

# Chapter 3. Prevalence of Communicable Disease, Chronic Disease, and Mental Illness Among the Inmate Population

This chapter presents estimates of the prevalence of selected communicable diseases, chronic diseases, and mental illnesses among inmates in the Nation's prisons and jails.<sup>1</sup> When *The Health Status of Soon-To-Be-Released Inmates* project began, there appeared to be several possible methods of collecting prevalence data. The best approach would have been to interview and physically examine a statistically valid sample of inmates across the Nation. This type of survey would have been far beyond the resources available for the project. A second option would have been to abstract medical records for a sample of inmates. In addition to being expensive and complex, this approach would have potentially been invalid: because of significant differences in the information systems among correctional institutions (e.g., prisons, jails, prerelease centers, work camps), it would have been impossible to identify a sample of medical records that would have been representative of all prison inmate records.

A third approach, which was selected for this project, was to estimate the prevalence of selected diseases from limited but valid data sets collected and published periodically by Federal agencies. The project steering committee (see chapter 2, "History of the Project") concluded that this was the best approach given limited resources. The steering committee therefore commissioned established correctional and public health researchers, practitioners, and scholars to examine these existing databases and generate estimates of the prevalence of selected communicable diseases, chronic diseases, and mental illnesses among inmates. The remainder of this chapter summarizes the results of these analyses. For each of the three major disease categories, the prevalence estimates are preceded by a brief summary of the methodology used to arrive at the estimates. The full papers from which the findings and estimation methodologies have been summarized below may be found in volume 2 of this report.

## Communicable Disease

*The Health Status of Soon-To-Be-Released Inmates* project examined the following communicable diseases: human immunodeficiency virus (HIV) infection, acquired immunodeficiency syndrome (AIDS), syphilis, gonorrhea, chlamydia, hepatitis B and C, and tuberculosis (TB) infection and disease. The complete analysis may be found in Theodore M. Hammett, Patricia Harmon, and William Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees From Correctional Facilities," in volume 2 of this report. "Definitions of Communicable Diseases Examined," provides capsule definitions of each of the diseases examined.

## Methodology

Estimates of the prevalence of HIV infection and AIDS in State and Federal prisons, and estimates of HIV infection in jails, rely primarily on surveys of correctional systems conducted by the U.S. Department of Justice, Bureau of Justice Statistics.<sup>2</sup> The methodology for estimating HIV infection in prisons adjusts the prevalence figures reported to the Bureau of Justice Statistics upward, taking into account that for most State correctional systems the figures are based on voluntary testing, which does not identify all HIV-infected inmates. There are no national surveys of AIDS in jails. The national AIDS (AIDS only, not all HIV infection) prevalence estimate of 0.5 percent for prison inmates in 1996 was applied to the total jail population.

The prevalence estimates for syphilis, gonorrhea, chlamydia, and TB rely in part on 1996–97 national surveys of correctional systems conducted by Abt Associates Inc. and sponsored by the Centers for Disease Control and Prevention (CDC) and the U.S. Department of Justice, National Institute of Justice (NIJ). The estimates are also based on other

## Definitions of Communicable Diseases Examined

- HIV/AIDS** A virus transmitted through sexual relations and exposure to blood. Acquired immunodeficiency syndrome (AIDS) results when human immunodeficiency virus (HIV) attacks the body's immune system, leaving the individual highly susceptible to a range of infections, cancers, and other illnesses. HIV infection also attacks the central nervous system, causing progressive dementia, and it may lead to a serious wasting syndrome.
- Syphilis** An acute and chronic sexually transmitted disease (STD) characterized initially by an ulcer in the genital area followed within weeks by a secondary eruption of the skin and mucous membranes. Long periods of latency then occur followed by, in one-third of cases, often irreparable damage to the skin, bone, nervous system, and cardiovascular system. Syphilis can be easily tested for and treated. Syphilis, like gonorrhea and chlamydia (see below), enhances the transmission of HIV because of ulcers, bleeding, or inflammatory discharges.
- Gonorrhea** An acute STD with different manifestations in men and women. In men, infection is usually characterized by painful urination and discharge from the penis. In women, infection of the cervix often leads to severe pelvic inflammatory disease (infection of the upper genital tract) followed by infertility, ectopic pregnancy (a fetus developing outside the uterus, which results in fetal and sometimes maternal death), and chronic pelvic pain. Newborns are easily infected; eye infection and death may occur. Initial infection without symptoms is common in men and women. Gonorrhea can be easily tested for and treated.
- Chlamydia** An acute and chronic STD that mimics many of the manifestations of gonorrhea. Because symptoms are milder than with gonorrhea, infection commonly remains undetected. As a result, infection is more widespread in the population, and the damage caused by pelvic inflammatory disease, while more subtle than with gonorrhea, is more common. Newborns are easily infected; eye infection and pneumonia may occur. Chlamydia can be easily tested for and treated.
- Tuberculosis** A communicable disease caused by bacteria. Tuberculosis (TB) manifests itself in pathological alterations of tissue, most commonly of the lung. People with latent TB infection may be totally free of symptoms, and therefore unable to spread the disease for a long time—sometimes for a lifetime. They are, however, at risk of developing active tuberculosis, which is contagious and a progressive disease. TB is the only disease discussed in this report that is transmitted by an airborne route. The vast majority of patients with active TB can be cured with a 6- to 12-month course of medications. Preventive therapy dramatically reduces the risk that latent TB infection will lead to active TB disease.
- Hepatitis** An infection of the liver caused by viruses. Hepatitis B can develop into a chronic disease that is responsible for 5,000 deaths annually in the United States, most from cirrhosis of the liver. Complications of infectious hepatitis account for an estimated 25,000 deaths annually in the United States—1 percent of all deaths in the United States. Hepatitis C is the leading reason for liver transplantation in the United States.\* Both hepatitis viruses are acquired through exposure to contaminated blood products, especially during injection drug use. Sexual transmission is another important route for hepatitis B but less so for hepatitis C. A vaccine provides immunity to hepatitis B; there is no vaccine for hepatitis C.

\* "Management of Hepatitis C," *NIH Consensus Statement* 15 (3) (March 1997): 24–26.

published and unpublished studies conducted in specific correctional systems.

No agency has identified and tabulated hepatitis B and C virus infections among the Nation's jail or prison populations. The prevalence of hepatitis B was estimated based on a small number of studies conducted in individual corrections systems. Prevalence estimates for hepatitis C were developed indirectly, by multiplying the estimated prevalence of the infection among injection drug users (IDUs) in the United States by the estimated percentage of prison inmates with histories of injection drug use.

### Prevalence estimates

The discussion below, summarized in table 3–1, presents the estimated number of inmates and releasees with the selected communicable diseases.

