails have an Axis I disorder.^{4,11} Substance use and mental health disorders are both highly prevalent and play a key role in the overlap of infectious diseases and incarceration.^{4,11–14}

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Minority populations, particularly African American and Hispanic men, are overrepresented within US correctional facilities. Black males are 7 times and Hispanic males are twice as likely as white males to be incarcerated.^{1,14} The epidemics of HIV, sexually transmitted infections (STIs), and hepatitis C virus (HCV) also disproportionately affect communities of color,¹⁵ particularly African Americans, who account for approximately 45% of new HIV infections annually and have an HIV prevalence 7 times that of white Americans.¹⁶ Similarly, gonorrhea and chlamydia rates are 8 and 19 times higher among African Americans, respectively, than among whites.¹⁷

Because individuals with substance use and mental health disorders are much more likely to be both incarcerated and infected with HIV, STIs, or HCV, it is not surprising that a heavy burden of these diseases is concentrated behind bars. Using modeling data, it has been estimated that 14% of all those with HIV and nearly 20% of HIV-infected African Americans and Hispanics passed through a correctional facility during 2006.¹⁸ In a 2006 blinded seroprevalence survey of entrants to New York City jails, 5% of entrants were HIV infected; of these, 28% were not diagnosed by the jail, although it is unknown how many were previously unaware of their status.¹⁹ Most undiagnosed inmates denied traditional HIV risk factors, affirming the need to avoid risk-based testing.

Viral hepatitis is also prevalent among those who enter jails.²⁰ Up to 40% of all Americans with chronic viral hepatitis and approximately 30% of persons with acute hepatitis B virus (HBV) infection have been incarcerated.²¹ Among patients with acute HBV reported to the CDC, 5.6% have a history of incarceration during the disease incubation period.²² HBV infection is known to be transmitted within correctional settings, and incidence has ranged from 0.82% to 3.8% per year.²⁰ Among HBV outbreaks in correctional settings, the source patients were found to have subclinical infection that could have been identified by routine screening; this provides support for the CDC recommendation for HBV vaccination in correctional settings.

Data from 1997 suggested that between 29% and 43% of all persons with HCV infection and 40% of all persons with tuberculosis (TB) passed through a correctional facility in that year.²³ In the CDC's STI surveillance report from 2007, between 2% and 19% of individuals ≤ 24 years of age in a correctional facility tested positive for gonorrhea or chlamydia, with the highest prevalence among women aged ≤ 20 years.¹⁷ Although we do not fully understand the complex interaction among the myriad social, cultural, and economic factors underlying these facts, their confluence has a significant impact on the risks for both incarceration and acquisition of HIV infection. In the United States, many communities of color confront similar social and structural disparities that contribute to both of these risks. Further, many inmates, particularly those with HIV infection, face a multitude of challenges during community reentry, including relapse to substance use or dependence, mental illness, unstable housing, unemployment, lack of health insurance. Many of these challenges, if not addressed, perpetuate the revolving door of reincarceration.

Why Jails?

Jail incarceration is a key opportunity to provide health interventions for 2 reasons. First, many more individuals pass through jails than prisons. As demonstrated by figures from the Bureau of Justice Statistics for 2008, approximately 735,000 were released from prison, while more than 12 million passed through jails.¹⁴ Jail-based interventions are necessary if the public health goal is to reach the majority of the incarcerated population. Second, reducing the morbidity of prevalent infections and reducing incident infections of HIV, TB, STIs, and HCV among jail detainees will likely lower the rates of these infections in the community. This is particularly true if the incarcerated individuals are rendered noninfectious (cured, in the case of STIs) or markedly less infectious (by reduction of HIV-1 RNA levels due to antiretroviral therapy), even with little or no changes in risky behavior. Reduction of infectiousness is particularly important in the case of communicable diseases such as pulmonary TB, which are spread via airborne routes of transmission.²⁴ The challenge, however, is to complete the screening and implement treatment within this setting given the limited time frame of jail incarceration.

