



The Growth of Incarceration in the United States: Exploring Causes and Consequences

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Jeremy Travis and Bruce Western, Editors; Committee on Causes and Consequences of High Rates of Incarceration; Committee on Law and Justice; Division of Behavioral and Social Sciences and Education; National Research Council

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Consequences for Health and Mental Health

The incarcerated population overrepresents socially marginalized and disadvantaged individuals with a high burden of disease. Health and mental health are prominent issues in debates about incarceration, both because in many cases health issues contributed to incarcerated individuals' involvement with the criminal justice system and because the vast majority of prisoners eventually return to the community (Travis, 2000), bringing their health conditions with them (Rich et al., 2011). In addition to the causes of incarceration described elsewhere, the inadequate community treatment of drug addiction and, to a lesser extent, mental illness can be viewed as underlying contributors to behaviors leading to incarceration (and reincarceration) in many cases (Rich et al., 2011).

The public health literature has documented the existence of a set of “social determinants of health,” meaning a wide range of factors beyond individual behaviors and conditions that affect health (Bambra et al., 2010; Braveman et al., 2011; Centers for Disease Control and Prevention, 2013; Commission on Social Determinants of Health, 2008; Marmot, 2005). An example is unemployment: people without jobs frequently lack the health insurance that allows them to seek medical care and the income that allows them to eat healthfully, buy medicines, and otherwise address their health needs. Housing is another example of a social determinant of health: people without access to stable, adequate housing are at higher risk of a host of physical and mental stressors, from asthma to anxiety. As discussed elsewhere in this report, prisoners, as well as jail inmates, are more likely than the general U.S. population to be unemployed, poor, black or Hispanic,

homeless, and uninsured, and these social variables are all strongly associated with poor health.

Increasing incarceration rates have drawn greater attention among health care professionals to the relationships between incarceration and health.¹ They have been presented with a dilemma in that the high rates of incarceration have offered an opportunity to identify and treat vulnerable people who might otherwise not have access to (or seek) health care; but at the same time, partly for the reasons discussed in Chapter 6, prisons are not the ideal setting for medical treatment (National Research Council and Institute of Medicine, 2013).

In this chapter, we present the current state of knowledge on the health and health care of inmates and the postrelease health of prisoners and their communities. Although gaps in knowledge in this area remain, the evidence base compiled over the past 10 years makes clear that current challenges in incarceration and community health are strongly connected for some of the most vulnerable communities, and ideally should be addressed in concert. Increased rates of incarceration, affecting these communities in particular, have only magnified these challenges. We begin with a review of key aspects of the health profile of inmates. This is followed by a description of the health care provided in correctional facilities. Next, we look at the impact of incarceration on both physical and mental health, and then at health following release. We conclude the chapter with a review of knowledge gaps in these areas and concluding remarks.

The main focus of inquiry for this committee was incarceration in state and federal prisons. For this chapter's discussion of health and incarceration, however, we believe it is important to include inmates from both jails and prisons. Although there are important differences between the two types of institutions, the similarities are striking from a health perspective. Both jails and prisons house a high-risk population with a heavy burden of disease; both present health perils as well as health opportunities; and in nearly all cases, the individuals held in these institutions are then released back into the community. For jails, the turnover often is quite rapid and the numbers are much greater; although the average daily jail census in 2011 was under 750,000, there were nearly 12 million admissions to jails from July 2011 to June 2012 and as many releases (Minton, 2013). By contrast, there were under 700,000 releases from state and federal prisons in 2011 (Carson and Sabol, 2012).

¹These relationships were explored during a workshop conducted jointly by the Institute of Medicine and the National Research Council in December 2012. A summary of the views and analysis presented at this workshop informed this committee's work, and this chapter in particular (National Research Council and Institute of Medicine, 2013).

HEALTH PROFILE OF INMATES

The high burden of disease among jail and prison inmates (Binswanger et al., 2009; Fazel and Baillargeon, 2011; Wilper et al., 2009) poses challenges for the provision of care but also opportunities for screening, diagnosis, treatment, and linkage to treatment after release. Much of the disease in incarcerated populations can be attributed to overlapping synergistic epidemics (syndemics) of substance use, infectious diseases, and mental illness in the context of poverty, violence, homelessness, and limited access to health care. In this section, we address in turn the following aspects of the health profile of the incarcerated population: mental health, substance abuse, infectious diseases, chronic conditions, aging prisoners, and the health of female inmates.

Mental Health

A recent survey by the Bureau of Justice Statistics (James and Glaze, 2006) found that more than half of all inmates had some kind of mental health problem (see Table 7-1). For the survey, identification of a mental health problem was based on either a clinical diagnosis or treatment by a mental health professional within the past 12 months or having presented with symptoms of a mental disorder based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (American Psychiatric Association, 1994). The prevalence of

TABLE 7-1 Prevalence of Mental Illness and Drug and Alcohol Dependence and Abuse in U.S. Prisoners

Condition	Jails (%)	State Prisons (%)	Federal Prisons (%)
Mental Illness	64	56	45
Drug and/or Alcohol Dependence or Abuse (combined total)	68		
Drug Dependence or Abuse	53	53	45
Alcohol Dependence or Abuse	47		

NOTES: James and Glaze (2006) use data from the Survey of Inmates in State and Federal Correctional Facilities, 2004, and the Survey of Inmates in Local Jails, 2002, to examine mental disorders among jail and prison inmates. Karberg and James (2005) use data from the Survey of Inmates in Local Jails, 2002, to study drug and alcohol dependence and abuse among jail inmates. Mumola and Karberg (2006) use data from the Survey of Inmates in State and Federal Correctional Facilities, 2004, to examine drug use, abuse, and dependence among state and federal prisoners.

SOURCES: James and Glaze (2006); Karberg and James (2005); Mumola and Karberg (2006).

mental health problems is most striking in jails (64 percent); the prevalence is slightly lower in state and federal prisons but still is 56 percent and 45 percent, respectively. The prevalence of mental health problems is higher among whites than among blacks and Hispanics: 71 percent of whites in jails, compared with 63 percent of blacks and 51 percent of Hispanics, and 62 percent of whites in state prisons, compared with 55 percent of blacks and 46 percent of Hispanics. These figures may misrepresent the state of mental illness among the incarcerated as a result of self-reporting bias or to the extent that the accuracy of traditional measures of mental health varies by race and ethnicity (James and Glaze, 2006).

By some estimates, 10-25 percent of prisoners in the United States suffer from *serious* mental health problems, such as major affective disorders or schizophrenia (Ditton, 1999; Fazel and Danesh, 2002; Haney, 2006; Steadman et al., 2009); corresponding estimates for jail inmates are nearly 15 percent for men and 31 percent for women (Steadman et al., 2009). By comparison, an earlier study estimates that 5 percent of the general population has a serious mental illness, although the rates are not directly comparable across different time periods and studies, given variations in survey questions and measures (Kessler et al., 1996).

The presence of large concentrations of mentally ill persons within prisons and jails has been noted for almost a hundred years (Fazel and Danesh, 2002; Morgan et al., 2010; Torrey, 1995), but attention to this issue has increased since the closing of mental hospitals in the 1970s. Between 1970 and 2002, the number of public psychiatric hospital beds fell from 207 to 20 per 100,000 population (Yoon, 2011). Deinstitutionalization was intended to shift patients to more humane care in the community, but insufficient funding instead left many people without access to treatment altogether (Baillargeon et al., 2010b; Lamb and Weinberger, 2005; Lamb et al., 2004). As a result, mentally ill individuals likely became at greater risk of incarceration.

Although nationwide studies are not available, small-scale studies show the high rate of criminal justice involvement among those with mental illness who are receiving mental health services. In San Diego, for example, 12 percent of mental health service recipients were incarcerated during a 1-year period; in Los Angeles, 24 percent of Medicaid clients receiving mental health services were arrested over a 10-year period (Cuellar et al., 2007; Hawthorne et al., 2012). Mental illness frequently becomes *de facto* criminalized when those affected by it use illegal drugs, sometimes as a form of self-medication (Harris and Edlund, 2005), or engage in behaviors that draw attention and police response. Even with appropriate training, police have diverted such people into the criminal justice system rather than the mental health system because of time or resource constraints (e.g., through “mercy bookings,” when it appears that no mental health resources are

available for a person in need) (Lamb and Weinberger, 2005; Lamb et al., 2004; Morabito, 2007; Yoon, 2011).