**HIV/AIDS.** The study estimates that 35,000 to 47,000 inmates in 1997 were infected with HIV. These included 28,000 to 36,300 prison inmates and 6,800 to 10,200 jail inmates. An estimated 98,000 to 145,000 HIV-positive inmates were released from prisons and jails in 1996, including about 11,600 to 15,000 released from Federal and State prisons and about 87,000 to 130,400 released from jails. The estimated rates for these communicable diseases are much higher for releasees than for current inmates largely because of the rapid turnover and short lengths of stay in jails. Among HIV-infected inmates, an estimated 8,900 inmates had AIDS in 1997: 6,000 in State and Federal prison and 2,800 in jails.<sup>3</sup> An estimated 39,000 inmates with HIV were released from prisons and jails in 1996, about 2,500 from prisons and 36,000 from jails.

**Sexually transmitted diseases: syphilis, gonorrhea, and chlamydia.** The total number of inmates or releasees infected with any one STD cannot be determined because an inmate could have more than one infection. It is safe to conclude, however, that in 1997 the Nation's prisons and jails held, or released into the community, at least 200,000 individuals with an STD. There were an estimated 107,000 to 137,000 cases of STDs among inmates and between 465,000 and 595,000 STD cases among releasees in 1997. As shown in table 3–1, most of these inmates and releasees were infected with syphilis.<sup>4</sup>

**Hepatitis B and C.** More than 36,000 prison and jail inmates in 1997 and 155,000 releasees in 1996—an estimated 2 percent of prison and jail inmates and releasees—had current or chronic hepatitis B infection. At least 303,000–332,000 prison and jail inmates were infected with hepatitis C in 1997. Between 1.3 and 1.4 million inmates released from prison or jail in 1996 were infected with hepatitis C.<sup>5</sup>

**Tuberculosis infection and disease.** An estimated 131,000 inmates tested positive for latent TB infection in 1997—more than 90,000 prison inmates and more than 41,000 jail inmates. An estimated 566,000 inmates with latent TB infection were released in 1996, including more than 37,000 inmates from prisons and nearly 529,000 inmates from jails. In 1996, an estimated 1,400 inmates had active TB disease, including nearly 500 from prisons and over 950 from jails. About 12,000 persons released from a correctional facility during 1996 had TB disease during that year.<sup>6</sup>

### Burden of communicable disease among inmates and releasees

The prevalence rates for these communicable diseases are significantly higher among inmates and releasees than among the total U.S. population (see figure 3–1). During 1996, about 3 percent of the U.S. population spent time in a prison or jail; however, between 12 and 35 percent of the total number of people in the Nation with selected communicable diseases passed through a correctional facility during that year.<sup>7</sup> Specifically:

- Almost 39,000 prison and jail releasees in 1996 had AIDS. Seventeen percent of the estimated 229,000 persons living with AIDS in the United States in 1996 passed through a correctional facility that year.<sup>8</sup> The prevalence of AIDS among inmates is five times higher than among the total U.S. population.<sup>9</sup>
- The estimated 98,000 to more than 145,000 prison and jail releasees with HIV infection in 1996 represented 13–19 percent of all HIV-positive individuals in the United States.
- The estimate of 155,000 releasees with current or chronic hepatitis B infection in 1996 indicates that between 12 and 15 percent of all individuals in the Nation with chronic or current hepatitis B

**Table 3–1. National Estimates of Selected Infectious Diseases Among Inmates and Releasees and Prevalence in U.S. Population**

Disease	Estimated Prevalence Among Inmates, %		Prevalence in U.S. Population, 1996, %	Estimated Number of Inmates w/Condition, 1997	Estimated Number of Releasees w/Condition, 1996	Number in U.S. Population w/Condition, 1996	Releasees With Condition as % of Total in U.S. Population w/Condition, 1996
	Prisons	Jails					
AIDS	0.5 <sup>a</sup>	0.5 <sup>a</sup>	0.09	8,900	39,000	229,000 <sup>b</sup>	17.0
HIV Infection (non-AIDS)	2.3–2.98 <sup>c</sup>	1.2–1.8 <sup>d</sup>	0.3	35,000–47,000	98,000–145,000	750,000 <sup>e</sup>	13.1–19.3
Syphilis Infection	2.6–4.3	2.6–4.3	N/A	46,000–76,000	202,000–332,000	N/A	—
Chlamydia	2.4	2.4	N/A	43,000	186,000	N/A	—
Gonorrhea	1.0	1.0	N/A	18,000	77,000	N/A	—
Hepatitis B Infection	2.0 <sup>f</sup>	2.0	N/A	36,000	155,000	1,000,000–1,250,000 <sup>g</sup>	12.4–15.5
Hepatitis C Infection	17.0–18.6 <sup>h</sup>	17.0–18.6 <sup>h</sup>	1.8	303,000–332,000	1,300,000–1,400,000	4,500,000 <sup>i</sup>	28.9–32.0
Tuberculosis Disease	0.04 <sup>j</sup>	0.17 <sup>k</sup>	0.01	1,400	12,000	34,000 <sup>l</sup>	35.0
Tuberculosis Infection	7.4	7.3	N/A	131,000	566,000	N/A	—

<sup>a</sup>More than 5 times the prevalence in the U.S. population (0.09%).

<sup>b</sup>Centers for Disease Control and Prevention, *HIV/AIDS Surveillance Report* 9 (2) (1997): 1–43.

<sup>c</sup>Eight to ten times the prevalence in the U.S. population (0.3%).

<sup>d</sup>Four to six times the prevalence in the U.S. population (0.3%).

<sup>e</sup>CDC estimate, based on midpoint of 1993 estimate in Rosenberg, P.S., "Scope of the AIDS Epidemic in the United States," *Science* 270 (Nov 24, 1995): 1372–1375.

<sup>f</sup>Current or chronic.

<sup>g</sup>Centers for Disease Control, "Hepatitis B Virus: A Comprehensive Strategy for Eliminating Transmission in the United States Through Universal Childhood Vaccination: Recommendations of the Immunization Practices Advisory Committee (ACIP)," *Morbidity and Mortality Weekly Report* 40 (RR–13) (1991): 1–19.

<sup>h</sup>Nine to 10 times the prevalence in the U.S. population (1.8%).

<sup>i</sup>Based on prevalence estimate in McQuillan G.M., M.J. Alter, L.A. Moyer, S.B. Lambert, and H.S. Margolis, "A Population-Based Serologic Survey of Hepatitis C Virus Infection in the U.S." In M. Rizzetto, R.H. Purcell, G.L. Gerin, and G. Verme, eds., *Viral Hepatitis and Liver Disease*, Turin, Italy: Edizioni Minerva Medica, 1997, pp. 267–270.