Data from several studies have suggested that screening and treatment of inmates for STIs such as syphilis and chlamydia may reduce their prevalence in the community at large.^{25,26} For example, routine testing and treatment of gonorrhea and chlamydia among men in a San Francisco jail was associated with declining rates of these infections among women attending an STI clinic in a part of the city that had high rates of poverty and incarceration.²⁶ Additionally, a strong correlation has been established between rates of incarceration among black males and HIV risk experienced by their sexual partners.^{27,28} Similar correlations across races exist between the incarceration of an individual's partner and his or her risk of HIV infection.^{29,30}

Is It Possible to Implement Medical Interventions Within Jails?

There is ample evidence that medical interventions can be successfully implemented in environments such as jails, which are often overcrowded and have high rates of turnover and limited health care budgets.^{25,31–34} In providing services, jails operate by creating protocols, testing them, and then implementing them with little deviation. Effective protocols in jail settings have included screening for suicide risk, mental illness, and substance use disorders (urine testing) and for HIV and STIs. Although its timing may vary among facilities, a medical evaluation is part of the intake process in most jails and provides an opportunity to integrate interventions.

In 2 controlled studies of routine HIV testing in Connecticut, male and female jail detainees were significantly more likely to be HIV tested if routine testing was offered within 24 hours of admission and linked to medical screening. This finding reinforces the need to link screening procedures with care. Although HIV prevalence was high (~4%) in these studies, only a single new HIV-infected person was identified.^{35,36} The process was important, however, in identifying a large number of previously identified individuals and allowing for them to be reengaged in HIV care.

The Washington, DC, jail system provides an example of successful routine HIV rapid testing among jail inmates.^{37,38} The program was implemented in conjunction with city-wide efforts to improve HIV detection and treatment rates. The DC correctional testing algorithm utilizes “automatic” HIV testing upon jail entrance, with a provision for opting out of HIV testing available. Among 33,162 intakes between June 2006 and May 2008, 68% (22,515) of jail inmates were tested, with a confirmed HIV seropositivity rate of 3%. Although data are not currently available to determine the effectiveness of this strategy, it does provide proof-of-concept that routine large-scale HIV testing can be implemented in a busy city jail. It is hoped that the testing and linkage to care program will lead to better treatment coverage for HIV-infected individuals in Washington, DC, resulting in better virologic control and, hence, less transmission.

In 1997, the Institute of Medicine report, “The Hidden Epidemic,” recommended providing STI services in prisons, jails, and juvenile facilities as part of a comprehensive STI prevention program.³⁹ New York City successfully implemented routine STI testing within city jails. When gonorrhea and chlamydia screening was added to the medical evaluation, chlamydia and gonorrhea cases increased in the jails by 1636% and 1023%, respectively, resulting in a 59% increase in total STI cases identified citywide. In the midst of a TB epidemic in Chicago, Cook County Jail instituted radiographic screening of inmates for pulmonary TB at intake. This resulted in increased case finding rates and facilitated earlier airborne isolation of infectious cases.⁴⁰ These examples demonstrate that it is possible to implement effective routine screening and treatment procedures for a number of infectious diseases within jails. In each of the examples above, there was clear alignment in goals from the leadership within the jail and community health settings that were conjoined with political will and commitment of resources.

A number of important lessons have been learned from these experiences. Voluntary testing, in which inmates opt in, has repeatedly confirmed lower rates of testing than routine opt-out strategies.⁴¹ In North Carolina, although prisoners rather than jail detainees were targeted, a November 2008 change in HIV screening policy for incoming prison inmates from opt-in to opt-out resulted in an increase in testing from 61%–91% (Fig. 1).⁴² These numbers are similar to those of successful HIV testing programs among sentenced prisoners in Rhode Island. Inmates who opt-in and volunteer for HIV testing have lower HIV prevalence than those who do not get tested in the general inmate population.⁴³ Indeed, among women entering jail in Connecticut, risk-based testing resulted in only 62% of HIV-infected women being identified using blinded serosurveillance,⁴⁴ and routine HIV testing among pregnant women in jails proved cost-effective.⁴⁵ Testing that relies on self-identified risk behaviors within corrections often misses the majority of infections.⁴⁶ Stigma within criminal justice settings is often a significant barrier to self-identification of risk behaviors.⁴⁷ In jails, routine HIV testing programs must be implemented in a timely fashion to maximize case identification before detainees’ release.^{35,36} Testing for HIV and other infectious diseases is better integrated into a medical evaluation than “exceptionalized”

