2006 DISEASE PROFILE

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

Department of Health and Human Services
Centers for Disease Control and Prevention

Suggested Citation: Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. 2006 Disease Profile, 2008:[inclusive page numbers].

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Acknowledgments

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This disease profile is an important new development in advancing integrated disease surveillance as part of the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention's (NCHHSTP) Program Collaboration and Service Integration (PCSI) strategic imperative. PCSI was developed to meet the challenges in and need for describing, understanding, and responding to the syndemic of HIV/AIDS, viral hepatitis, STD, and TB that interact synergistically and contribute to excess disease burden in the population. These infectious diseases share similar risk or protective behaviors, respond to similar socio-cultural conditions, have reciprocal or interdependent effects in disease transmission and progression, and are largely managed by similar organizations. Yet so often at both national and local levels, we fail to characterize the interconnectedness between these diseases and our prevention responses. The launch of this profile reflects the Center's commitment to improving collaboration and integration in surveillance, program, research, and policy, accelerating the move into an era where prevention services are increasingly holistic and appropriate for clients at every point of access to the health system.

This first edition of the annual disease profile highlights recent trends as well as important determinants of these infections and their complications in the United States. New cases of TB, gonorrhea, and viral hepatitis, and AIDS diagnoses and deaths in the United States have declined, driven in part by effective targeting and delivery of evidence-based prevention services, including vaccination, screening, early diagnosis, and treatment programs. In contrast, new diagnoses of HIV infection and syphilis continue to increase, and there is evidence of greater concentration of many of these diseases among sectors of the population with either high rates of sex partner change, socioeconomic deprivation, or poor access to quality health services. The health status of African-American men is a special focus of this disease profile, as they bear a severe and disproportionate burden of most of these diseases, reflecting both unique aspects of individual-level risk behaviors, and, more importantly, the dynamic and detrimental interactions of social determinants, including poverty, incarceration, and drug use.

The future challenge for our health system will be to increase capacity and further progress toward implementing proven prevention strategies, while detecting and responding to new demands and changing priorities. Doing this effectively will require a commitment to assessing and realigning resources continually to meet these challenges. Understanding the overlapping nature and patterns of disease through integrated analysis and reporting of surveillance data is a first step in this response. Critically examining public investments to ensure resources are directed toward activities that will make the greatest health impact is another key step. To make the most of these investments, every opportunity must be taken to improve the efficiency of prevention service delivery, whether through establishing a greater commitment to operational and translational research, improving collaboration and integration, or targeting those in greatest need. We hope that by focusing on HIV/AIDS, viral hepatitis, STD, and TB epidemics as overlapping health problems in a more systematic and integrated manner, we will provide our prevention partners with the tools and incentives to tackle these diseases earlier and more comprehensively. Ultimately, this stronger commitment to integration at all levels of the health system will result in greater focus on health protection, and greater benefits for the nation's health.