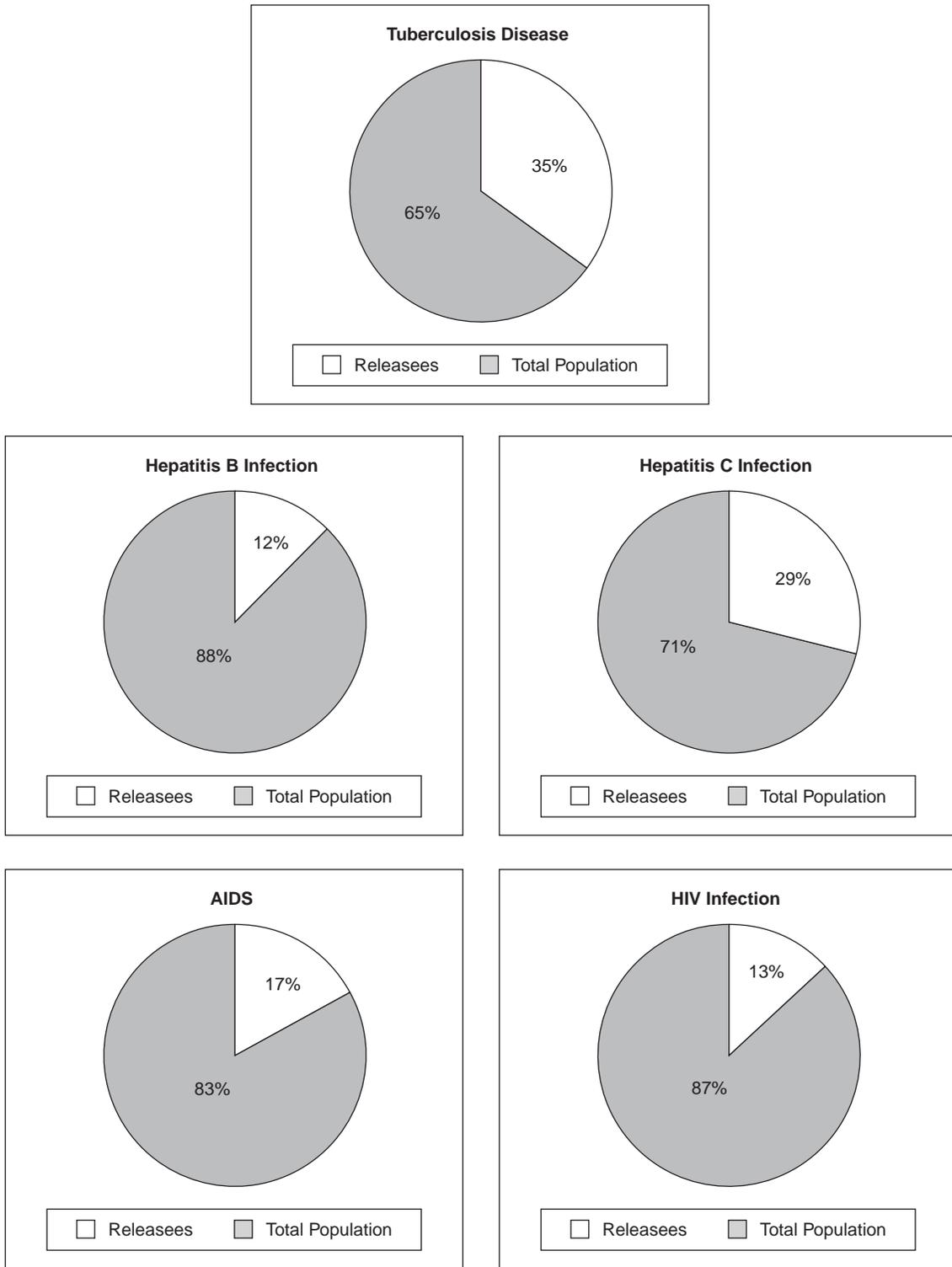
<sup>j</sup>Four times the prevalence in the U.S. population (0.01%).

<sup>k</sup>Seventeen times the prevalence in the U.S. population (0.01%).

<sup>l</sup>Estimated from CDC, TB Registry Reports, 1992–94.

Source: (Unless otherwise noted in the footnotes): Hammett, T.M., P. Harmon, and W. Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees from Correctional Facilities," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, May 2000. (Copy in volume 2 of this report.)

**Figure 3–1. Releasees With Selected Infectious Diseases as a Proportion of the Total U.S. Population With Each Disease, 1996**



Source: Hammett, T.M., P. Harmon, and W. Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees from Correctional Facilities," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, May 2000. (Copy in volume 2 of this report.)

infection in 1996 spent time in a correctional facility that year.

- The estimate of 1.3–1.4 million releasees infected with hepatitis C in 1997 suggests that an extremely high 29–32 percent of the estimated 4.5 million people infected with hepatitis C in the United States<sup>10</sup> served time in a correctional facility that year. The 17.0–18.6 percent prevalence range of hepatitis C among inmates—probably an underestimate—is 9–10 times higher than the estimated hepatitis prevalence in the Nation’s population as a whole.<sup>11</sup>
- An estimated 35 percent (12,200) of all those in the Nation who had TB disease during 1996 served time in a correctional facility during that year. This estimate was calculated by applying a point prevalence rate for inmates (i.e., the percentage of inmates who were treated for TB disease on a given day in 1997) to the total number of releasees during all of 1996. The estimate suggests that about 12,200 people who were released from a correctional facility during 1996 also had TB disease during that year; it does not mean, however, that they all had TB disease at the time of their release from prison or jail. Most of them probably did not have TB disease at the time of their release because, if properly treated, TB disease typically

lasts only a short time. Nevertheless, the estimate indicates the congruence between populations likely to be incarcerated and those likely to have TB. The prevalence of TB disease among inmates is between 4 and 17 times greater than among the total U.S. population.

## Chronic Disease

The project examined three chronic diseases: asthma, diabetes, and hypertension (see “Definitions of the Chronic Conditions Examined” for brief descriptions of these diseases).<sup>12</sup> The complete analysis may be found in Carlton A. Hornung, Robert B. Greifinger, and Soniya Gadre, “A Projection Model of the Prevalence of Selected Chronic Diseases in the Inmate Population,” in volume 2 of this report.

