

Infectious Diseases and the Criminal Justice System: A Public Health Perspective



*The degree of civilization in a society
can be judged by entering its prisons.*
—Fyodor Dostoevsky

Illustration by Raymond Biesenger

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Research Interests:

My interest is in the field of HIV Outcomes and Health Services Research and focuses on improving the continuum of care for vulnerable patients with HIV. In particular, I am investigating transitions of care for HIV patients from the inpatient to the outpatient setting and from the jail setting to the community. I aim to better predict, understand and reduce 30-day readmissions for hospitalized patients with HIV and to improve the HIV cascade of care from diagnosis, to engagement in care, to antiretroviral treatment and ultimately virologic suppression in patients leaving the hospital and incarcerated settings.

Purpose and Overview:

Over the past 4 decades, the number of individuals in the criminal justice system has increased dramatically (over 500%) in the United States, which leads the world in incarceration. Much of this increase is due to harsher drug sentencing laws which disproportionately affect disadvantaged members of society, including those who are mentally ill, poor, homeless and racial/ethnic minorities. Chronic medical illness is more common among jail and prison inmates and yet access to medical care after release from incarceration is more limited than in the general population. Incarceration is also disruptive to families and communities and contributes to health disparities in infectious diseases, including tuberculosis, hepatitis, sexually transmitted infections (STIs) and HIV. Routine screening for STIs and HIV in the criminal justice system can identify many new infections in this high-risk population. Treatment for STIs and HIV in jails and prisons, and linkage to HIV services after release, has the potential to both improve individual outcomes and reduce transmission to others. Increased collaboration between the department of health and department of corrections, as well as partnerships between academic institutions and the criminal justice system, have the potential to improve outcomes in this vulnerable population.

Objectives:

At the conclusion of this activity, the participant should be able to:

1. Describe the epidemiology of incarceration in the United States including temporal trends, demographics and medical issues among inmates.
2. Describe the prevalence of sexually transmitted infections in incarcerated individuals, and the social and cultural factors which contribute to high rates of sexually transmitted infections in this population.
3. Discuss the HIV care cascade in incarcerated and recently released individuals.

Introduction

High rates of incarceration in the United States and rapid turnover in the criminal justice system indicate that not only are a large number of people in jail and prison at any given time, but also that a substantial number of individuals are re-entering the community after release. Chronic medical issues and communicable infectious diseases are common among inmates, who often have poor access to medical care prior to and following incarceration. This highlights the tremendous public health challenge and opportunity of providing medical care in the correctional setting, including screening and treatment for sexually transmitted infections and HIV. Interventions in the criminal justice system and improved linkage to medical services after release have the potential to improve the overall health of inmates themselves as well as the health of the communities to which they return.

INCARCERATION IN THE UNITED STATES

Epidemiology

The United States incarcerates a larger proportion of its population than any other nation in the world. At 707 people per 100,000, the US is ahead of the Russian federation (474/100,000) and incarcerates far more than European countries (e.g. United Kingdom 148/100,000, France 100/100,000).¹ Since the 1980s there has been a dramatic increase in incarceration rates, which is mostly attributed to minimum mandatory sentencing laws and the “war on drugs”. In December 1978, 294,400 individuals were incarcerated in the US, in 2009, 1,555,600 were incarcerated.² The number of individuals incarcerated for drug-related crimes accounts for the majority of the increase, with stable incarceration rates for other crimes such as assaults and robberies.³

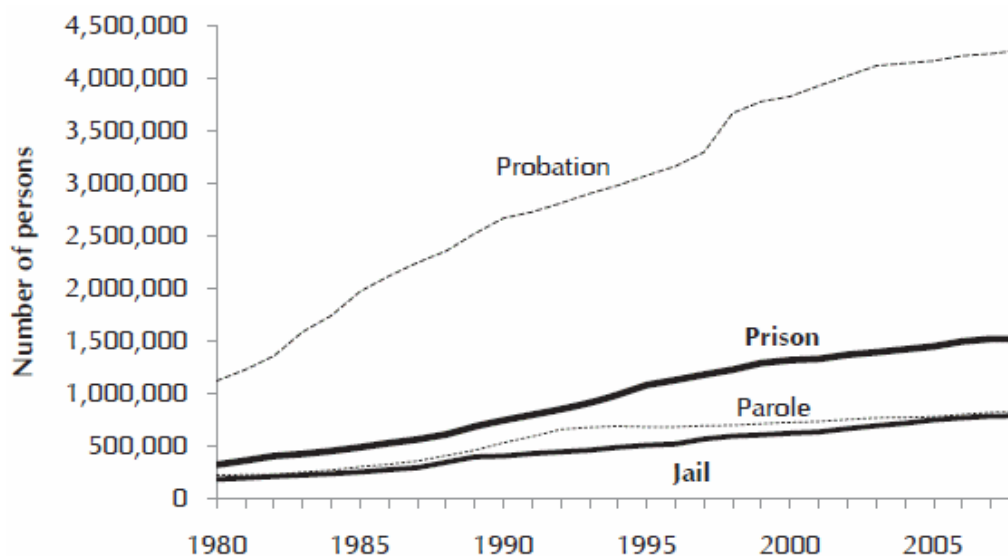


Figure 1 Correctional Populations in the United States, 1980-2008, Bureau of Justice Statistics