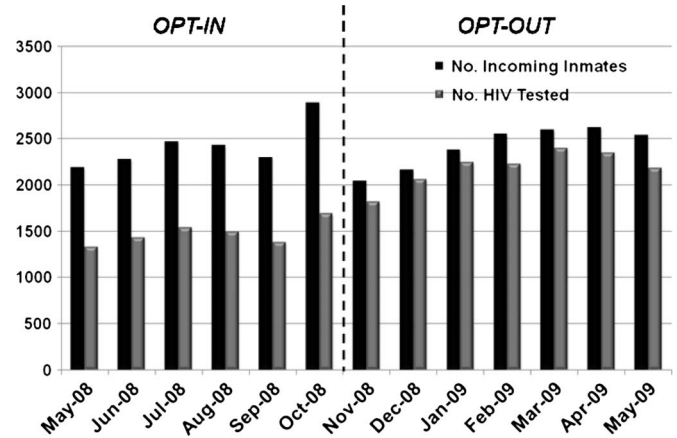


FIGURE 1. Proportion of inmates entering the North Carolina Department of Correction tested for HIV infection before and after change from opt-in to opt-out testing in November 2008.

and requiring outside counselors and thus additional time and often additional funding.^{48,49}

Screening Can Be Tailored Based on Community and Correctional Prevalence

Prevalence of HIV, STIs, and HCV varies widely by state and community. The benefits of identifying HIV infections are enormous, both in preventing progression to AIDS (via antiretroviral therapy) and in preventing HIV transmission to others.^{50,51} Jail detainees who are newly diagnosed with HIV can be counseled and linked with care, although the process can be challenging. Continuity of care for released HIV-infected jail detainees has been dismal, at best. Among HIV-infected detainees in the San Francisco jail, as few as 15% received continuous antiretroviral therapy after their release.⁵² For many HIV-infected individuals who already know their diagnosis, another positive HIV test is an opportunity for directed counseling and reinitiation of HIV care. Even relatively low rates of HIV justify routine screening.^{53,54} Although HIV testing itself has not been demonstrated to reduce HIV risk behaviors among those testing negative, it does provide an opportunity to introduce brief HIV risk reduction interventions that have been proven to reduce HIV risk behaviors.⁵⁵

Screening for STIs in jails in higher prevalence communities is recommended but very rarely implemented.⁵⁶ STI prevalence is highly age specific, and current guidelines recommend targeting STI testing to younger men and women.⁵⁷ Data from the CDC and other studies, however, confirm that expanding STI testing to those younger than 30 years confers high yield in jails.^{17,58} Testing practices may focus on regional differences as follows: in 2007, the South had the highest gonorrhea and chlamydia rates in the country.¹⁷ Successful implementation of STI testing with high treatment rates in correctional facilities in high prevalence communities will necessitate coordination between the correctional facility and the local health department,⁵⁸ not only for provision of treatment but also for contact tracing in the community.

Screening for HBV in correctional settings is not only recommended by the CDC but also has been demonstrated to be cost-effective.⁵⁹ Unlike HIV, STIs, and HCV, HBV infection can be prevented by an effective vaccine. Yet routine HBV testing and vaccination in jails is rare.⁶⁰ Completing the standard series of HBV vaccinations requires 6 months, but protective antibodies are present with even a single dose of vaccine (30% to 50%) or 2 doses (89%).⁶¹ Accelerated vaccination schedules that complete the 3-part series in 3 weeks⁶² or 2 months⁶³ may hold promise for jail settings.

Much less is known regarding the feasibility, costs, and impact of HCV screening in jails. HCV screening is currently recommended by the CDC but only for inmates with identifiable HCV risk factors (ie, injection drug use, men who have sex with men, etc); this is another missed opportunity. Although jails do house a population with increased HCV, the diagnoses may not be made because many HCV-infected inmates do not admit to risk behaviors.⁶⁴ Screening is indicated because, as shown for injection drug users with HCV⁶⁵ and HIV, individuals who learn that they have a chronic infection tend to reduce their risk behaviors by more than 50%. Previously, HCV testing required phlebotomy; it took several days to obtain results, and it was costly. However, the availability of new HCV rapid testing technology approved by the US Food and Drug Administration, less expensive and more feasible, may tip the balance toward an expansion of routine HCV testing within correctional settings. The expected availability of new direct-acting HCV antiviral medications that are more effective and reduce the duration of treatment may stimulate additional screening and treatment. These medications hold the potential for improved outcomes, providing barriers to treatment—in the form of costs, toxicities, and the numerous challenges to implementing routine HCV testing and providing HCV treatment to this population—can be overcome.