Substance Abuse

Given the contribution of the war on drugs to the dramatic rise in incarceration (see Chapters 2 and 3), high rates of drug addiction among prisoners can be expected. Estimates of inmates with a history of substance abuse are somewhat uncertain, in part because of reliance on multiple, sometimes unvalidated, diagnostic instruments (Belenko and Peugh, 2005; Mears et al., 2002). However, national estimates (James and Glaze, 2006; Karberg and James, 2005; Mumola and Karberg, 2006) can serve as a useful overview and enable comparisons between prisons and jails (see Table 7-1).

Grant and colleagues (2004) report a 9 percent prevalence of substance use disorders within the U.S. population. In contrast, the Bureau of Justice Statistics reports that 68 percent of jail inmates have symptoms consistent with DSM-IV definitions of dependence or abuse. About 47 percent of jail inmates have alcohol dependence or abuse, compared with 54 percent of jail inmates with drug dependence or abuse, indicating a substantial population dealing with both substances simultaneously (Karberg and James, 2005). Among jail inmates, 78 percent of whites compared with 64 percent of blacks and 59 percent of Hispanics meet the criteria for substance dependence or abuse (Karberg and James, 2005). Rates are lower in state prisons—59 percent for whites, 50 percent for blacks, and 51 percent for Hispanics (Mumola and Karberg, 2006). In 2004, 17 percent of prisoners and 18 percent of federal inmates reported that “they committed their current offense to obtain money for drugs” (Bureau of Justice Statistics, n.d.-a).

Neuroscience research has demonstrated that addiction is a disease of the brain. Drug addiction is a chronic but treatable condition (see Box 7-1). Relapse is frequent, but with rates comparable to those for failure to adhere to treatment for other medical conditions, such as hypertension and diabetes (McLellan et al., 2000). The perception of addiction as a moral failing rather than a medical issue may have contributed to the low availability of treatment in the community. As a result, drug dependence remains left largely in the hands of the criminal justice system instead of the health care system—i.e., criminalized rather than medicalized. Simply incarcerating someone does not constitute effective treatment; without medical treatment, individuals are prone to relapse to drug use and too often to criminal behavior that results in reincarceration. The available evidence on drug treatment provided in correctional facilities is discussed later in this chapter.

BOX 7-1
Principles of Drug Abuse Treatment for
Criminal Justice Populations

1. Drug addiction is a brain disease that affects behavior.
2. Recovery from drug addiction requires effective treatment, followed by management of the problem over time.
3. Treatment must last long enough to produce stable behavioral changes.
4. Assessment is the first step in treatment.
5. Tailoring services to fit the needs of the individual is an important part of effective drug abuse treatment for criminal justice populations.
6. Drug use during treatment should be carefully monitored.
7. Treatment should target factors that are associated with criminal behavior.
8. Criminal justice supervision should incorporate treatment planning for drug abusing [individuals], and treatment providers should be aware of correctional supervision requirements.
9. Continuity of care is essential for drug abusers re-entering the community.
10. A balance of rewards and sanctions encourages pro-social behavior and treatment participation.
11. [Individuals] with co-occurring drug abuse and mental health problems often require an integrated treatment approach.
12. Medications are an important part of treatment for many drug abusing [individuals].
13. Treatment planning for drug abusing [individuals] living in or re-entering the community should include strategies to prevent and treat serious, chronic medical conditions, such as HIV/AIDS, hepatitis B and C, and tuberculosis.

SOURCE: Excerpted from National Institute on Drug Abuse (2012).

Many inmates have both a mental illness and a history of substance abuse. In jails, more than 70 percent of those with a serious mental illness have a co-occurring substance abuse disorder; the corresponding percentage in the general population is about 25 percent (Kessler et al., 1996; Ditton, 1999; James and Glaze, 2006; Steadman et al., 2009). Again, the rates are not directly comparable across different studies and time periods, but the health care community finds the potential differences striking (National Research Council and Institute of Medicine, 2013). Co-occurring disorders can complicate detection and effective treatment, especially when staff or diagnostic instruments are insufficiently sensitive, or where overcrowding or understaffing reduces the time spent on medical screening.

Infectious Diseases

Contagious diseases such as tuberculosis (TB) have traditionally been a major health problem in correctional facilities. One study found that in 1997, an estimated 40 percent of all those in the United States with TB passed through a correctional facility, while another study found that jail and prison inmates, respectively, had up to 17 times and 4 times the TB prevalence of the general population (Hammett et al., 2002). More recently, however, TB has been largely controlled in the United States, in contrast with some other world regions. In 2010, the lowest ever rate (3.4 cases per 100,000 population) and number of cases (10,528) were reported, and only 4.3 percent of the cases diagnosed were in a correctional facility (Centers for Disease Control and Prevention, 2012). Outbreaks are still possible in prisons and jails, however, because the presence of large numbers of people in enclosed, poorly ventilated spaces is highly conducive to the spread of TB (Centers for Disease Control and Prevention, 2004). Worldwide, transmission behind bars has been estimated to contribute to 6.3-8.5 percent of the TB cases in the community (Baussano et al., 2010).

Rates of sexually transmitted diseases (STDs) among people who pass through correctional facilities, particularly jails,² are higher than those in the general population (Centers for Disease Control and Prevention, 2011c; Hammett, 2006; Khan et al., 2011); according to the Centers for Disease Control and Prevention (CDC) (2011c), “prevalence rates for Chlamydia and gonorrhea in these settings are consistently among the highest observed in any venue.” Prevalence is especially high among female inmates, in whom syphilis seropositivity may be as high as 28 percent, compared with 10 percent among male inmates (Parece et al., 1999). However, reported rates may understate the true prevalence in facilities that do not perform universal screening or among sex workers, who often are released from jail before testing is conducted (National Commission on Correctional Health Care, 2002).

HIV prevalence also is higher in correctional populations than in the population at large, although local and regional estimates vary substantially across facilities and states depending on testing policies and practices (Desai et al., 2002; Maruschak, 2012; Centers for Disease Control and Prevention, 2011b). States or facilities that test primarily when requested by the inmate will likely underdiagnose HIV compared with states with opt-out testing (i.e., testing is automatic unless the inmate refuses) or with mandatory testing. That said, the prevalence of diagnosed HIV in correctional facilities declined from 194 cases per 10,000 inmates in 2001 to 146 cases per

²Screening for STDs is often conducted within jails for both those serving jail sentences and those who will be entering prison.

10,000 in 2010, but remains two to seven times higher than in the general population, with an overall prevalence of 1.5 percent (range 0.3 percent to 5.5 percent) among state and federal prisoners (Centers for Disease Control and Prevention, 2009; Maruschak, 2012).

CDC recommends HIV testing for all inmates (Centers for Disease Control and Prevention, 2009). National surveys of prisons in 2004 and jails in 2002 revealed that 77 percent of federal prisoners, 69 percent of state prisoners, and 18.5 percent of jail inmates reported being tested for HIV since their incarceration (Maruschak, 2004, 2006). A large portion of incarcerated individuals are at risk for HIV because of addiction, injection drug use, sexual practices, and high-risk social networks. An estimated **17 percent of all Americans living with HIV pass through a correctional facility** (jail or prison) annually. This includes 22-28 percent of all black men with HIV and 22-33 percent of all Hispanic men with HIV (Spaulding et al., 2009). Correctional facilities have played an important role in diagnosing HIV in people who have not previously been tested (Beckwith, 2010). They also are being studied as an important venue not only for diagnosing the 25 percent of people living with HIV that do not know they are infected but also, through treatment and linkage to care after release, for playing a critical role in the prevention of further HIV transmission (Granich et al., 2011).

People living with HIV frequently have other health problems, including coexisting infectious diseases. Because injection drug use is a common route of transmission for both HIV and hepatitis C virus (HCV) infections, HIV/HCV coinfection is especially common; in one study, 65 percent of prisoners with HIV also had HCV (Solomon et al., 2004). HCV by itself (monoinfection) is a “silent” infection, often without symptoms; it can remain unsuspected and undiagnosed until a late stage. Point estimates of HCV prevalence among correctional populations vary widely. An estimated 16-41 percent of prisoners carry HCV antibodies, and 12-31 percent have advanced to chronic infection, a rate 8-20 times higher than in the general population (Boutwell et al., 2005; Centers for Disease Control and Prevention, 2011a; Larney et al., 2013; Spaulding et al., 2006).