Defining the criminal justice system

The United States criminal justice system includes jails and prisons (2.2 million people) as well as the supervision systems of parole and probation (nearly 5 million additional people) (Figure

1).⁴ Jails are typically run by local government (city or county), where arrestees who are awaiting trial or who have short sentences (typically weeks to months) are confined. From jail, inmates may be released to the community with or without probation, to special programs (such as drug rehabilitation) or to prison. Prisons may be state or federal facilities and house those who have been convicted of a felony, which typically carry a sentence of 1 year or longer. Community supervision after a jail stay is called probation and is utilized in lieu of a longer incarceration, where probationers will need to check in regularly with a probation officer. Supervision after a prison incarceration is referred to as parole and similarly, requires the individual to check in regularly with a parole officer in lieu of a longer incarceration.⁵ Community supervision may last months to years and failure to comply with the rules of supervision may result in reincarceration. In Texas, state jails were created to address an overburdened correctional system, and these house individuals with lower level felonies serving 6-12 month sentences.

Costs of incarceration

The cost of incarceration in the United States has also increased dramatically over the past 4 decades and does not appear to be sustainable. Overall costs of confinement, rehabilitation and supervision on the local, state and federal level of incarceration were estimated at \$80 billion in 2010, compared to \$17 billion in 1980. Per capita costs have tripled over this time period, whereas US residents used to contribute \$77 on average for corrections expenditures, they now pay \$260. Much of the financial burden falls to the individual states (57%), with 10% of expenditures from federal and 33% from local governments.⁶ The State of California is an example of how the growth in the correctional population has become unsustainable and was ordered by the court (and the decision was upheld by the US Supreme Court) to reduce its institutional population to 137% percent of capacity due to overcrowding. Although the California prison population has declined after this ruling, the county jail facilities have seen a population increase as much of the confinement and supervision has shifted to a local level and expenditures remain high.⁷

Demographics of inmates and ex-prisoners

The social costs of incarceration are also substantial. African American men have been heavily impacted by incarceration, much of which is driven by increases in drug arrests.⁸ Overall, 1 in 100 American adults is behind bars.⁹ However, among African American men aged 18 or older, 1 in 9 is currently incarcerated compared to 1 in 36 Hispanic men and 1 in 106 White men.⁹ The lifetime risk of incarceration is 1 in 3 for African American men, compared to 1 in 6 Hispanic men and 1 in 17 White men.¹⁰ Men are incarcerated far more often than women, with 1 in 9 men incarcerated during their lifetime compared to 1 in 56 women.¹⁰ (Figure 2)

Incarceration contributes to low male to female ratios and family instability in African American communities. In April 2015, The *New York Times* reported in April 2015 that there were “1.5 Million Missing Black Men” in the United States, where for every 100 black women not in jail, there were only 83 black men. Much of this gender gap was attributed to incarceration and early death and this gap was not seen in white communities (where there were 99 white men per 100 white women). These gender ratios were even lower for communities such as Ferguson, MI and North Charleston, SC, locations of recent police violence against black men.¹¹ As the majority of prison inmates have minor children, incarceration is disruptive to families and creates many single parent households. Over 1.5 million children have a parent who is in prison, 2% of all US children and 6% of all African American children.¹² Children of incarcerated parents are more likely to have behavioral issues¹³ and are 5 times more likely to commit crimes.¹⁴