Inmates with chronic disease create serious demands on the correctional health care system. When released, these inmates can burden the health care system in the general community through increased demand for acute care and costly hospitalization. The inmate whose diabetes is poorly managed while incarcerated is more likely to use costly health care services, such as dialysis for kidney failure, limb amputation, or emergency room visits for glucose (sugar) control when released into the community. Untreated hypertension, the most common chronic illness among

### Definitions of the Chronic Conditions Examined

<b>Asthma</b>	A chronic inflammatory disease of the airways that can make breathing difficult. Asthma, one of the most common chronic diseases in the United States, is increasing nationally. Five thousand individuals die each year in the United States because of asthma, and 470,000 are hospitalized. The effects of asthma are largely preventable with improved patient education and medical management.
<b>Diabetes</b>	A chronic disease involving insulin metabolism, causing, among other problems, excessive sugar in the blood. Diabetes can lead to blindness, kidney failure, heart disease, and disease of the blood vessels. Controlling blood sugar levels can prevent acute and long-term consequences of diabetes. Diabetes is the most common cause of blindness in people under age 60 in the United States.
<b>Hypertension</b>	A chronic disease expressed by elevated blood pressure. Untreated, it leads to significant heart disease and ultimately organ failure and death. Fifty million adult Americans have hypertension. A large proportion are unaware of it. Seventy percent of adult Americans with hypertension are not controlling their blood pressure. Blood pressure control is associated with a substantial reduction in heart disease and stroke.

adults (and inmates), can eventually require expensive health care services because it is a major risk factor for coronary heart disease, kidney failure, stroke, and blood vessel disease.

## Methodology

There are no direct data sources on the prevalence of chronic disease among inmates. As a result, the prevalence of the three target diseases was estimated using data from the 1988–94 *National Health and Nutrition Examination Survey III (NHANES–III)* sponsored by the U.S. Departments of Health and Human Services and Agriculture.<sup>13</sup> The survey estimates the number and percentage of persons in the Nation who have selected diseases or are at risk for developing these diseases. Because inmates are more likely to be economically disadvantaged than the average citizen, inmate prevalence rates for asthma, diabetes, and hypertension were estimated from the *NHANES–III* figures for the lowest one-fourth of the Nation in socioeconomic status. These estimates were further adjusted for age, gender, and race differences between the 1995 inmate population and the *NHANES–III* respondents.

## Prevalence estimates

Table 3–2 and figure 3–2 summarize the prevalence of the three chronic diseases among inmates in 1995. As shown, the overall prevalence of asthma among Federal, State, and local inmates is estimated to be 8.5 percent, or 140,738 cases nationwide. The

prevalence of diabetes (defined as a blood glucose level of 126 mg/dL or higher) is estimated to be 4.8 percent. The prevalence rate for hypertension among inmates (defined as more than 140 mmHg systolic or more than 90 mmHg diastolic) is projected to be more than 18 percent, representing a total of 283,105 inmates.

## Burden of chronic disease among inmates

The prevalence estimates for asthma, diabetes, and hypertension among inmates presented in this chapter suggest that large numbers of people with these conditions are in correctional populations (see table 3–2). Prevalence rates for asthma are higher among inmates than among the total U.S. population (8.5 percent versus 7.8 percent), in part because of the low socioeconomic status and disproportionately minority composition of inmate populations, segments of the overall population in which asthma and other chronic diseases are more commonly found.<sup>14</sup>

The estimated prevalence rates for diabetes and hypertension are lower for inmates than for the total U.S. population (4.8 percent versus 7.0 percent for diabetes, more than 18 percent versus more than 24 percent for hypertension). These inmate prevalence rates are still high, however, considering that inmates are a relatively young population (despite the aging of the prison population) and that these two diseases are much likelier to afflict older individuals, who are relatively underrepresented among inmates.

**Table 3–2. National Estimates of Prevalence of Three Chronic Diseases Among Inmates in Prisons and Jails and in the Total U.S. Population, 1995**

Condition	Estimated Prevalence <sup>a</sup> Among Inmates (%)	Estimated Number of Inmates	Prevalence in Total U.S. Population <sup>b</sup> (%)
Asthma	8.5	140,738	7.8
Diabetes <sup>c</sup>	4.8	79,873	7.0
Hypertension	18.3	283,105	24.5

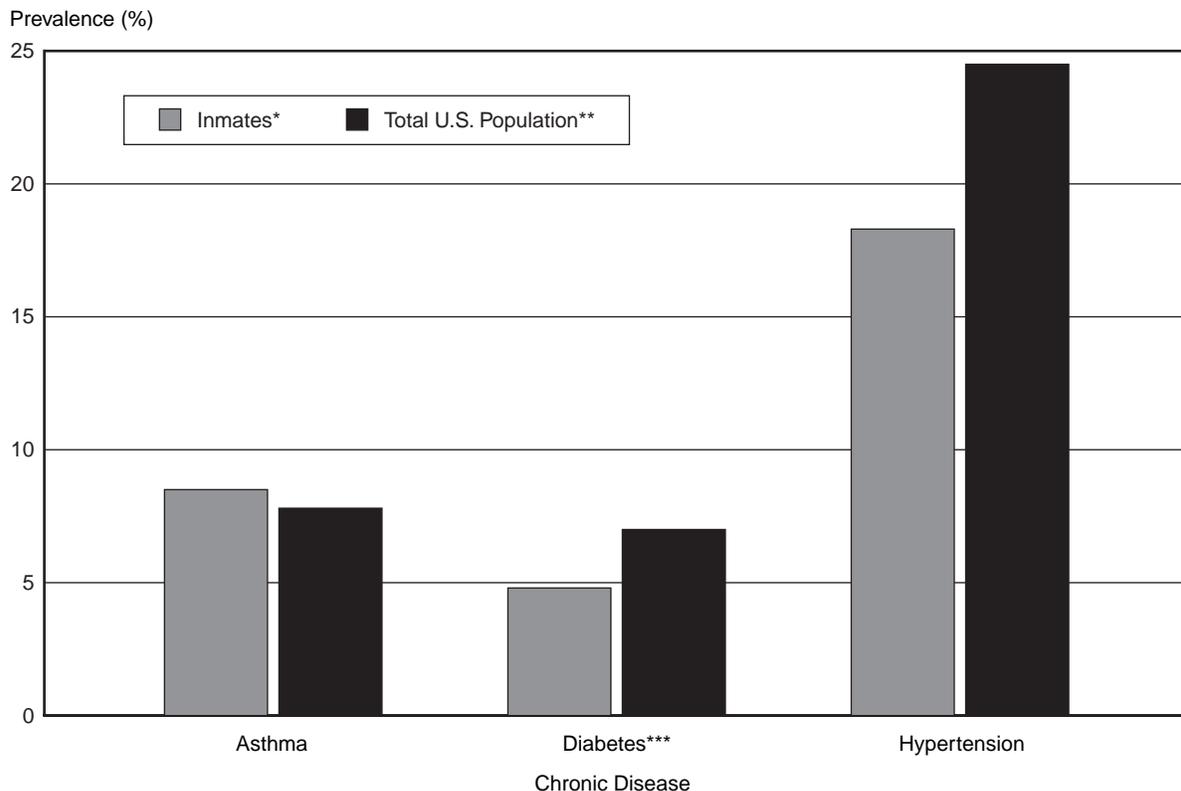
<sup>a</sup>Based on lowest socioeconomic status.

<sup>b</sup>Based on baseline U.S. population.