Decreasing HIV Burden in Some Correctional Systems Associated With HIV Testing, Comprehensive HIV Treatment and Linkage to Care

Comprehensive HIV testing, treatment, and linkage to care programs in Rhode Island and Connecticut have been in place for the past 2 decades.⁶⁶ Connecticut has greatly enhanced HIV testing using increased targeted testing in prisons and routine testing efforts in jails; New Haven was the first community in the United States to implement and study syringe exchange programs⁶⁷ and to enhance community linkages to care and substance abuse treatment for drug users.⁶⁸ Similarly, Rhode Island has had routine HIV testing in prisons and has implemented coordinated community activities. During this period, the number of newly diagnosed HIV-infected individuals within the state’s correctional system has decreased substantially (Fig. 2). The annual census of HIV within the Connecticut correctional system has substantially decreased (Fig. 3) as well. Simultaneous with these correction–community partnerships, the number of new HIV cases among injection drug users in both states also has significantly decreased over the same period.

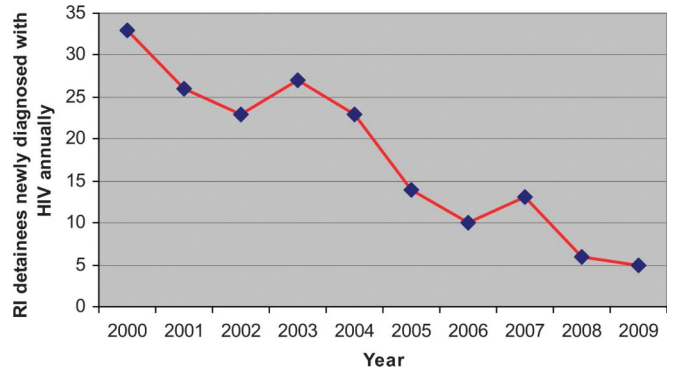


FIGURE 2. New HIV diagnoses at the Rhode Island Department of Corrections, 2000–2009.

The Way Forward

Although incarceration itself poses challenges to public health and to HIV prevention and treatment,⁶⁹ it provides a structured setting in which a number of interventions may be effectively implemented. The concentration of infectious diseases within the criminal justice system, affecting a population that is often estranged from traditional community services, warrants reconsideration of jails as sentinel sites for screening, prevention, and treatment activities.

CONCLUSIONS

Diagnosing and treating infectious diseases such as HIV and STIs have a high cost–benefit ratio; screening and treating these infectious diseases will prevent spread in the community. Economic and logistical obstacles to testing in jails, stigma surrounding incarceration, and lack of political will need to be addressed for progress to be made in implementing HIV, STI, and HCV testing and care programs within jails. Promoting screening for infectious diseases within jails, particularly HIV, STIs, and HCV, is the first step. The next is improved treatment, both within jails and prisons, and in the community after release. Diagnosis within jails, linked with treatment, will result in improved prevention of HIV and other serious

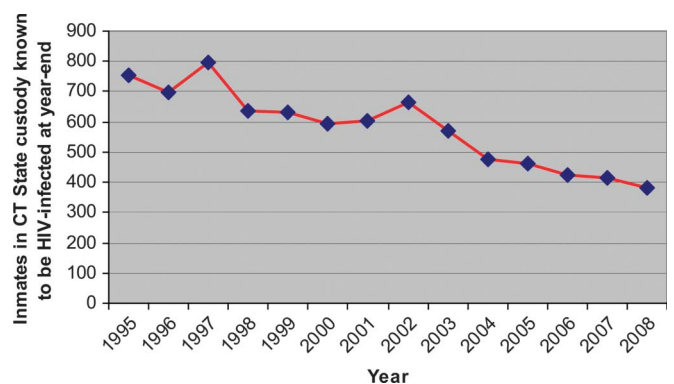


FIGURE 3. Inmates in Connecticut state custody known to be HIV infected at year end, 1995–2008.

infections within both correctional facilities and the community as a whole.

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