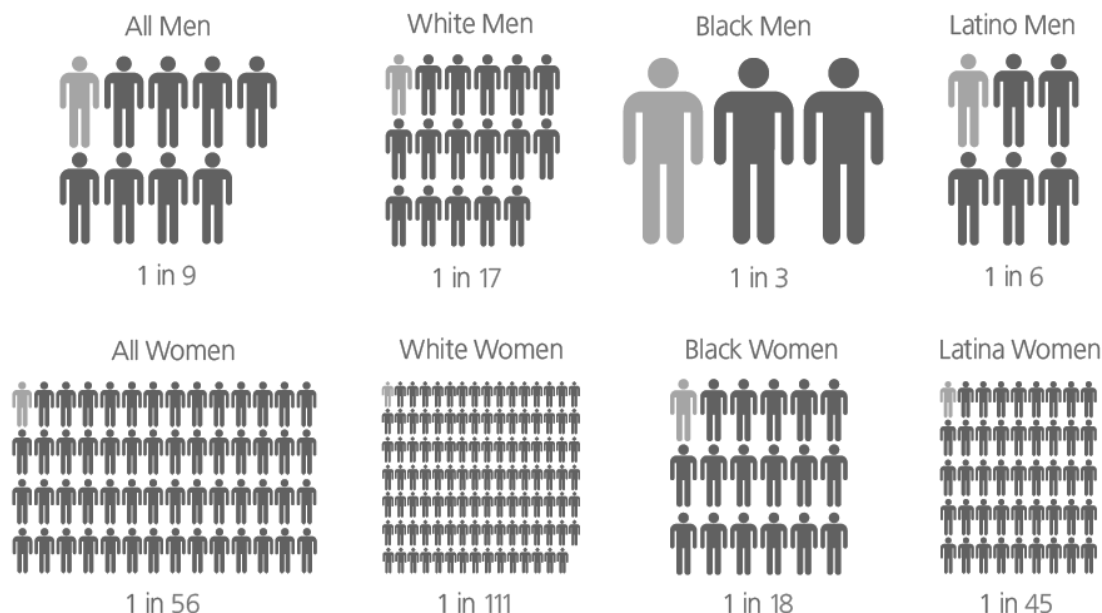


Figure 2 Lifetime Likelihood of Imprisonment by Gender and Race/Ethnicity

In addition to gender and racial/ethnic disparities, there is substantial geographic variation in incarceration rates by state. For example, states in the southern part of the country (FL, GA, AL, MS, MO, LA, AR, OK, TX, AZ) have >520 per 100,000 residents as sentenced prisoners under state jurisdiction, whereas the northeastern part of the country (ME, NH, VT, MA, RI, NY, NJ) and several other states (WA, ND, MN, IA, NE, UT) have less than 280 state prisoners per 100,000 residents.¹⁵

Social characteristics of inmates and ex-prisoners

Ultimately, the criminal justice system (jails, prison, probation, parole) includes over 7.1 million people⁴ resulting in a large group of individuals who are not part of the general community due to being behind bars, and an even larger ex-prisoner population who are marginalized members of society. Individuals re-entering the community after incarceration face housing instability, poverty, unemployment, stigma and disenfranchisement. Difficulties with housing are common, as inmates are 7-10 times more likely to be homeless than the general population.¹⁶ Many individuals in jail and prison have low levels of education, with 40% having never completed high school or a GED,¹⁷ and there is a significant overlap between neighborhood poverty and incarceration. Individuals entering prison were earning 41% less prior to incarceration than their non-incarcerated age-matched counterparts.¹⁸ Stigma surrounding incarceration is prevalent, and many employers will not hire individuals who have prior convictions.¹⁹ In fact, when ex-prisoners are included in employment statistics, they lower the overall male employment rate by 1.5-1.7%.²⁰ Prior entitlements are also restricted. For example, ex-prisoners with a history of a drug offense no longer qualify for food stamps, and many are disenfranchised. Disenfranchisement refers to depriving individuals of the right to vote and in the US is applied to inmates and released prisoners. Two states, Maine and Vermont, allow current prisoners to vote, all others do not and the majority restrict the right to vote for convicted felons until after completion of probation and parole.²¹

Incarceration is an important contributor to social determinants of health, defined as the conditions (e.g. social, physical) in the environments (e.g. neighborhood, school, church) in

which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.²² Examples include available resources to meet daily needs, discrimination, exposure to crime and violence, social support and social interactions, exposure to mass media, quality schools, transportation, public safety and residential segregation. Neighborhoods most affected by incarceration are often those with unfavorable social determinants of health (e.g. low resources, high crime rates, poor quality schools, poor access to outdoor space) which play a significant role in the prevalence and outcomes of health problems in inmates and ex-prisoners.

Inmate medical issues

Inmates and ex-prisoners have poor overall self-rated health, multiple chronic medical issues and poor access to medical care. In a survey conducted of 1200 inmates in the Massachusetts prison system, over 50% reported their health as either good, fair or poor.²³ Inmates are more likely to report chronic medical issues than the general population,²⁴ including arthritis (adjusted odds ratio, aOR, 1.7), asthma (aOR 1.4) hypertension (aOR 1.2), cervical cancer (aOR 4.2) and hepatitis (aOR 2.6).²⁵ Access to medical care during incarceration is required by law, as it is considered “cruel and unusual punishment” not to provide inmates with the community standard of care, as determined by the *Estelle v. Gamble* case in Texas in 1976.²⁶ However, prior to incarceration and after release, inmates are less likely to access appropriate medical care. Among older inmates, 52% reported pre-detainment acute care use and 47% planned to use the emergency room after release. Emergency room use was higher in homeless releasees, but lower for those with a primary care doctor.²⁷ Compared to the general population, recently released inmates were more likely to visit the emergency room for mental health disorders (aOR 1.43) substance use disorders (aOR 1.93) and ambulatory care sensitive conditions (aOR 1.09).²⁸ Dedicated transitions clinics may decrease inappropriate ED utilization.²⁹ As 90% of states terminate federal benefits such as Medicaid upon incarceration, many ex-prisoners do not have health insurance when released.³⁰

Substance use and mental health

Substance use and mental health issues are especially common among inmates and releasees. Given existing sentencing laws for drug related crimes, substance use is common among inmates, with up to 68% of jail inmates in 2002 reporting substance dependence or abuse.³¹ Serious mental illness is also common, and in 2005, more than one half of inmates reported recent symptoms or history of mental illness, including depression, mania, or psychotic disorders. There is significant overlap between mental illness and substance use in the incarcerated, with 70% of those with serious mental illness also reporting substance use.³²