Although HCV now outpaces HIV in new cases and deaths in the community (Ly et al., 2012), it has not yet gained the same awareness among the public, including correctional administrators, which may be one reason HCV testing remains far less frequent than testing HIV (Varan et al., 2012). In addition, CDC has yet to promulgate recommendations for universal testing of prisoners for HCV as it has for HIV (Macalino et al., 2005). The high price tag for a course of HCV treatment (well over \$50,000 and rising) may also discourage prisons and jails from broad-based testing, because diagnosis could require treatment on the part of the correctional facility.

Chronic Conditions and Special Populations

Chronic diseases, such as hypertension, asthma, and diabetes, as well as health conditions in special populations, have only recently become a substantial focus for researchers in correctional health. Chronic conditions now constitute a growing percentage of correctional health care needs as the result of a confluence of trends, especially the increase in chronic disease among younger Americans and the aging of the correctional population (see below). One study estimates that 39-43 percent of all inmates have at least one chronic condition (Wilper et al., 2009).

With few exceptions, the prevalence of almost all chronic conditions is higher among both prison and jail inmates than in the general population (Binswanger et al., 2009). In a national study, inmates had 1.2-fold more hypertension than the general population. Even in the youngest age group (18-33), 10 percent of jail inmates and 11 percent of prison inmates had hypertension, compared with 7 percent of nonincarcerated individuals in the same age group, and patterns were similar for other common chronic conditions (e.g., asthma) (Binswanger et al., 2009). Other local studies have found that inmates are similar to the general population on measures of hypertension, diabetes, and heart disease risk (Harzke et al., 2010; Khavjou et al., 2007). Since not all inmates receive medical screening for chronic conditions, however, these conditions may have been underreported among prisoners.³

Certain populations present unique health care challenges within correctional facilities. Incarcerated juveniles generally are held separately from adults; however, about 10 percent are held in adult prisons (see Chapter 6). In either setting, they are highly vulnerable and, like adult prisoners, have a higher disease burden than their nonincarcerated peers. More than two-thirds of incarcerated adolescents report a health care need. Dental decay, injury, and prior abuse are common, and 20 percent are parents or expecting (American Academy of Pediatrics Committee on Adolescence, 2011). Studies have found a high prevalence of STDs among incarcerated adolescents, as well as engagement in high-risk behaviors associated with HIV, STDs, and hepatitis and limited access to health care (see the review by Joesoef et al., 2006). A study of adherence to standards of the National Commission on Correctional Health Care found that fewer than half of juvenile detention facilities complied with recommended screening for health care needs upon admission (Gallagher and Dobrin, 2007).

Prisoners with disabilities also tend to be overlooked. Disabilities that are relatively minor in society at large can constitute serious impediments to well-being in prison. Living in correctional facilities entails activities of

³Note such conditions in the general population may also be underreported.

daily living (ADLs) that pose particular challenges to people with physical or developmental disabilities. For instance, regular ADLs include bathing and dressing, but ADLs in prison also can involve getting on and off an upper bunk, dropping to the floor for alarms, and hearing and promptly following orders against extensive background noise (Williams et al., 2006).

Finally, incarcerated veterans generally are not less healthy than the correctional population as a whole, with the exception of high rates of posttraumatic stress disorder (PTSD) (Tsai et al., 2013a, 2013b; Greenberg and Rosenheck, 2009, 2012). At the same time, they have the advantage of access to resources in the Department of Veterans Affairs (VA) upon reentry. Some correctional systems coordinate with the VA to ensure that veterans succeed in linking to VA care following release from incarceration.

The aging incarcerated population and women within correctional facilities are discussed further below.⁴

The Aging Incarcerated Population

From 1990 to 2012, the U.S. population aged 55 or older increased by about 50 percent. In that same period, the U.S. incarcerated population aged 55 or older in the state and federal prison systems increased by some 550 percent as the prison population doubled (Williams et al., 2012). The overall percentage of older adults within prison systems remains small compared with the vast majority of those 40 and under; however, those 55 and older generally are in poorer health than those younger than 55 (Williams and Abraldes, 2010; Williams et al., 2012).

As in the general population, older compared with younger inmates tend to have higher rates of typical chronic health conditions (e.g., congestive heart failure, diabetes, chronic obstructive pulmonary disease) and serious life-limiting illnesses. A Texas study, for example, found that 41 percent of prisoners aged 45-54 had at least one chronic condition, compared with 65 percent of those 55 or older (Harzke et al., 2010).⁵ Older inmates also may have high rates of additional geriatric syndromes, such as cognitive impairment or dementia, and disabilities or impaired ability to perform ADLs. Like inmates with disabilities, older inmates may not be able to drop to the floor as instructed in response to an alarm or, worse, be unable to get back up again after the alarm is over, or have difficulty climbing on or

⁴Much of the information in the next two sections comes from the aforementioned workshop on health and incarceration (National Research Council and Institute of Medicine, 2013).

⁵The prevalence of chronic diseases may be underestimated in this study because prisoners under age 50 were not screened for many conditions after intake. In addition, most studies are based on self-reported symptoms or diagnoses, and prisoners also may not trust correctional staff (Harzke et al., 2010), be concerned about stigma associated with some health problems, or be ignorant of their own health conditions.

off their assigned bunk. Given the aging trend during the period of rising incarceration rates and the greater prevalence of health conditions among older inmates, prisons increasingly are becoming a critical delivery site for nursing home-level care and care for serious chronic illnesses (National Research Council and Institute of Medicine, 2013). As discussed later, many prisons lack the resources for such care.

The rapidly increasing population of older adults in correctional facilities underscores the importance of screening and, more important, re-screening, for cognitive impairment, dementia, and disability. Currently, a disability assessment generally is performed only at intake, even if an individual is incarcerated for decades. Older prisoners will best serve their time if placed in correctional housing appropriate to their cognitive and physical abilities. In the New York prison system, for example, as the proportion of inmates over 50 rose to 11 percent in 2006, a dementia unit was created when needs of the afflicted inmates were not served in general facilities. Many fear the need for nursing home-type care could be a growing trend if incarceration rates are not reduced (Becker, 2012; Hill, 2007).

The Health of Female Inmates

Although female inmates make up only about 10 percent of the correctional population, they have higher rates of disease than male inmates and additional reproductive health issues. Rates of mental illness are substantially higher among female than male inmates, particularly because they have high rates of childhood sexual abuse and PTSD (Binswanger et al., 2010; Lewis, 2006). A systematic review found particularly large variation in estimates of the prevalence of alcohol dependence/abuse by gender, in part because of multiple diagnostic instruments and methodologies. Nonetheless, 18-30 percent of male prison inmates exhibited alcohol dependence/abuse, only slightly in excess of figures for the U.S. general public, while at 10-29 percent prevalence, female prisoners were two to four times as likely as nonincarcerated women to have alcohol dependence/abuse (Fazel et al., 2006).

An estimated 5 to 6 percent of women entering prisons and jails are pregnant (Clarke and Adashi, 2011). The data on birth outcomes vary, but in general, babies weigh more the longer a woman is incarcerated. Reasons for these better birth outcomes likely include better access to prenatal care; decreased substance use; and for some, stable housing and regular meals. These outcomes for the incarcerated underscore the need for services in communities for highly vulnerable populations.

Studies also have shown that most women who enter incarceration pregnant conceived within 3 months of leaving a prior incarceration (Clarke et al., 2010). This finding suggests the value of correctional facilities providing

family planning services. In fact, about 70 percent of women in the criminal justice system who are at risk of an unplanned pregnancy say they want to start using a contraceptive method (Clarke et al., 2006).

The prevalence of STDs (tested for on entry to prison or jail) is about 10 to 20 times higher in the incarcerated than in the general population, and at least twice as high as in the incarcerated male population (Hammett, 2009). In addition, 25-40 percent of female inmates have abnormal pap smears, compared with 7 percent of women in the general population (Nijhawan et al., 2010). Screening and treating women for such infections is important, as the health consequences of these diseases are much greater for women than for men.