<sup>c</sup>Using new definition of fasting serum glucose of >126 mg/dL.

Source: Hornung, C.A., R.B. Greifinger, and S. Gadre, "A Projection Model of the Prevalence of Selected Chronic Diseases in the Inmate Population," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, n.d. (Copy in volume 2 of this report).

**Figure 3–2. National Estimates of Prevalence of Three Chronic Diseases Among Inmates in Prisons and Jails and in the Total U.S. Population, 1995**



\* Based on lowest socioeconomic status.

\*\* Based on baseline U.S. population.

\*\*\* Using new definition of fasting serum glucose of >126 mg/dL.

Source: Hornung C.A., R.B. Greifinger, and S. Gadre, "A Projection Model of the Prevalence of Selected Chronic Diseases in the Inmate Population," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, n.d. (Copy in volume 2 of this report.)

## Mental Illness

The extent of mental illness among inmates has been difficult to estimate. Because of rapid inmate turnover, identifying the number of different inmates with a mental illness in jails at any time is especially difficult. Epidemiological studies of jail populations, therefore, should be made on admission (i.e., bookings).<sup>15</sup> Prisons present fewer problems in gathering data and estimating the need for services because they have more stable populations. Most estimates of mental illness in prisons, as in jails, are based on inmates who have used mental health services.<sup>16</sup>

## Methodology

*The Health Status of Soon-To-Be-Released Inmates* project used the United States National Comorbidity Survey to generate estimated prevalence rates for

various psychiatric diagnoses among the incarcerated population. Conducted in the early 1990s, this landmark investigation, mandated by Congress, is the first survey to administer a structured psychiatric interview to a nationally representative sample (8,098 persons aged 15–54) using trained interviewers and focused on a community sample (i.e., non-institutionalized individuals).<sup>17</sup>

The project examined six different diagnoses from the National Comorbidity Survey data: nonaffective psychosis, major depression, bipolar mania, dysthymia, post-traumatic stress disorder, and anxiety.<sup>18</sup> The complete analysis of these conditions may be found in Bonita M. Veysey and Gisela Bichler-Robertson, "Prevalence Estimates of Psychiatric Disorders in Correctional Settings," in volume 2 of

## Definitions of the Six Mental Illness Diagnoses Examined

<b>Schizophrenia/Other Psychotic Disorders</b>	Disorders of the thought process. Psychotic disorders typically include hallucinations or delusions, and may include disorganized speech and grossly disorganized behavior lasting more than 6 months.
<b>Major Depression</b>	A disorder of mood. The essential feature of major depressive disorder is one or more periods of at least 2 weeks during which there is either depressed mood or loss of interest or pleasure in nearly all activities. Individuals must also experience at least four additional symptoms from a list that includes changes in appetite or weight, changes in sleep, decreased energy, feelings of worthlessness or guilt, and difficulty thinking, concentrating, or making decisions. Up to 15 percent of individuals with the condition commit suicide, but all patients with major depression are at some risk of suicide.
<b>Bipolar Disorder</b>	A major disorder of mood. The essential feature of this mood disorder is one or more manic episodes—distinct periods of at least 1 week during which there is an abnormally and persistently elevated, expansive, or irritable mood that may include inflated self-esteem, distractibility, or increased involvement in goal-directed activities. Bipolar disorder may also involve periods of time lasting at least 1 week in which the individual experiences rapidly alternating moods (e.g., sadness, irritability, euphoria). Ten to 15 percent of people with bipolar disorder commit suicide.
<b>Dysthymic Disorder</b>	A chronically depressed mood that lasts for most of the day on most days for at least 2 years. Other symptoms may include poor appetite or overeating, insomnia or excessive sleep, low energy or fatigue, low self-esteem, and feelings of hopelessness. Usually dysthymic disorder is characterized by chronic, less severe depressive symptoms that have been present for many years, while major depressive disorder (see above) consists of one or more discrete major depressive episodes that can be distinguished from the person's usual functioning.
<b>Post-Traumatic Stress Disorder</b>	A major disorder of feeling. The essential feature of this disorder is the development of characteristic symptoms following exposure to direct personal experience (as a participant, witness, or someone who learns about the experience) with an event that involves a threat to the person's or someone else's physical integrity, such as sexual or physical abuse. The person's response to the event involves intense fear, helplessness, or horror. Characteristic symptoms include persistent reexperiencing of the event.
<b>Anxiety Disorders</b>	A group of disorders that includes panic disorder, agoraphobia (anxiety about being in places or situations from which escape might be difficult or help might not be available), obsessive-compulsive disorder, generalized anxiety disorder, and other conditions. General anxiety disorder is characterized by at least 6 months of persistent and excessive anxiety and worry.

Adapted from American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV), Washington, D.C.: American Psychiatric Press, 1994.

this report. “Definitions of the Six Mental Illness Diagnoses Examined” describes each illness briefly.

Three adjustments were made to the National Comorbidity Survey data to arrive at the closest possible approximation of the number of inmates with each of these illnesses.

1. Prevalence estimates were first calculated for all inmates. Inmates, however, are disproportionately from the lowest socioeconomic stratum of society, and poverty and mental illness appear to be correlated. Therefore, a subsample of respondents with a reported income below the poverty line was used to provide a second estimate of prevalence rates for State prison and jail inmates.
2. Because the vast majority of inmates abuse alcohol or other drugs, the analysis generated a third set of estimated prevalence rates for a subsample of State and jail inmates who were substance abusers as well as poor.
3. All the resulting estimated rates for each mental illness were then weighted according to the 1995 age, race, and gender distributions of inmates in prisons and jails.

Most major mental illnesses have periods of quiet and other periods of activity. The rates at any point in time—for example, during a short jail stay—are lower than lifetime prevalence rates. To reflect this consideration, the calculations based on the National Comorbidity Study used 6-month prevalence rates for jail inmates and lifetime prevalence rates for prison inmates.

### Prevalence Estimates

As shown in table 3–3 and figures 3–3, 3–4, and 3–5, separate prevalence estimates for mental illness were developed for inmates in jails, State prisons, and Federal prisons.