Infectious diseases among inmates and releasees

Many infectious diseases, such as sexually transmitted infections, HIV and hepatitis have an increased prevalence in the criminal justice system. Hammett estimated the burden of infectious diseases in released inmates as a proportion of everyone in the US with the disease and determined that 24% of all STIs, 35% of tuberculosis, 29% of Hepatitis C, 17% of AIDS, 13% of HIV, and 15% of Hepatitis B is present in the releasee population.³³ As these are all communicable infectious, there are three reasons to screen and treat for infection during incarceration: (1) to improve individual outcomes, (2) to minimize spread within the correctional facility and (3) to decrease the chance of transmission in the community after release. In addition, if public health officials are not performing routine surveillance of inmates and recent releasees for these infections, then they will underestimate overall reservoir of disease.

SEXUALLY TRANSMITTED INFECTIONS (STIS)

Prevalence of STIs

Results from routine, opt-out screening efforts in jails and prisons have identified that prisoner rates of *Chlamydia trachomatis* and *Neisseria gonorrhoea* infections are 3-5 times that of the general population.^{34,35} For example, chlamydia positivity among females ages 14-39 by routine, opt-out screening is 6.9% in incarcerated females versus 2% in the general population. Similarly, other sexually transmitted infections such as syphilis,^{36,37} trichomonas,³⁸ herpes simplex virus (HSV)³⁹ and human papilloma virus⁴⁰ are much more prevalent in jail and prison inmates. Recent incarceration as well as current incarceration are risk factors for prevalent STIs. Among a multisite, high-risk cohort of over 1300 women, those who had been incarcerated within the past six months were two times more likely to have trichomonas infection than those who had not been incarcerated.⁴¹

Contribution of social and cultural factors to STIs and HIV in incarcerated populations

Multiple social and cultural factors contribute to high rates of STIs in incarcerated populations and in communities highly affected by incarceration. Several behaviors may lead to both an increased risk of STI acquisition and incarceration. For example, substance use is associated with risk taking behavior such as unprotected sex,⁴² and also increases an individual's chance of going to jail. Commercial sex work, where sex is traded for drugs or money, also increases one's risk for both STIs and incarceration. Incarceration may disrupt primary intimate partnerships,⁴³ and separated individuals may seek new sexual partnerships, which may result in concurrent or high-risk sexual relationships.⁴² In North Carolina, 52% of incarcerated men in reported a primary intimate relationship prior to going to jail, 55% stated that this relationship dissolved during incarceration. Loss of a partner due to incarceration was associated with nearly three times the prevalence of having 2 or more new partners (prevalence ratio 2.8, 1.1-6.7) in the preceding month.⁴⁴

On a community level, mass incarceration of African American men has led to an altered male to female ratio in many neighborhoods. Particularly in racially segregated areas that are heavily impacted by incarceration, women far outnumber men,¹¹ which can contribute to concurrent partnerships.⁴⁵ Among African-American men and women on parole, low sex ratios increased the odds of having a risky sexual partner.⁴⁵ In addition, poverty and violence in these communities contribute to unsafe neighborhoods, unemployment and unstable relationships.^{46,47} An individual may not have risky behavior and yet still have a high risk of acquiring STIs or HIV. For example, in a cohort of heterosexual African Americans in the South who had recently acquired HIV, a lower risk subset was identified who had no history of substance use, high-risk sexual behaviors or partners who used drugs. In this group, HIV infection was associated with very low income, low education, and partners who were non-monogamous.⁴⁸ Using social network analysis, investigators in Brooklyn, NY found that individual incarceration as well as incarceration of a sexual partner independently predicted current STIs and HIV. Individuals who had not been incarcerated and had neither HIV nor HSV, were linked to high-risk sexual networks by partners who had recently been incarcerated.³⁹