HEALTH CARE IN CORRECTIONAL FACILITIES

Correctional facilities are health care providers of last resort for many people who lack access to care in the community; however, there is much uncertainty about the quantity and quality of care across these institutions. In this section, we acknowledge the legal basis for health care within correctional facilities and associated costs for both inmates and facilities. We discuss the difficulty of assessing the quality of care across correctional facilities because of the lack of uniform standards, the disconnect between correctional health care and that provided within the community, and the variations in correctional health providers and availability of treatments. We close with a reflection on the role of correctional health care in offsetting health disparities.

Legal Basis

The 1976 Supreme Court decision in *Estelle v. Gamble* found that deliberate indifference to serious medical needs of the incarcerated constitutes a violation of the Eighth Amendment prohibition of cruel and unusual punishment. *Estelle v. Gamble* led to expanded health care services for inmates, especially through a series of subsequent lawsuits or threatened litigation (Greifinger, 2010; Metzner, 2012). Indeed, the main oversight of health care in correctional settings, aside from voluntary accreditation, has been through the court system. The duty of correctional facilities to provide health care was recently reinforced in *Brown v. Plata* (2011),⁶ which resulted in California's being ordered to reduce overcrowding in prisons because of the associated failure to provide adequate health care to all inmates.

⁶*Brown v. Plata*, 131 S. Ct. 1910 (2011).

Some have argued that the constitutionally mandated standards of care for inmates are quite low (Human Rights Watch, 2003), especially given the need to demonstrate “deliberate indifference” in lawsuits alleging inadequate care and the limitations imposed by the Prison Litigation Reform Act of 1996 (Wool, 2010). That act was intended to reduce “frivolous” lawsuits. However, critics argue that it has effectively cut off access to legal remedies for many prisoners and their advocates—for instance, through the requirement that prisoners pay filing fees from their prison accounts and especially by means of the “exhaustion rule,” which requires prisoners to exhaust all avenues of administrative appeal before filing a case (Gibbons and Katzenbach, 2006; Wool, 2010).

Costs

To see a health care provider, inmates generally must submit a sick call slip and often must pay a fee. Copayments have been implemented in the federal system, about 70 percent of state prisons, and an unknown number of jails. While copayments usually are small sums (e.g., \$2.00-5.00), even this low cost has been a substantial deterrent for inmates making \$0.07-\$0.13 per hour, who often put off health care requests as long as possible (Awofeso, 2005; Fisher and Hatton, 2010; Gibbons and Katzenbach, 2006). Some systems, notably accredited facilities, do provide waivers for copayments, at least for some types of care, such as that for communicable diseases and true emergency and follow-up care; copayments also can be waived for incarcerated people who are medically indigent. A 2003 CDC report on a multistate outbreak of antibiotic-resistant staph infections in correctional facilities cites copayments, along with staff shortages, as hindering access to timely care, which contributed to the spread of the infection (Centers for Disease Control and Prevention, 2003).

Comprehensive data are lacking on costs to correctional facilities for providing health care. The Bureau of Justice Statistics reports that in 2001, state prisons spent 12 percent of their operating expenditures, or \$3.3 billion, on health care for prisoners. There was wide variation by state, ranging from \$5,601 (Maine) to \$860 (Louisiana) per inmate per year, with an average of \$2,625 per inmate per year, or \$7.19 per day (Stephan, 2004).

Generally, all medical costs are borne by the correctional institution, given the prohibition on using Medicaid or Medicare funds to treat prisoners. One small exception, which correctional facilities increasingly are taking advantage of, is the use of Medicaid funds to provide care in the event of overnight hospitalization outside of the correctional institution. The pending implementation of the Patient Protection and Affordable Care Act (ACA) and accountable care organizations may offer the opportunity

to fund at least some care for pretrial detainees in jails (National Research Council and Institute of Medicine, 2013).

Standards

There are a number of international guidelines for prisoner care, especially those framed by the United Nations High Commissioner for Human Rights (United Nations, 2005) and the World Health Organization (2007), but the United States has either not ratified or not regularly monitored and enforced such international agreements. Standards for correctional health care also have been established by the American Public Health Association, the American Correctional Association, and the National Commission on Correctional Health Care. About 500 of more than 3,000 facilities have been accredited, but no systematic studies are available to provide any evidence of conditions following adoption of these standards (Stern et al., 2010). Uniform quality-of-care standards for correctional systems and facilities, which would permit comparisons to identify better- and worse-performing facilities or improvements in care delivery over time, currently are lacking. The quality measures employed and the underlying data systems on which measures rely continue to vary substantially (Asch et al., 2011; Damberg et al., 2011). In part, this variation results from the difficulties of translating quality measures used in free society to correctional facilities. In addition, there are no measures for the quality of health care during the period of transition into or out of correctional facilities, perhaps the most perilous time from a health perspective.

Screening

Some correctional facilities have served as important public health collaborators in screening for and diagnosing various infectious diseases. During the 1990s, for instance, a third of all HIV cases in Rhode Island were diagnosed at the state's correctional facilities (Beckwith et al., 2010; Desai et al., 2002). Hamden County jail in Massachusetts, which partners with community health centers, facilitates continuous care delivery by assigning new inmates, based on their zip code, to care from staff of community health centers while inside the facility and developing individualized discharge plans linking inmates to their local health centers upon release (Conklin et al., 2002). A number of other facilities have sought partnerships with community-based medical and public health practitioners to ensure that care begun during incarceration is continued following release (Lincoln et al., 2006; Wang et al., 2008; Zaller et al., 2008). Continuity of care following release is discussed in greater detail later in this chapter.

Overall, however, a disconnect exists between correctional health care and state or local public health departments in diagnosis and in planning and delivery of care for inmates and those released into the community. Testing policies and procedures remain inconsistent across states and facilities. In jails, where many people remain for under 48 hours, testing follow-through (receipt of test results and establishment of a treatment regime) is especially challenging.

Correctional Health Care Providers

The structures, quantity, and quality of correctional care vary widely both among the states and within state and local systems. The picture of who provides care in correctional facilities overall is incomplete. The largest systems typically have a full range of in-house medical services, whereas municipal and local jails often rely on arrangements with local providers. Many correctional doctors, nurses, and other health care workers are still government employees, but about 10 percent of all prisoners are held in privately owned prisons. As of 2004, 32 states contracted with private industry (e.g., Correctional Healthcare Companies, Inc.) for some or all of their medical services, accounting for approximately \$3 billion of the estimated \$7.5 billion allocated for correctional health care (Bedard and Frech, 2009; Mellow and Greifinger, 2007). In 2005, 40 percent of all inmate medical care was provided by for-profit companies (von Zielbauer, 2005); 77 of 88 federal institutions surveyed for a Bureau of Prisons report had comprehensive contracts for medical services with such companies (Office of Inspector General, 2008). Others have contracted with academic medical centers, a partnership some scholars have argued could facilitate correctional systems' integration into the medical community at large, instead of their remaining relegated to its fringes (Kendig, 2004). No comprehensive studies have as yet established whether the type of provider (public, private, or academic) is correlated with the quality of care provided or any clinical outcomes.

A number of state audits and anecdotal evidence suggest that private health care services to correctional facilities are particularly marked by substandard care (Bedard and Frech, 2009; Robbins, 1999). For instance, a state audit in Maryland, where health care services were contracted out among six different companies, found that 8 of 37 medical contractor employees were not present as scheduled during a site visit, including 6 scheduled to perform the required intake medical exams used to screen new arrivals for critical health problems and suicide risk (Office of Legislative Audits, 2007). Timekeeping records also showed that 48 percent of employees were working 12 hours or more per day, contravening a state cap of 8 hours designed to ensure quality of care. And the Maryland audit found a failure to respond to sick call requests in a timely manner in 39-45

percent of cases, more than 2,700 appointment cancellations in a 6-month period, and regular medication dispensing errors.