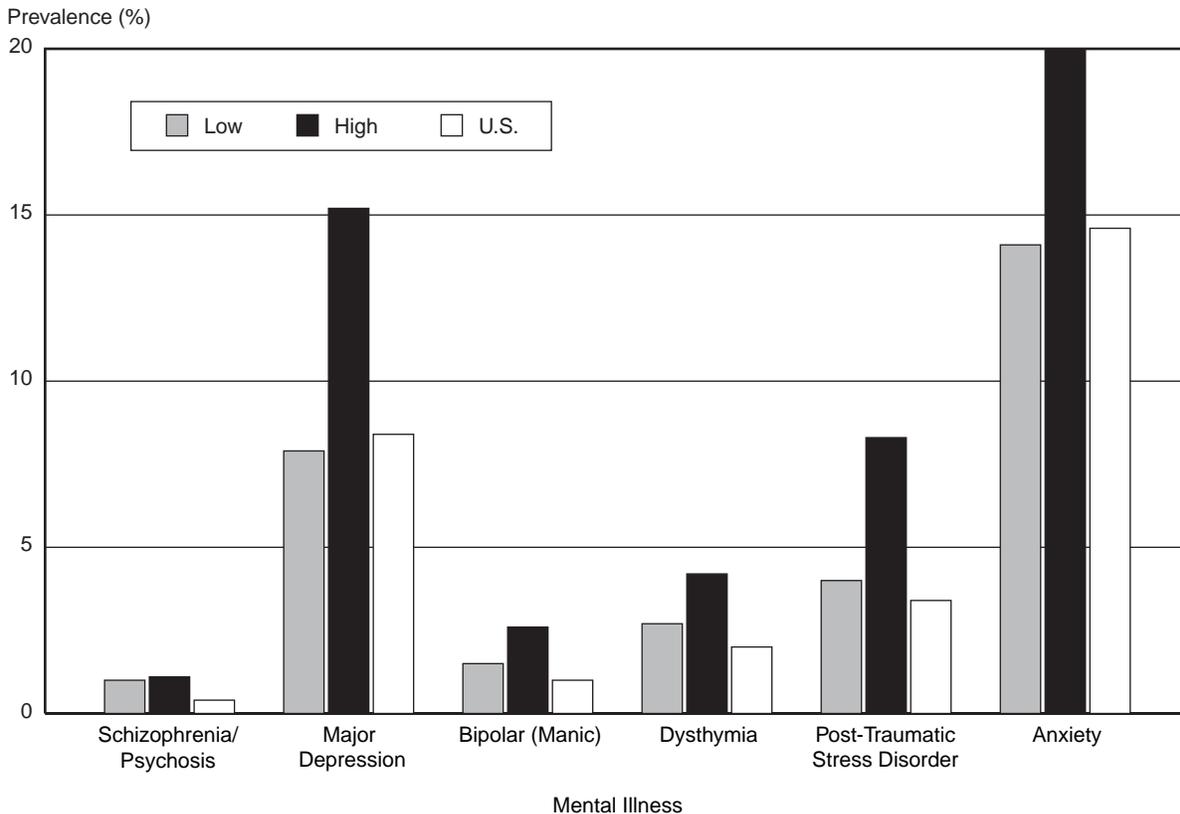
- **Jails.** On any given day, an estimated 1.0–1.1 percent of offenders booked into U.S. jails have schizophrenia or another psychotic disorder, 7.9–15.2 percent have major depression, and 1.5–2.6 percent have bipolar disorder (manic episode). Between 2.7 and 4.2 percent of jail inmates are estimated to have dysthymia, and between 14.1 and 20.0 percent have some type of anxiety disorder,<sup>18</sup> not including another 4.0–8.3 percent with post-traumatic stress disorder.

**Table 3–3. National Estimates of Six Psychiatric Disorders Among Prison and Jail Inmates and Prevalence in U.S. Population, 1995**

Disease	Jail (6-month estimated prevalence) (n = 500,483 inmates)		Total U.S. Population (6-month prevalence)	State Prison (estimated lifetime prevalence) (n = 1,010,228 inmates)		Federal Prison (estimated lifetime prevalence) (n = 91,506 inmates)		Total U.S. Population (lifetime prevalence)
	n	%		n	%	n	%	
Schizophrenia/ Psychosis	4,955– 5,589	1.0–1.1	0.4	22,994– 39,262	2.3–3.9	763– 2,326	0.8–2.5	0.8
Major Depression	39,690– 76,229	7.9–15.2	8.4	132,619– 188,259	13.1–18.6	12,378– 14,363	13.5–15.7	18.1
Bipolar (Manic)	7,755– 12,920	1.5–2.6	1.0	21,468– 43,708	2.1–4.3	1,393– 2,475	1.5–2.7	1.5
Dysthymia	13,644– 21,040	2.7–4.2	2.0	85,018– 135,121	8.4–13.4	6,253– 10,652	6.8–11.6	7.1
Post-Traumatic Stress Disorder	19,770– 41,509	4.0–8.3	3.4	62,388– 118,071	6.2–11.7	4,466– 6,257	4.9–6.8	7.2
Anxiety	70,613– 100,098	14.1–20.0	14.6	222,147– 303,936	22.0–30.1	16,638– 21,079	18.2–23.0	N/A

Source: Veysey, B.M., and G. Bichler-Robertson, “Prevalence Estimates of Psychiatric Disorders in Correctional Settings,” paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, October 1999. (Copy in volume 2 of this report.)

**Figure 3–3. Jails: Estimated Prevalence of Six Mental Illnesses Among Inmates in 1995 Compared With Prevalence Rates for the Total U.S. Population in the Early 1990s\***



\* "The National Comorbidity Survey," Kessler, R.C., *International Review of Psychiatry* 6 (1994): 365–376.

Source: Veysey, B.M., and G. Bichler-Robertson, "Prevalence Estimates of Psychiatric Disorders in Correctional Settings," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, May 1999. (Copy in volume 2 of this report.)