□ 2004; ■ 2005; ▨ 2006

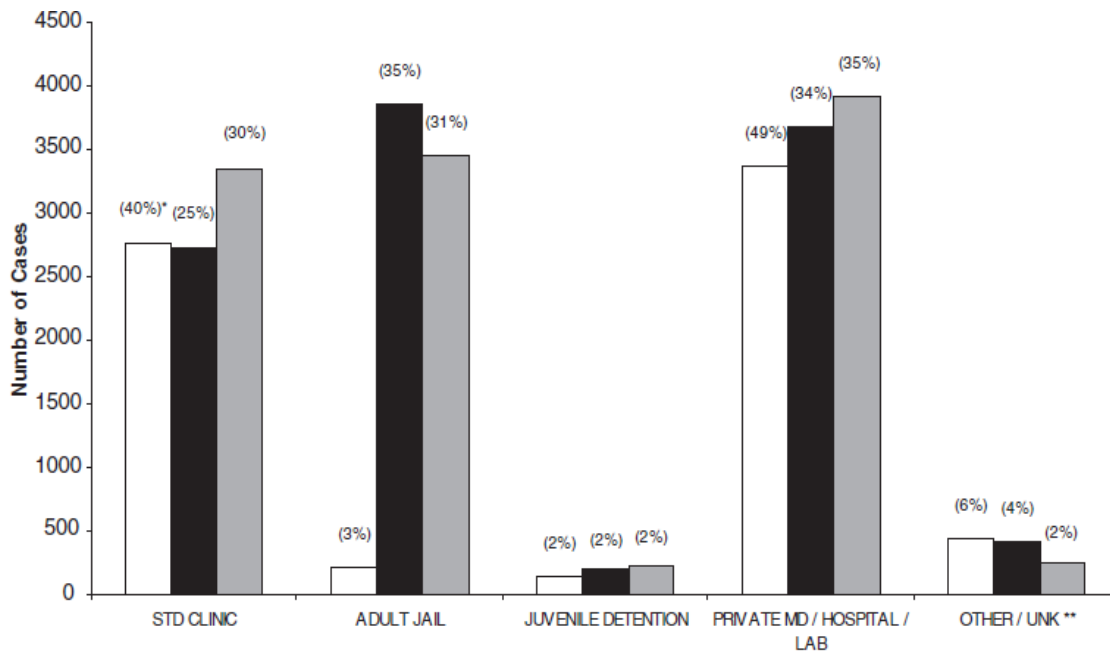


Figure 3: Male Chlamydia cases <=35, NYC, 2004-2006; Pathela et al. Sex Trans Dis 2009

Jail-based screening for STIs

Routine urine-based screening can increase the number of detected chlamydia and gonorrhea infections substantially. In New York City, a routine screening program (offered as opt-out, regardless of symptoms) of all males 35 and under entering New York City jails identified 1636% more Chlamydia infections than the symptom-guided method used in the previous year in the jails (Figure 3). In fact, the jail-based STI screening program increased the citywide overall Chlamydia case rate by 59%. Similarly, screening for gonorrhea in the same population showed an 885% increase in gonorrhea case detection.⁴⁹ The discontinuation of routine STI screening showed the opposite effect, in Chicago's Cook county jail, with a decline in the Chlamydia case rate from 2922 infections to 243, a decrease of 1100%, after a decrease in funding required a switch to symptom based screening only.⁵⁰

Community impact of screening for STIs in jail

Given the rapid turnover of inmates from incarceration back to the community, and high rates of STIs in jail populations, STI screening in jails or prisons could potentially impact the community prevalence of disease. In San Francisco, a routine, jail-based chlamydia testing program for men was started in 1997. Investigators selected two STI clinics to study- one was located in an area with very high rates of incarceration (clinic S), and the other was located in an area with low incarceration rates (clinic O) (Figure 4). They compared the trend in Chlamydia positivity among women aged 15-25 in each of the two neighborhood clinics and found a significant decline from 16.1% to 7.8% positivity in clinic S and no significant change in positivity (4.7% to 4.7%) in clinic O.⁵¹ Although it is not possible to assign causality, this association suggests that jail based screening may impact community prevalence of STIs. However, a similar but unrelated study in Philadelphia, looked at the chlamydia case rate among women ages 20-24 attending family planning clinics after implementation of routine chlamydia screening in the men's prison. They compared rates of chlamydia in the clinic serving zip codes from which

many men originated who were treated for chlamydia with those from an area were few had received treatment. A decline was found in Chlamydia rates in both clinics that could not be attributed to the prisoner screening program.⁵² With these conflicting studies, it remains unclear what the true impact of corrections-based STI screening is, though modeling suggests that smaller communities with high incarceration rates are most likely to benefit.⁵³