The substandard practices documented in the Maryland audit are offered for illustrative purposes, not as especially egregious examples. Insufficient levels of health care staffing and poor access to health care providers are common in correctional facilities, and may be more so where health care services have been contracted out (Bedard and Frech, 2009; Lindquist and Lindquist, 1999; Robbins, 1999). The health outcomes associated with staffing shortages were highlighted in testimony during *Brown v. Plata*, which specifically linked overcrowding to the failure to abide by constitutionally required provider-to-patient ratios. California had vacancies among 25 percent of its budgeted physicians, 39 percent of its nurse practitioners, and 54 percent of its psychiatrists, and the federal court declared even the number of positions in the budget insufficient to meet inmate needs. *Brown v. Plata* further revealed that the conditions of care created by overcrowding had resulted in a staff culture of “cynicism and fear,” which made it even more difficult to attract competent clinicians and presumably affected the care provided by existing staff. The California staffing shortfalls became especially notorious in association with holding conditions for inmates awaiting treatment, particularly the mentally ill, who were held in phone booth-sized cages without access to toilets for extended periods of time.⁷

In the absence of a systemic overview of care provided in correctional facilities, it is impossible to know how representative such examples are, but anecdotal reports from other states also indicate extensive waiting periods. However, the committee recognizes that many correctional health care providers across the country are highly trained and deeply committed to their patients’ well-being.

Drug Treatment

As noted earlier, a body of evidence shows that drug addiction is a chronic brain disease that can be treated effectively (Chandler et al., 2009; Volkow and Li, 2005). The principles of drug abuse treatment of the National Institute on Drug Abuse presented earlier in Box 7-1 suggest that drug treatment, in parallel with sanctions for individuals involved with the criminal justice system, can be effective in leading toward recovery from drug addiction as well as reducing criminal behavior (see also Matejkowski et al., 2011; Nordstrom and Williams, 2012). Nationwide, the current levels of treatment for substance abuse/dependence are insufficient to meet the needs of those involved in the criminal justice system. By one estimate, 70-85 percent of state prisoners were in need of drug treatment, while only

⁷*Brown v. Plata*, 131 S. Ct. 1910 (2011).

13 percent received care (in a 1996 study by the Center on Addiction and Substance Abuse reported in Mears et al. [2002]). Another survey found that on average, fewer than 10 percent of inmates had access to drug treatment services at any given time (Chandler et al., 2009).

Drug treatment administered by the criminal justice system has taken several approaches: assignment to interventions within the community, referral to drug courts where treatment is merged with judicial oversight, treatment while incarcerated within prisons and jails, and/or participation in reentry programs when prisoners transition from prison back to the community. Interventions for the incarcerated include drug and alcohol education, group counseling, therapeutic communities, relapse prevention, case management, cognitive behavioral therapy, medication-assisted therapy, and others (Taxman et al., 2013). Drug treatment is most effective through proper routine screening, diagnosis of the type of substance use disorder and matching patients to appropriate evidence-based practice that continues beyond incarceration into the community (Friedmann et al., 2007). The latter is perhaps most critical given the chronic relapsing nature of addiction as well as the high number of stressors and triggers that individuals face upon reentry.

Research on drug treatment among incarcerated populations is limited but improving; there have been several recent meta-analyses of incarceration-based drug treatment. One examines four types of therapeutic communities, group counseling, boot camps, and narcotic maintenance programs (Mitchell et al., 2012). The authors find the strongest support for therapeutic communities in reducing both recidivism and relapse to substance use. They find support for group counseling, but because of the often eclectic nature of such counseling, disentangling its effects on substance use from other program attributes remains challenging. The authors find no effects at all for correctional boot camps oriented toward drug-involved individuals. They find less support for medication-assisted therapies for opiate addiction on reducing recidivism in their review, but several other studies find they are associated with reduced drug use and criminal behavior (Egli et al., 2009; Hedrich et al., 2011; Perry et al., 2013).

A recent randomized trial of heroin-dependent prisoners receiving methadone treatment prior to release and postrelease (Gordon et al., 2008) found that individuals “who received methadone plus counseling were significantly less likely to use heroin or engage in criminal activity than those who received only counseling” (Chandler et al., 2009, p. 184). Another randomized trial also confirmed the importance of counseling in addition to methadone treatment (McKenzie et al., 2012). That study compared outcomes between individuals who initiated methadone maintenance treatment just weeks prior to release with those who received only counseling and were referred to treatment at the time of release. Individuals who initiated

methadone treatment prior to release were significantly more likely to enter treatment in the community postrelease and did so within fewer days. The study also found that these individuals reported less heroin use, other opiate use, and injection drug use at 6-month follow-up. Additional studies have demonstrated the importance of continuity of care, often finding that when treatment is provided in prison and after release, treatment effects are magnified (Butzin et al., 2006; Larney et al., 2012; Martin et al., 1999; Mitchell et al., 2012).

Despite growing evidence of the usefulness of drug treatment programs (Chandler et al., 2009), survey results show that few correctional facilities have adopted evidence-based treatments, relying more frequently on less effective drug education services (Chandler et al., 2009; McCarty and Chandler, 2009). A survey by the Substance Abuse and Mental Health Services Administration found that 57 percent of prisons and jails provided self-help programs such as Narcotics Anonymous, but only 16 percent provided detoxification (Substance Abuse and Mental Health Services Administration, 2000). Moreover, detoxification and treatment of withdrawal most often entailed use of analgesics such as Tylenol (Oser et al., 2009), which do not treat underlying addiction and leave prisoners vulnerable to relapse and overdose upon release. Although methadone maintenance has been found effective in reducing heroin use (Centers for Disease Control and Prevention, 2002), HIV risk behaviors and transmission, and overdose deaths (Institute of Medicine, 1995), U.S. prison authorities have largely rejected its use (Nunn et al., 2009; Rich et al., 2005).

To some extent, correctional facilities simply mirror structural and organizational problems of the broader health care system in treating substance abuse/dependence (Taxman et al., 2009) and the general lack of understanding of drug addiction and evidence-based treatments, but these problems are exacerbated in the correctional setting. Correctional health care staffs generally do not include physicians familiar with addiction medicine who can educate correctional authorities about addiction as a medical condition; as a result, addiction frequently is omitted from the list of medical conditions for which treatment must be provided (Chandler et al., 2009). The lack of proper medical management of an addiction frequently undermines successful treatment of other, coexisting health conditions, such as HIV or diabetes, that require ongoing adherence to treatment (Chandler et al., 2009; Humphreys, 2012).

Health Disparities

Given the substantial racial/ethnic disparities in both incarceration (see Chapter 2) and health (Institute of Medicine, 2001, 2012) in the United States, it is important to address the relationship between correctional

health care and health disparities. The preceding discussion of the potential public health role of correctional facilities as places to diagnose and treat the medically underserved suggests that capitalizing on these opportunities for care and especially for linkage to care after release could help offset health disparities in the community. Rosen and colleagues (2012), for example, found that black inmates were more likely than white inmates to see a provider for some condition, such as a heart problem, although what care actually was provided as a result of those visits is unknown.

Mortality rates in prison appear to support the argument that incarceration is associated with a reduction in health disparities. The state prison mortality rate in 2009 was 366/100,000 for whites, compared with 225/100,000 for blacks and 195/100,000 for Hispanics (Noonan and Carson, 2011). These figures reflect a black mortality rate that is 57 percent lower than that in the general black population and a white rate that is 10 percent higher than that in the general white population (Mumola, 2007; Spaulding et al., 2011). (Jails, where most inmates remain for only a few days, have much lower mortality rates [Noonan, 2007; Spaulding et al., 2011].) Patterson examined mortality data for 29 states from 1985 to 1998 and found that rates among both black and white prisoners resembled those among nonincarcerated whites (Patterson, 2010). Similar trends were identified in Georgia's 15-year survival rates between 1991 and 2006 and a comparison of standardized mortality rates in North Carolina using 1995-2005 data (Mumola, 2007; Noonan, 2007; Rosen et al., 2011; Spaulding et al., 2011). The striking difference between mortality for African Americans in and out of prison should draw attention to the context of their lives outside of prison and consideration of how that context has changed over time, particularly during this period of increased incarceration.