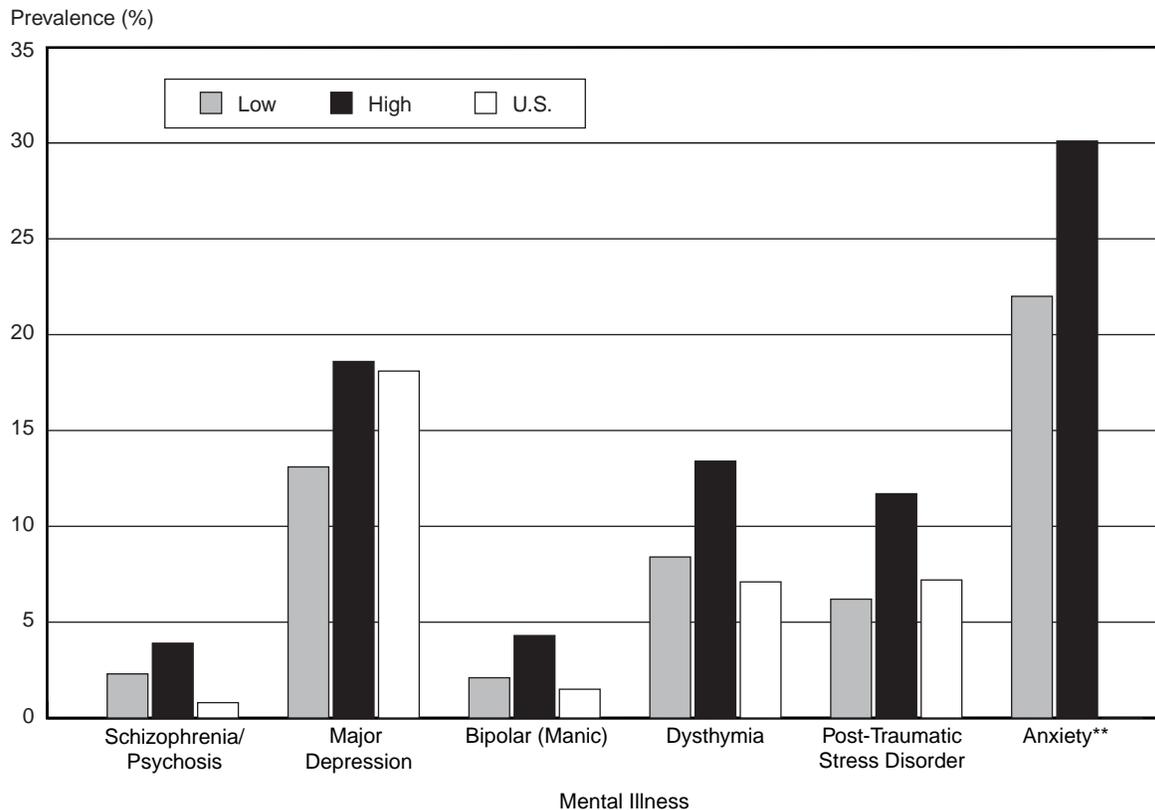
- State prisons.** On any given day, between 2.3 and 3.9 percent of inmates in State prisons are estimated to have schizophrenia or other psychotic disorder, between 13.1 and 18.6 percent major depression, and between 2.1 and 4.3 percent bipolar disorder (manic episode). A substantial percentage of inmates exhibit symptoms of other disorders as well, including between 8.4 and 13.4 percent with dysthymia, between 22.0 and 30.1 percent with an anxiety disorder, and between 6.2 and 11.7 percent with post-traumatic stress disorder.
- Federal prisons.** Federal inmates are estimated to have lower rates of mental illness than State prison inmates across all diagnostic categories. Between 0.8 and 2.5 percent are estimated to have schizophrenia or other psychotic disorder,

between 13.5 and 15.7 percent major depression, and between 1.5 and 2.7 percent bipolar disorder. Between 6.8 and 11.6 percent are predicted to have dysthymia, and between 18.2 and 23.0 percent have an anxiety disorder, not including another 4.9 to 6.8 percent with post-traumatic stress disorder.

### **Burden of mental illness among inmates**

It would be inaccurate simply to add the number of inmates with each of the six mental illnesses to come up with the total number and percentage of mentally ill inmates because inmates may suffer from more than one of these conditions at the same time. As shown in table 3–3 and figures 3–3, 3–4, and 3–5, however, *prevalence rates of many mental*

**Figure 3–4. State Prisons: Estimated Prevalence of Six Mental Illnesses Among Inmates in 1995 Compared With Lifetime Prevalence Rates for the Total U.S. Population in the Early 1990s\***



\* "The National Comorbidity Survey," Kessler, R.C., *International Review of Psychiatry* 6 (1994): 365–376.

\*\* No data for total U.S. population.

Source: Veysey, B.M., and G. Bichler-Robertson, "Prevalence Estimates of Psychiatric Disorders in Correctional Settings," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, May 1999. (Copy in volume 2 of this report.)

*illnesses among inmates are higher than the rates for these conditions among the U.S. population as a whole.*

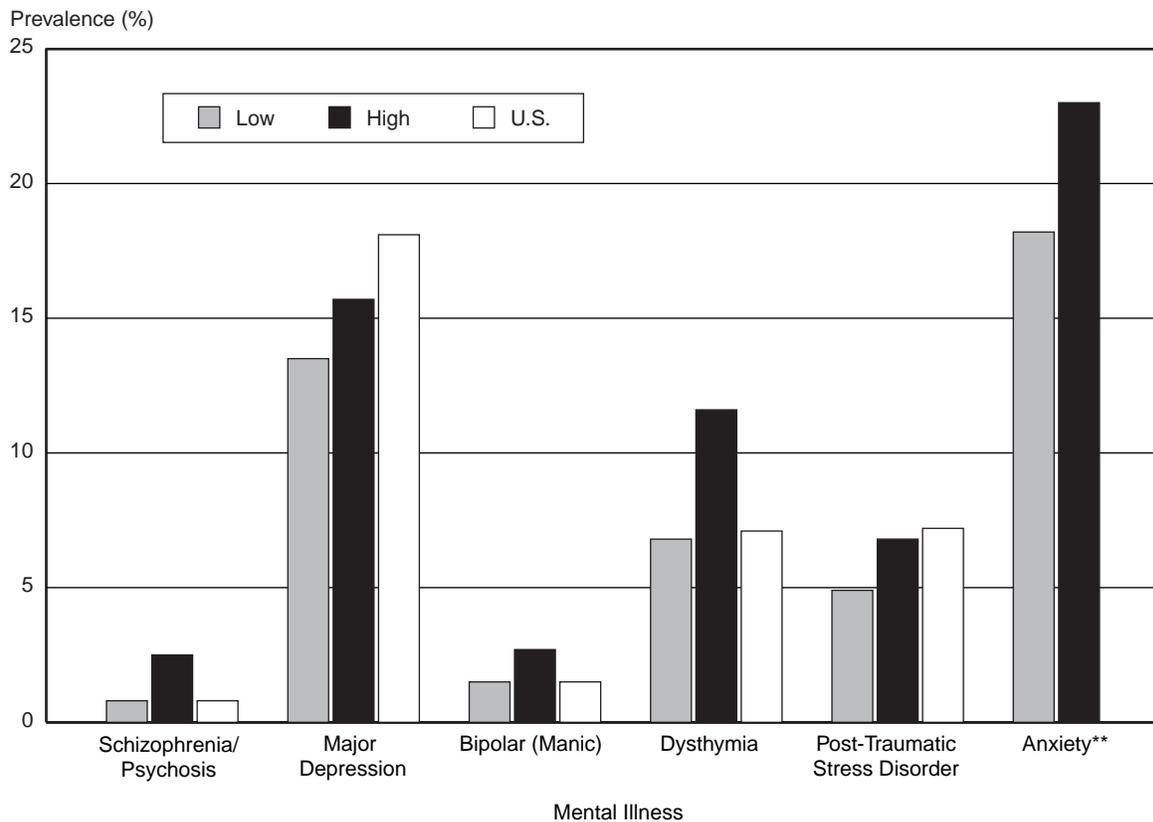
This chapter has demonstrated that inmates suffer from higher rates of communicable disease, chronic disease, and several mental illnesses than the U.S. population as a whole. This large concentration of infected and mentally ill persons in prisons and jails provides a unique opportunity to provide needed treatment and prevention services and to help protect the larger public health. The natural question to ask, given these findings, is: To what extent are prisons and jails seizing this opportunity? The following chapter discusses the extent of current prevention, screening, and treatment efforts in the Nation's correctional systems.