- ▲ Female tested at Clinic O
- Female tested at Clinic S

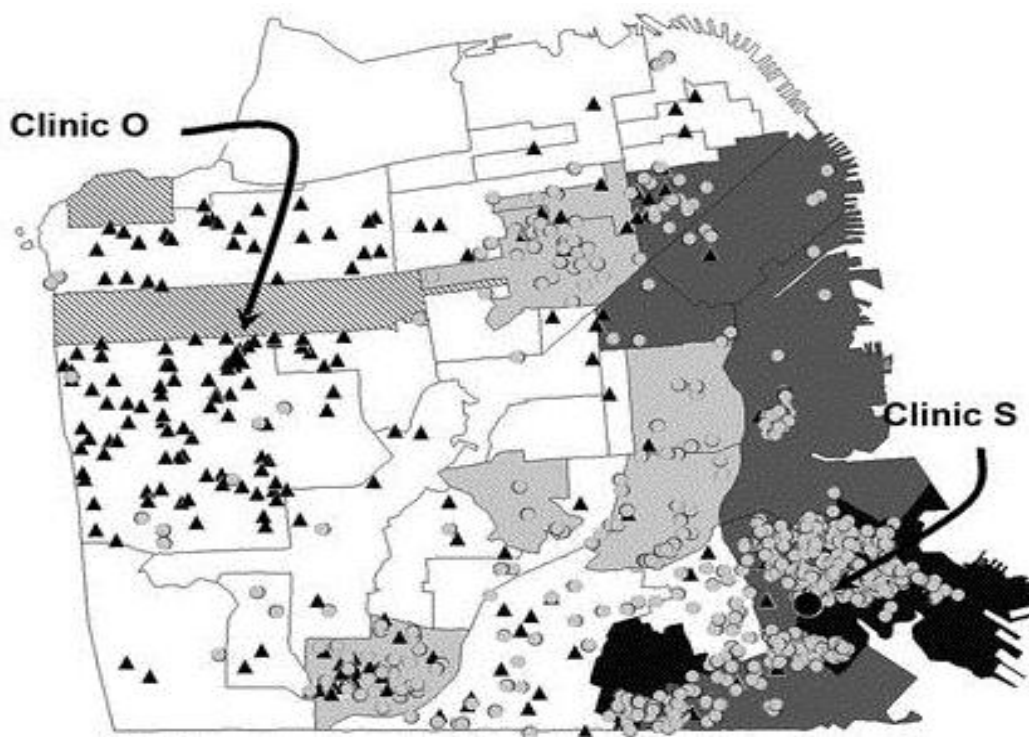


Figure 4: Average Annual Jail Testing Density of Females aged 15-25 tested at neighborhood clinics in San Francisco; Barry et al, Sex Trans Dis 2009

HIV

National HIV/AIDS Strategy and HIV Care Continuum Initiative

The potential morbidity and mortality associated with HIV, health disparities in HIV-related outcomes and unchanging incidence of disease have meant that HIV remains a national health priority. The White House, under President Barack Obama, released its first National HIV/AIDS Strategy in 2010 with 3 primary goals: (1) reduce the incidence of disease; (2) increase access to care and optimize outcomes and (3) reduce HIV-related health disparities.⁵⁴ Subsequently, in 2013, an executive order established the HIV Care Continuum initiative, accelerating efforts to increase detection of HIV, engagement in HIV care, treatment with antiretrovirals (ART) and increasing rates of viral suppression.⁵⁵ The HIV care continuum, or HIV care cascade, has become a key metric in evaluating HIV care in the United States.⁵⁶ National estimates from 2011 indicate that of 1.2 million people with HIV infection in the US, 80% are aware of their HIV status, 62% have been linked to medical care, 41% have been retained in care, 36% have been

prescribed antiretroviral therapy (ART) and 28% have an undetectable HIV viral load.⁵⁷ The HIV Care Continuum and the National HIV/AIDS Strategy are intertwined. Treatment of HIV with antiretroviral therapy to achieve an undetectable viral load reduces the risk of HIV transmission by 96%, thereby reducing the incidence of disease, known as “treatment as prevention”.⁵⁸ Also, improving the overall HIV care cascade will require specific attention to African Americans who are less likely to be diagnosed, engaged in care, taking ART or to have an undetectable HIV viral load.⁵⁹

HIV Care Cascade in the incarcerated and recently released

The criminal justice system provides a critical public health opportunity to identify and treat individuals with HIV. It is estimated that 1 in 7 people who are HIV-infected pass through the correctional system each year.⁶⁰ HIV-infected individuals entering jails and prisons are less likely to be aware of their HIV infection, less likely to have been engaged in HIV care, and less likely to have an undetectable HIV viral load than the general population. Therefore, to meet the goals of the National HIV/AIDS Strategy and to address the gaps in the HIV care cascade, it is necessary both to intervene in jails and prisons and to improve outcomes after release from incarceration. For HIV-infected inmates, access to treatment and treatment outcomes improve dramatically during incarceration, with rates of engagement in care, treatment and undetectable viral loads that are better than the general population. However, these measures drop down to less than pre-incarceration levels after release (Figure 5).⁶¹