With some methodological variation, these studies all agree that blacks are less likely to die in than outside prison, while whites do not appear to share that advantage. Possible explanations include theories on the temporarily eliminated risk of vehicle- and firearm-related mortality that plays a prominent role in some communities; the provision of health care during incarceration; and a "healthy worker" effect,⁸ whereby those in poor health are observed to be largely kept out of the criminal justice system. The latter theory is discounted on its face because the health profiles of prison and jail inmates in general are worse than those of the general population. However, the theory may play a role in the reduced disparities among inmates compared with the general population because incarceration casts a broad net into the black population, capturing a large number of relatively healthy

⁸The healthy worker effect, initially observed in studies of occupational diseases, explains that workers usually exhibit lower overall death rates than the general population because the severely ill and chronically disabled are ordinarily excluded from employment (Last, 1995).

black men. Thus the relatively small racial disparities in overall inmate mortality rates (Patterson, 2010; Rosen et al., 2008; Spaulding et al., 2011) may simply reflect the fact that nonincarcerated versus incarcerated young black males are at excess risk of dying, particularly from vehicular and gunshot injuries, rather than any relevant benefit of incarceration for blacks compared with whites. As discussed in subsequent chapters, however, in the long run, incarceration, as a disruptive life event experienced disproportionately by young black and Hispanic men, may have adverse effects on employment, homelessness, marriage, and other social determinants of health that end up concentrated among nonwhite families (Binswanger et al., 2012; Iguchi et al., 2005; London and Myers, 2006; Massoglia, 2008a, 2008b; Pager et al., 2009a; Schnittker and John, 2007).

IMPACT OF INCARCERATION ON HEALTH

As discussed above, a significant number of people enter prisons and jails with serious health conditions, and these institutions are required to provide them with an adequate level of medical care. Access to health care in prisons and jails is especially important for black men, who outside of prison, on average, have lower access to care than white men (Rosen et al., 2012). Prisoners are often, but far from always, willing to participate in whatever preventive health care services are available (Nijhawan et al., 2010). For example, a South Dakota study found that 43 percent of uninsured incarcerated women qualifying for CDC's WISEWOMAN Program completed all the intervention sessions, compared with 4 percent of their nonincarcerated peers (Khavjou et al., 2007). A 2008 federal audit found that federal prisons provided preventive care health services to more than 90 percent of inmates (Office of the Inspector General, 2008).

This section examines what is known about inmates' health changes over the course of incarceration, looking particularly at how the prison conditions and violence experienced by inmates may affect their physical and mental health. Unfortunately, the available evidence is limited, and we can only conclude that, overall, health probably improves during incarceration in some ways but deteriorates in others.

Conditions of Incarceration and Health

For people living especially chaotic lives, incarceration can offer respite and stabilization. In addition to access to health care, it provides stable meals; a structured day; and reduced access to alcohol, drugs, and cigarettes. As discussed in more detail in Chapter 6, however, many daily conditions of incarceration have direct negative impacts on mental health. They also affect physical health.

Incarceration is related to the incidence of infectious diseases (i.e., new cases of infection) in complex ways. On the negative side, the near-capacity occupancy of many facilities and the overcrowding of others continue to raise concerns about transmission of airborne infections, especially diseases such as TB and influenza. On the positive side, compared with some other world regions, there is little incidence of infectious diseases, particularly those requiring blood-to-blood transmission, within U.S. correctional facilities. However, evidence is growing regarding postrelease transmission rates. For one thing, the primary paths of transmission for HIV and HCV—sex and drug use—are less frequent in than out of prison⁹ (Blankenship et al., 2005). Thus the vast majority of HIV and HCV incidence among the incarcerated population in the United States occurs before incarceration or shortly after release from prison or jail (Beckwith et al., 2010). HIV incidence is slightly higher among inmates than in the general population (0.08 per 100 person-years versus 0.02 per 100 person-years), but it is much higher among people who are released and reincarcerated (2.92 per 100 person-years), indicating that the highest risk is in the periods between release and reincarceration rather than during the prison or jail stay itself (Gough et al., 2010). Inmates with HIV who remain incarcerated have lower viral loads and higher CD4 counts (i.e., their HIV is better controlled) than those who have been released and reincarcerated, meaning that those cycling repeatedly through the correctional system are not only less healthy but also more infectious (Baillargeon et al., 2010a).

The effects of incarceration on general health and chronic diseases are more difficult to evaluate. Aggregate information on health behaviors and associated changes in health during incarceration is lacking, and although health behaviors of the incarcerated (physical activity, nutrition, and smoking) are now receiving increased attention from researchers, their findings are mixed or limited. For example, studies from the United Kingdom and Australia provide contradictory evidence on the amount of physical activity among men and women in correctional facilities compared with the general population (Herbert et al., 2012; Plugge et al., 2009). With respect to nutrition, the nutritional value of prison meals is far from ideal because energy-dense (high-fat, high-calorie) foods are common, although prison meals may be better than those normally consumed by people living especially chaotic lives. One of the few studies to measure inmates more than once found that 71 percent of women gained weight over a 2-week period after admission to jail, on average 1.1 pounds per week (Clarke and Waring, 2012).

⁹Note, however, that sex and drug use often are conducted in a riskier manner in prison than on the outside, given limited access to condoms and injection and sterilization equipment, limited privacy, and a coercive environment (Blankenship et al., 2005).

The prison environment may exacerbate health conditions such as asthma because of poor ventilation, overcrowding, and stress (which may trigger asthma attacks) (Wang and Green, 2010). Smoking is a serious problem, with a prevalence of 60-80 percent and secondhand smoke concentrations from 1.5 to 12 times greater than in the average smoker's home. There is an ongoing trend toward smoke-free correctional facilities, but although 60 percent of prison systems have total smoking bans and 27 percent more ban smoking inside, smoking remains common among prisoners (Kauffman et al., 2011). A survey of female inmates in Rhode Island also found a strong inverse correlation between the number of incarcerations and willingness to remain abstinent from smoking after release (Nijhawan et al., 2010). Thus despite some improvements with smoking bans (Ritter et al., 2012), both smoking and exposure to secondhand smoke during incarceration likely are contributors to ongoing deterioration of health, including asthma, among prisoners.

More evidence is available regarding the effects of incarceration on mental health. Two conditions are particularly associated with a serious degeneration of mental health: overcrowding and confinement in isolation units (see the discussion in Chapter 6). Strains on staffing and facilities, mentioned above in the context of *Brown v. Plata*, have had serious repercussions for wait times and holding conditions for the mentally ill. In addition to their often untreated illness, mentally ill prisoners are more likely than other prisoners to incur disciplinary infractions and suffer punishment as a result (James and Glaze, 2006; O'Keefe and Schnell, 2007), and they also are more likely to be victimized, including sexual victimization, in the course of their confinement (Beck et al., 2013; Blitz et al., 2008; Wolff et al., 2007).

In extreme cases, some prisoners react to the psychic stresses of imprisonment by taking their own lives. Various studies have documented somewhat higher rates of suicide among prisoners than in the general population (Bland et al., 1990; Hayes, 1989; Mumola and Noonan, 2007; Mumola, 2005).¹⁰ Significant reductions in the rate of suicides in U.S. prisons have been achieved over the past several decades. Thus, suicide rates in prison dropped from 34 per 100,000 in 1980 to 16 per 100,000 in 1990, and largely stabilized after that (Mumola, 2005). Most experts believe that the reduction occurred largely because of proactive steps taken by prison officials and staff. For example, the main agency that accredits correctional

¹⁰According to data from the National Center for Health Statistics and the Bureau of Justice Statistics, the overall rate of suicide in the United States in 2002 was 11 per 100,000, as compared with 14 per 100,000 for prisoners (McKeown et al., 2006; Mumola, 2005). A match of the rates according to the demographic makeup of the prisoner population would likely make this differential even smaller.

facilities now requires, as a precondition for accreditation, that prisons screen incoming inmates for suicide risk and provide treatment for those found to be at risk and that they have implemented a program of suicide prevention (American Correctional Association, 2003, Standard 4-4373). Nonetheless, suicide remains the leading cause of death in local jails and in the top five causes of deaths in state prisons (among cancer, heart disease, liver disease, and respiratory disease) (Noonan, 2012).

Rates of prison suicide appear to be a product both of the number of traumas and risk factors to which prisoners were exposed before incarceration and the harshness of the prison conditions they experience during their confinement (Liebling, 1995). Thus, although researchers have identified individual factors and background characteristics that help predict suicide in different groups of incarcerated male prisoners, they also have identified institutional factors—the severity of environmental stressors—that play a significant role in the levels of anxiety, depression, and suicidality from which prisoners suffer (Cooper and Berwick, 2001). Many experts believe that, despite being one of the leading causes of prison fatalities, suicide is “potentially the most preventable cause of death in prisons” (Salive et al., 1989, p. 368) and that psychotherapeutic and other kinds of prison interventions can have a significant effect in further reducing suicide rates (e.g., Patterson and Hughes, 2008).