## Notes

1. Jails are locally operated correctional facilities that confine persons before or after adjudication. Inmates sentenced to jail usually have a sentence of a year or less, but jails also incarcerate persons in a wide variety of other categories.

2. Some inmates—especially jail inmates—are incarcerated more than once in a year. In order not to count these individuals more than once, the methodology divides the number of inmates by a factor of 1.38 to arrive at the number of *different* people who are incarcerated during a year. For an explanation of the use of this correction factor, see pages 3–4 of Hammett, T.M., P. Harmon, and W. Rhodes, "The Burden of Infectious Disease Among

**Figure 3–5. Federal Prisons: Estimated Prevalence of Six Mental Illnesses Among Inmates in 1995 Compared With Lifetime Prevalence Rates for the Total U.S. Population in the Early 1990s\***



\* "The National Comorbidity Survey," Kessler, R.C., *International Review of Psychiatry* 6 (1994): 365–376.

\*\* No data for total U.S. population.

Source: Veysey, B.M., and G. Bichler-Robertson, "Prevalence Estimates of Psychiatric Disorders in Correctional Settings," paper submitted to the National Commission on Correctional Health Care, Chicago, Illinois, May 1999. (Copy in volume 2 of this report.)

Inmates and Releasees From Correctional Facilities," in volume 2 of this report.

3. Findings in a recent paper indicate that 9,370 cases of AIDS among inmates were reported to the Centers for Disease Control and Prevention for January 1, 1994 through December 31, 1996. Dean-Gaitor, H.D., and P.L. Fleming, "Epidemiology of AIDS in Incarcerated Persons in the United States, 1994–1996," *AIDS* 13 (1999): 2429–2435.

4. Several qualifications to the syphilis estimates should be noted. They are based on limited data, some of which represent crude RDR test positivity rates that may include false positives and do not reflect disease stage or infectiousness. Moreover, the incidence of syphilis has dropped

substantially since 1996–97, the years for which these estimates were made. Because syphilis is concentrated in the South, a range of prevalence estimates excluding and including Southern jurisdictions were calculated. The details of the methodology are described in the background paper in volume 2 by Hammett, Harmon, and Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees From Correctional Facilities."

5. The U.S. Department of Justice, Bureau of Justice Statistics, is preparing a report on the prevalence of hepatitis among correctional populations for release in 2002, based on data from the 2001 census of State and Federal correctional facilities.

6. This figure was derived by applying the prevalence of TB disease among inmates in prisons (0.04%) and jails (0.17%) to the estimated number of releasees from prisons and jails. The denominator (34,000) is an estimate of the total number of persons with TB in the U.S. during 1996. The Centers for Disease Control and Prevention's TB Registry Reports, which reported the number of cases in a given year, were discontinued in 1994. The only report for subsequent years is CDC's TB surveillance report, which reports incident (new) cases each year. The analysis calculated an average ratio of incident cases to prevalent cases for the last 3 years in which the Registry Reports were available (1992–94) and applied this ratio (0.627) to the number of incident cases for 1996 (21,337) to obtain the estimate of 34,000 prevalent cases in 1996.
7. These figures are supported and explained in more detail in Hammett, Harmon, and Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees From Correctional Facilities," in volume 2 of this report.
8. Centers for Disease Control and Prevention, *HIV/AIDS Surveillance Report, 1997*, Atlanta, GA: U.S. Department of Health and Human Services, 1997.
9. A more recent study concluded that the 1996 AIDS rate for incarcerated persons was at least six times the national rate. See Dean-Gaitor and Fleming, "Epidemiology of AIDS" (see note 3).
10. McQuillan, G.M., M.J. Alter, L.A. Moyer, S.B. Lambert, and H.S. Margolis, "A Population-Based Serologic Survey of Hepatitis C Virus Infection in the U.S.," in M. Rizzetto, R.H. Purcell, G.L. Gerin, and G. Verme (eds.), *Viral Hepatitis and Liver Disease*, Turin, Italy: Edizioni Minerva Medica, 1997: 267–270.
11. Based on the prevalence estimate in McQuillan et al., "A Population Based Serologic Survey" (see note 10). The 17.0–18.6 percent estimate is probably very low, given that studies conducted in individual prison systems have found prevalence rates of 30–40 percent. Hammett, Harmon, and Rhodes, "The Burden of Infectious Disease Among Inmates and Releasees" (see note 2).
12. A fourth chronic disease, heart disease, was excluded from the report. Because the prevalence of heart disease increases with age, rates of diagnosable heart disease among inmates are low.
13. *National Center for Health Statistics, National Health and Nutrition Examination Survey III [NHANES-III]*, Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, and the U.S. Department of Agriculture, 1997.
14. Ibid.
15. One study that interviewed admissions (conducted in the Cook County [Chicago], Illinois, jail) found acute symptoms of serious mental illnesses requiring treatment in about 6 percent of males and 15 percent of females at booking. See Teplin, L.A., "Psychiatric and Substance Abuse Disorders Among Male Urban Jail Detainees," *American Journal of Public Health* 84 (1994): 290–293; and Teplin, L.A., E.M. Abram, and G.M. McClelland, "Prevalence of Psychiatric Disorders Among Incarcerated Women," *Archives of General Psychiatry* 53 (1996): 505–512.
16. Ditton, P.M., *Mental Health and Treatment of Inmates and Probationers*, Special Report, Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, July 1999, NCJ 174463, found that about 16 percent of prison and jail inmates, or an estimated 283,800 inmates, reported either a mental or emotional condition or an overnight stay in a mental hospital or program in 1998.
17. Kessler, R.C., "The National Comorbidity Survey," *International Review of Psychiatry* 6 (1994): 365–376.
18. The National Comorbidity Study included information about antisocial personality, a character disorder involving a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood. Although antisocial personality disorder is a management problem for correctional health care professionals and security staff, it was excluded from this analysis because there is no effective medical intervention for the condition. "In general, adult antisocial behavior provokes therapeutic pessimism. That is, therapists have little hope of changing a pattern of behavior that has been present almost continuously throughout the patient's life. Psychotherapy has not been effective, and there have been no major breakthroughs with biological treatments, including the use of medications." Kaplan, H.I., B.J. Sadock, and J.A. Grebb, *Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences, Clinical Psychiatry*, 7th ed., Baltimore, MD: Williams & Wilkins, 1994: 799.
19. Dysthymia and anxiety range from completely disabling (e.g., agoraphobia) to not even mildly incapacitating (e.g., generalized anxiety disorder). Depending on the severity of their condition, many individuals with dysthymia and anxiety do not require medical treatment.