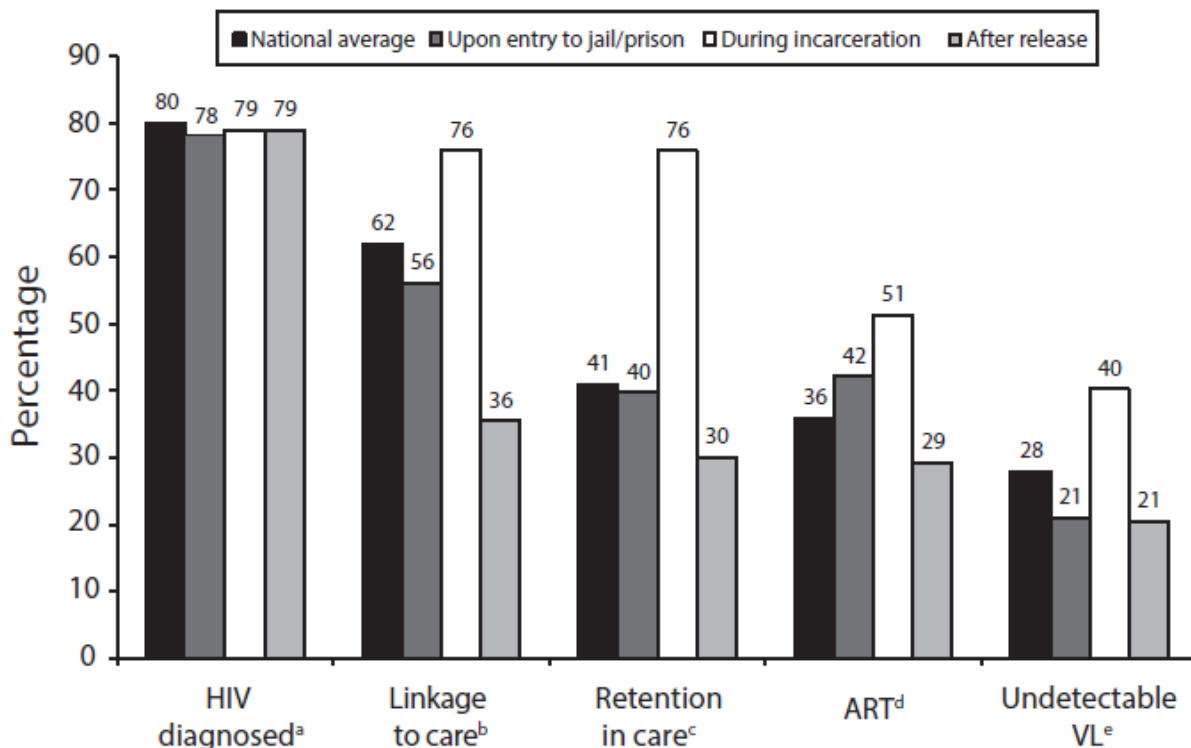


Figure 5 HIV Care Cascade in the Incarcerated and Recently Released. Iroh et al, Am J Pub Health 2015

HIV testing in jails and prisons

HIV testing in the correctional system helps identify previously undiagnosed individuals and can also identify those who have been out of care. Three studies of blinded HIV testing (anonymized and performed for epidemiologic study) in the correctional setting provide an assessment of how many individuals have HIV who are unaware of their diagnosis. Estimates varied from 5% (20/356) newly diagnosed among all HIV positive tests in a North Carolina prison, to 104/389 (27%) in a New York jail in to 93/250 (37%) in a Connecticut prison.⁶²⁻⁶⁴ Although results may vary depending on geographic region, setting (jail versus prison), and other factors, such as prior testing efforts, the incarcerated population has high rates of undiagnosed HIV infection.

Various studies have investigated HIV testing in jails and prisons and have differed in how testing is offered, such as mandatory, voluntary, opt-out testing, and whether or not it is offered as a rapid test (with results typically offered at the point-of-care) versus routine testing. Opt-out testing results in the largest proportion of the population being tested.⁶⁵ Rapid testing has been noted to be feasible and acceptable.⁶⁶ A large, multisite demonstration project performed rapid testing for HIV in jails in Florida, Louisiana, New York and Texas from 2003 to 2006. Of 33,211 inmates tested, 99.9% received their results, 409 (1.2%) were confirmed positive, 269 (0.8%) were new diagnoses and of these 40% reported unprotected heterosexual intercourse as their HIV factor.⁶⁷ Offering HIV testing in jails and prisons may allow individuals to get tested who otherwise may not have sought out testing or did not believe themselves to be at high risk for HIV. The Centers for Disease Control (CDC) recommends offering routine, opt-out testing in correctional medical clinics,⁶⁸ as this may reduce the stigma of testing, identify new infections, identify infections earlier and improve access to treatment and prevention services.^{68,69} However, per a recent survey, only 19% of prison systems and 35% of jails provide opt-out HIV testing.⁷⁰

Engagement in HIV care for incarcerated and recently released individuals

For incoming inmates, overall rates of linkage to care and retention in care (collectively referred to as engagement in care) are lower than the general population. Jails and prisons therefore have a significant role in improving rates of engagement (and re-engagement) in HIV care. During incarceration, the majority of HIV-infected inmates has access to HIV care and surpasses the general population in this step of the cascade. However, after release from incarceration, rates of linkage to care and retention in care drop dramatically. In a study of 1750 Texas prison inmates released to the Houston area, only 20% enrolled with an HIV clinic within 30 days and 28% did so within 90 days.⁷¹

Barriers to engagement in care after release from incarceration include drug use,⁷² mental illness, stigma, lack of social support and unemployment,⁷³ whereas positive associations with engagement in care were seen with HIV education during incarceration, discharge planning, transportation and stable housing.^{74,75} Accordingly, successful interventions have addressed many of these issues, including opiate replacement therapy^{76,77} enhanced case management,⁷⁸⁻⁸⁰ patient navigation,⁸¹ or combinations thereof.⁷⁴ Currently, fewer than 20 percent of prisons and jails provide discharge planning services for inmates transitioning to the community per CDC guidelines, including making an appointment with a community health care provider, assisting with enrollment in an entitlement program, and providing a copy of the medical record and a supply of HIV medication.⁷⁰ Under the Affordable Care Act, states which are expanding Medicaid will have new opportunities to link individuals to community health care after release from jail.⁸²