Violence and Health

A review of the health effects of incarceration must take account of violence and injury, both self- or other-inflicted and accidental. Violence and injury are considered public health issues in free society but generally are viewed as disciplinary or management problems in correctional facilities (Sung, 2010). With the decline of HIV and TB rates, injuries are now the most common health problem in correctional facilities (Sung, 2012). Fifteen percent of state prisoners surveyed by the Bureau of Justice Statistics reported violence-related injuries, and 22 percent reported accidental injuries (Sung, 2010). A New York City jail study found that 66 percent of all inmate injuries were intentional, and 39 percent of those injuries were serious enough to require care beyond the means of the facility’s medical staff (Ludwig et al., 2012). Among jail inmates nationally, 13 percent reported being injured either through violence or accidentally (Sung, 2012). In a study of one jurisdiction, 32 percent of male prison inmates reported a physical assault in a 6-month period (Wolff and Jing, 2009). In a study among U.S. prisoners, 14 percent of white men and 18 percent of black men sustained fight-related injuries, although some may have forgone medical treatment for their injuries in keeping with prison culture (Rosen et al., 2012).

Certain types of injury are becoming the focus of concern. Traumatic brain injury (TBI) may have distinctive repercussions for not only long-term health but also recidivism, as it is associated with violence and criminal justice involvement (Farrer and Hedges, 2011). Although few data are available on TBIs suffered during incarceration, a meta-analysis found consistently and substantially higher lifetime prevalence among prisoners than in the general population (Farrer and Hedges, 2011), indicating the need for greater attention to targeted treatment and/or behavioral interventions for inmates with a TBI history.

Self-injury also is common. According to one study, about 50 percent of female prison inmates engaged in self-injury (e.g., cutting or ingesting foreign objects, as distinct from suicidal behaviors), although only about half of respondent states kept data on this behavior. The study also found that self-injury was most common for those held in segregation units (Appelbaum et al., 2011).

More data are available on sexual assault as a result of the 2003 Prison Rape Elimination Act, which required the collection and analysis of data on sexual assault in correctional facilities (Fellner, 2010). This important legislation is a good example of the federal government's taking an active role in responding to a problem within the nation's prisons. Sexual assault not only places victims at risk of physical injury during the assault but also increases the risk of STDs, including HIV, and mental health repercussions, including depression and suicide. Interviews with inmates reveal that many still do not report sexual assault, however, either because they fear repercussions from other inmates or correctional authorities or because they are unable to discuss the experience (Jenness et al., 2010). In a survey of parolees by the Bureau of Justice Statistics, nearly 10 percent of former state prisoners reported at least one episode of sexual victimization during their most recent incarceration (Bureau of Justice Statistics, 2012b). In a survey of current inmates, more than 4 percent of prison inmates and 3 percent of jail inmates reported sexual assault (Beck et al., 2013).

The increase in data collection as a result of the Prison Rape Elimination Act also has allowed a better understanding of both victims and perpetrators. A substantial proportion of incidents involving staff were reported as consensual (without coercion or force) and between male inmates and female staff (Beck et al., 2010; Bureau of Justice Statistics, 2012b). However, female inmates were far more likely than males to report being pressured into sexual activity by staff (82 percent of female victims versus 55 percent of male victims) (Beck et al., 2010). Based on self-report, women also were more subject to sexual victimization by other inmates; 14 percent reported such assaults, compared with 4 percent of men (Bureau of Justice Statistics, 2012b). Women who have previously been abused are at especially heightened risk of sexual assault during incarceration (Beck and

Harrison, 2008; Moloney et al., 2009). Inmates who reported their sexual orientation as other than heterosexual (12 percent of such prisoners and 8.5 percent of such jail inmates [Beck et al., 2013]) or who had experienced sexual victimization prior to incarceration also were at higher risk (Beck, 2010; Beck and Harrison, 2008; Beck et al., 2013; Wolff and Jing, 2009). Bisexual or gay men were 10 times as likely to be victimized as straight men (Bureau of Justice Statistics, 2012b).

While the Prison Rape Elimination Act required all states to collect and report all allegations of such incidents and to note whether they had been “substantiated” through investigation, serious questions continue to be raised about the completeness and reliability of the data acquired. For example, the extreme state-by-state variability in numbers of “substantiated” claims of sexual abuse perpetrated by staff members against inmates reported in 2006 (e.g., none of 152 allegations substantiated in Florida as compared with 6 of 7 substantiated in West Virginia) led one researcher to conclude “that not only are state practices of dealing with the allegations of sexual abuse strikingly different, but that some of them are also suspiciously perfunctory in determining whether evidence was (in)sufficient to show that the alleged incident occurred” (Kutateladze, 2009, p. 201).

HEALTH FOLLOWING RELEASE

In this section, we discuss the importance of continuity of care during the transition from medical care in prisons or jails to that in the community. Unfortunately, such continuity often is absent.

Some changes in health status may not fully manifest until long after release from incarceration. Evidence on the longer-term outcomes for health conditions among former prisoners is limited, but some studies have found associations between previous incarceration and heightened risk of asthma, hypertension, and stress-related diseases (Massoglia, 2008a; Wang and Green, 2010; Wang et al., 2009; Mallik-Kane and Visser, 2008). For most, the period immediately following release from prison is especially risky. While, as discussed earlier, mortality rates within prisons and jails are comparable to those among the general population for white males and lower than among nonincarcerated peers for black males, ex-prisoners are nearly 13 times more likely than the general population to die in the 2 weeks following release (Binswanger et al., 2007; Patterson, 2010; Rosen et al., 2011; Spaulding et al., 2011).

Studies show that prisoners are at great risk of suicide shortly after being released from prison (e.g., Pratt et al., 2006). In addition, those recently released are 129 times more likely than the general population to die of an overdose (Binswanger et al., 2007). Release from incarceration often is accompanied by stress and anxiety as people struggle to reestablish

housing, employment, and social relations. Often people return to the same situations and social networks in which they were involved before being incarcerated and end up returning to the same patterns of drug use and other criminal behavior. The elevated risk of overdose in the days following release reflects the insufficient nature of drug treatment during (and after) incarceration. During periods of absolute or relative abstinence from regular opiate use, such as incarceration, individuals lose their tolerance to opiates, which puts them at high risk for overdose and death. Drug treatment during incarceration often is undermined by a return to the original environment. Research in behavioral science has shown that environmental triggers can dominate individual motivation (Volkow et al., 2011). As discussed earlier, interventions that follow in-prison drug treatment programs with postrelease treatment have been shown to be more effective.

Access to Health Care After Release

Almost 80 percent of inmates are without private or public insurance upon reentry, making it difficult for them to access health care services (Mallik-Kane and Visser, 2008). Because unemployment is high among those formerly incarcerated, Medicaid is a particularly important source of coverage; however, a large number of these individuals have been ineligible for Medicaid. Moreover, those who are enrolled in Medicaid often lose their coverage during incarceration (Wakeman et al., 2009). Despite federal guidance suggesting that states only suspend Medicaid during incarceration, many states terminate it altogether and take no steps to reenroll incarcerated individuals when they leave prison or jail. As a result, many lack health insurance and thus access to most health care during the critical reentry period. Implementation of the ACA in 2014 will extend Medicaid eligibility to a substantial number of those previously without insurance (Phillips, 2012). It remains to be seen how many and how well states will coordinate between Medicaid and correctional systems to facilitate the enrollment of incarcerated individuals. Enrolling these newly eligible people in Medicaid upon release should improve access to health care, reduce reliance on emergency departments, and sustain the benefit of care received in prison.