HIV treatment in jails and prisons and after release

A major challenge to making a sustained impact on clinical outcomes in HIV-infected inmates is the transition of care after release from incarceration. On average 51% of all HIV-infected inmates receive treatment during incarceration, which is nearly 10% points higher than the general population. In addition, 40% of the all inmates with HIV (80% of those on treatment) achieve an undetectable viral load, compared to 28% (77% of those on treatment) in the general population.⁶¹ However, these gains are often not sustained after release.⁸³ The time period immediately following release from jail is a chaotic and vulnerable time. During the two weeks following release, the mortality of released prisoners is 12 times that of the general population.⁸⁴ Of 2100 inmates who were taking ART during incarceration and released in Texas, only 5% filled their medication prescriptions within 10 days of release, 17% within 30 days, and 30% within 60 days.⁸⁵ In addition, recent releasees may have high risk sexual and drug use behavior in the time period following incarceration.^{86,87} Interruption or discontinuation of HIV treatment during this unstable period may result in adverse health outcomes in the releasees and may increase their risk of transmitting HIV to others.

HIV virologic suppression among Inmates and releasees

Limited data exists on virologic suppression after release of inmates as correctional health and community health records do not routinely exchange data. Springer and colleagues showed that among inmates who were re-incarcerated after being out of prison for at least 3 months had an interim increase in viral load and decline in CD4 count that which were greater than the improvements in clinical markers that they had made during the initial incarceration. Of those who were re-incarcerated, only 2/292 (0.6%) had an undetectable viral load at reincarceration whereas 1101/1866 (59%) of the entire cohort had achieved a viral load during the initial incarceration.⁸³ A demonstration project at 10 different correctional sites, each with different HIV-related interventions and involving a total of 1260 individuals, found that 26% of all participants had an undetectable viral load at 6 months after release from incarceration.⁷⁴ Overall, these proportions are quite low, though the 26% virologic suppression rate is similar to the general population and is based on an analysis where missing data was considered not suppressed. In order to properly address the HIV care cascade in this population, additional data on HIV clinical outcomes in releasees is needed, as are additional interventions aimed at improving virologic suppression.

National efforts to improve the HIV Care Cascade in the criminal justice system

The National Institute on Drug Abuse and the National Institutes of Health has dedicated research funds to addressing HIV in the criminal justice system. A request for proposals in 2012 launched 12 different research projects aimed at different components of the HIV Care Cascade based on the “Seek, Test, Treat and Retain” paradigm. Projects investigating a new metric for measuring engagement in care and clinical outcomes, combined treatment with opiate replacement and ART, HIV/HCV testing and linkage to care, peer navigation, HIV testing at probation offices, intensive case management and adherence counseling, and using mobile technology to improve linkage to HIV care are currently ongoing.⁸⁸

Local projects addressing HIV in the criminal justice system

Health care at the Dallas County Jail (DCJ) is provided by Parkland Health and Hospital Systems, as is outpatient medical care for the majority of HIV-infected inmates at the jail. This provides a unique opportunity to measure the HIV care cascade in this population and to

measure the impact of interventions within this system. Currently, HIV testing is provided on a part-time basis at intake and during incarceration, though <1% of inmates are being tested for HIV with this method. A new quality improvement project is currently being implemented where opt-out HIV and HCV testing is offered at intake into the jail, though integration into the security workflow has been an early barrier to implementation. HIV clinical care and ART is available to all HIV-infected inmates and a full-time HIV case manager works at the DCJ. An extensive retrospective data collection is ongoing for all HIV-infected inmates who passed through the Dallas County Jail from 2011-2013, which includes over 1800 unique individuals and will examine both social factors and clinical outcomes. Lastly, the HIV/AIDS Re-entry Coalition, a local group of various stakeholders established by Dr. Nijhawan in 2012, meets regularly to discuss current barriers to improving the HIV care cascade in the incarcerated and recently released, how to improve communication and referrals among stakeholder agencies, and developing and locally implementing best practices for incarcerated and recently released HIV-infected individuals in Dallas.

Conclusion

There has been a dramatic increase in US incarceration rates since the 1980s, mostly driven by changes in sentencing for drug-related crimes. Incarceration disproportionately affects African American men, and inmates are more likely to live in poverty, be homeless and have a low level of education than the general population. In addition to social issues, inmates often experience multiple medical co-morbidities and have high rates of mental health and substance use disorders. A significant burden of infectious diseases (tuberculosis, hepatitis, STIs, HIV) exists among incarcerated and recently released individuals. These infections are not only transmissible, but are often asymptomatic, highlighting the important public health role for jails and prisons in the detection and treatment of these infectious diseases. The increased prevalence of STIs and HIV in this population is due to multiple factors including overlapping individual risk factors for incarceration and acquisition of STIs/HIV, such as transactional sex and drug use, as well as community level factors such as altered gender ratios and segregation. Screening and treatment for STIs in jails and prisons is feasible, detects many new infections, and may impact community health. Incarceration is also a unique opportunity to identify previously undiagnosed individuals with HIV, increase engagement or re-engagement in HIV care and improve virologic outcomes. In order to improve our understanding and control of infectious diseases including STIs and HIV, and to implement best practices in the criminal justice system and after release, increased collaboration is needed on a national level between academic institutions, the department of health and the department of corrections.

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