The need to improve the outcomes of prisoner reentry through assistance with employment, housing, and other transitional needs that ultimately affect health is receiving growing attention, as evidenced by the work of the Council of State Governments' Reentry Policy Council, the National Governors Association, the Transition from Prison to Community Program of the National Institute of Corrections, and many others (Travis, 2007). Correctional authorities also are increasingly addressing the problem of linkage to community-based care through discharge planning, a term that refers broadly to the process of helping prisoners prepare to make

the transition from incarceration back into the community. Until recently, however, only about 10 percent of those released from state prisons in need of discharge planning actually received it (Mellow and Greifinger, 2007). There are examples of relatively successful programs, such as the previously noted Hampden County jail program (Conklin et al., 2002), transition clinics (Wang et al., 2010), and specialty HIV programs (Rich et al., 2001; Booker et al., 2013). Even in these closely coordinated programs, however, through which community providers are incorporated into prerelease correctional care, a number of inmates frequently fail to receive follow-up care upon release. In general, those diagnosed with mental illness are more likely than others to receive discharge planning (Baillargeon et al., 2010b), but they also are more likely to be homeless and to rely extensively on emergency department health care after release. Moreover, even though inmates with mental illnesses generally are given a short supply of medications upon release, their medication maintenance has been found to decline with time (Mallik-Kane and Visser, 2008).

To date there have been only piecemeal studies of health care and health status upon return to the community for those diagnosed with HIV, although two major multisite studies, funded by the Health Resources and Services Administration and the National Institutes of Health, are currently under way (Draine et al., 2011; Montague et al., 2012). A study in Texas (2004-2007) found that even when a free prescription for HIV medications was provided, only 5 percent filled it in time to avoid an interruption in their HIV treatment, and only 30 percent had filled it after 2 months (Baillargeon et al., 2009). Only 28 percent were enrolled in outpatient care in the community within 3 months of release (Baillargeon et al., 2010a). Qualitative studies elsewhere have identified factors ranging from transportation to provider attitudes that account for the failure to link to care even when financial assistance is provided (Fontana and Beckerman, 2007; Marlow et al., 2010; Nunn et al., 2010). Because people with HIV often have other health problems as well, the need to see multiple providers also can make treatment more difficult to sustain.

Community Health

Several studies are now examining networks of STD/HIV transmission associated with incarceration. These networks have been linked to the removal of young men from the community or to their return; either way, they reflect the disruption of stable relationships and a sex-ratio imbalance, both of which are risk factors for STD/HIV transmission (Johnson and Raphael, 2009; Khan et al., 2008, 2011; Rogers et al., 2012; Thomas et al., 2008). Given the disproportionate incarceration rates of young black and Hispanic men discussed in earlier chapters, incarceration has been

speculated to contribute the lion's share of racial disparities in HIV/AIDS rates (Johnson and Raphael, 2009), and its role in community health may hold true for other health disparities as well. This association between incarceration and racial disparities in rates of HIV/AIDS is not simply a reflection of drug use, as this study controlled for drug use. Furthermore, community rates of drug use are comparable between blacks and whites and consistently higher among incarcerated whites than among incarcerated blacks, which would decrease the impact of racial disparities on drug-related HIV transmission.

The importance of partnering with correctional facilities in addressing community health was revealed in Chicago. There, following the discontinuation of universal jail-based screening, the number of male STD cases reported citywide plummeted—not because actual STDs were declining but because so many men were no longer being tested. The effects were visible in the accompanying rise in documented STD cases among women in Chicago, again the result of incarcerated men no longer being diagnosed and treated (Broad et al., 2009).

In addition, a recent paper examines across states how growing populations of former prisoners affect rates of communicable diseases, such as chlamydia, HIV, syphilis, and TB (Uggen et al., 2012b). The authors report that the prevalence of a given disease in communities with a high rate of individuals returning from prison decreases or increases, respectively, depending on whether the disease is routinely screened for and treated within prisons. This finding points to the importance of screening and treatment for vulnerable populations, and not necessarily to the value of incarceration.

KNOWLEDGE GAPS

As is evident from the discussion in this chapter, much remains unknown about the health and health care of the incarcerated. It is known, however, that this population bears a heavy burden of disease, and that there are many opportunities to improve the health not only of the incarcerated but also of the communities to which they return. We offer the following areas as research priorities to fill knowledge gaps regarding the health and health care of the incarcerated.

Public Health Opportunities

There is need for systematic study of ways to capitalize on public health opportunities associated with incarceration, particularly for infectious diseases such as HIV, HCV, and STDs, and also for mental illness and substance abuse. Understanding which components of the criminal justice system are or

can be beneficial to individual and public health and which are detrimental is a priority. Research should help in identifying and developing strategies and interventions that can optimize the former and minimize the latter. Furthermore, it is important to understand what is necessary to implement such interventions and what short- and long-term health, public health, and criminal justice outcomes can be expected.

Research is needed to understand the extent to which underlying health issues, especially substance abuse and mental illness, contribute to incarceration and recidivism. Research in this area also needs to examine how treating those underlying conditions can prevent incarceration and reduce recidivism.

The ACA presents an unprecedented opportunity to extend health insurance coverage to many who previously lacked it and to link them to medical care, mental health care, and addiction treatment services. Understanding how best to capitalize on this opportunity and how to measure the outcomes is a top research priority.

Several special populations that present unique challenges to providing optimal or even adequate health care in correctional settings need to be better understood. These populations include women prisoners, especially those who are pregnant; prisoners who are elderly and disabled; those with cognitive impairment, including TBI; those who are severely mentally ill; youth; and others.

Data Standardization and Quality Improvement

Research is needed to identify a set of universal measures of the quality of health care and outcomes in correctional institutions. A system also is needed that fosters improvements over time in care within correctional institutions, as well as in the linkages between them and community health care. Ultimately, it would be ideal to have not only universal measures of the quality of care and outcomes, but also a fully integrated medical system with the same standards of care inside correctional facilities and out, as well as seamless care transitions. The quality and quantity of medical and mental health care provided in correctional institutions vary widely, and in the absence of standardized quality measures, the quality of the treatment provided cannot be known.

CONCLUSION

The incarcerated population bears a disproportionate burden of many diseases, not only posing challenges for the provision of care but also creating opportunities for screening, diagnosis, treatment, and linkage to treatment after release. The evidence suggests that improving the health of the vulnerable populations who become incarcerated and their communities

will require integrating multiple strategies, including (1) diversion options, (2) comprehensive screening and care, and (3) continuity of care after release.

When asked about reducing correctional medical costs, a correctional administrator replied, “No problem, just stop sending me sick prisoners.”¹¹ Correctional institutions have essentially no control over who enters and leaves. To reduce the burden of disease in correctional facilities, diversion strategies in the court system could potentially connect individuals to more appropriate treatment, particularly those with histories of mental illness and substance abuse given their high prevalence in incarcerated populations.

In light of the high prevalence of infectious diseases such as HIV, HCV, and STDs and of mental illness and substance use disorders, as well as general medical problems, among disadvantaged populations that are incarcerated, programs for comprehensive screening, diagnosis, and treatment of these individuals would likely improve their health while capitalizing on public health opportunities. Some prisons and a few jails have become important public health partners by screening most inmates for various health conditions, but many facilities screen only a few inmates for a limited number of health needs, so that many illnesses go undiagnosed and untreated.

A strong focus on reentry services, including linkages to health insurance and medical care, also is needed. Given the statistics on mortality and morbidity, relapse to substance abuse, and high emergency room use after release, many have argued that linkage to care after release is critically important to preserve individual and community health and reduce costly and often avoidable hospitalizations. Linkage to care postrelease can sustain treatments begun on the inside. In practice, however, such linkage rarely occurs in a systematic and comprehensive fashion. As a consequence, many of the diagnoses that are made and treatments that are begun during incarceration do not translate into improved health after release. Expensive and inefficient emergency room care and preventable hospitalizations result, and the investments made in health during incarceration are lost.

The ACA promises to be a turning point in the nation’s health care, and—given the expansion of Medicaid eligibility; the mandate to enroll disadvantaged populations; and the inclusion of prevention, early intervention, and treatment for mental health problems and substance use disorders as essential health benefits—will provide unprecedented access to care for many people being released from correctional facilities. Yet while the ACA could remove some of the financial barriers to care, other structural and

¹¹Personal conversation with Scott Allen, MD, medical director, Rhode Island Department of Corrections.

individual barriers, such as insufficient discharge planning, community care providers, and ancillary services, likely exist.

Finally, monitoring the broader, population-level outcomes of reduced incarceration and improved screening, health care, and postrelease linkages to health insurance and care will be important to determine their societal benefits.