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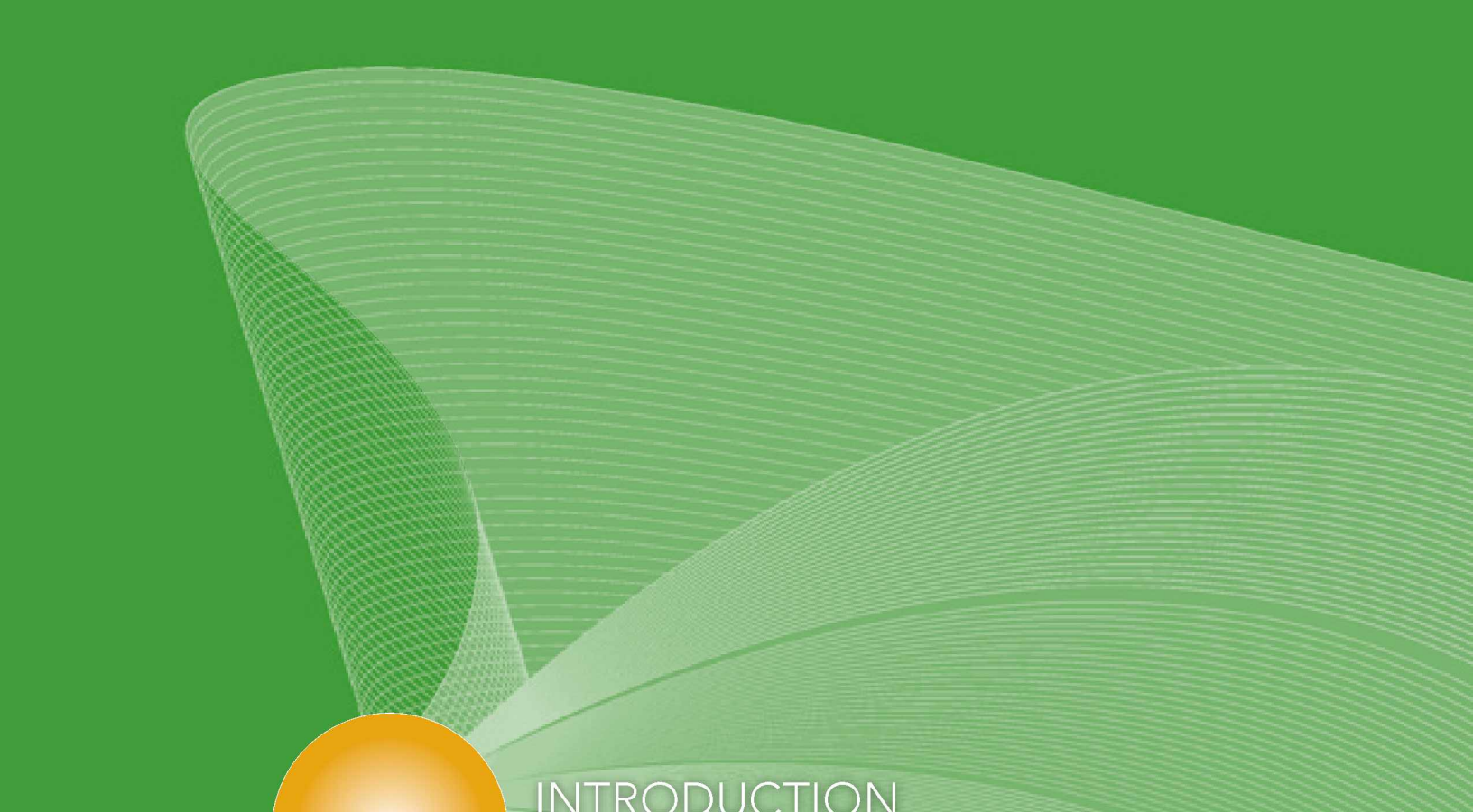

INTRODUCTION

INTRODUCTION

The National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) of the Centers for Disease Control and Prevention (CDC) recognizes the importance of leveraging new opportunities that will ensure a more integrated approach to disease control, prevention, and education, thereby maximizing CDC's overall public health impact. Prompt detection of disease patterns and statistical trends will enable public health practitioners at all levels to target affected populations for prevention, control, and treatment.

Historically, each of NCHHSTP's divisions (i.e., the Division of HIV/AIDS Prevention, the Global AIDS Program, the Division of STD Prevention, the Division of Tuberculosis Elimination, and the Division of Viral Hepatitis) has published separate, comprehensive annual surveillance reports. However, in addition to these reports, this *2006 Disease Profile* is a first step for NCHHSTP to move toward a more integrated approach to the prevention of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), viral hepatitis, sexually transmitted diseases (STDs), and tuberculosis (TB).

Background

HIV/AIDS, viral hepatitis, STDs, and TB continue to adversely impact the lives of millions of persons living in the United States. CDC, along with state and local public health partners, is working to reduce this burden of disease by facilitating efforts to prevent, control, and treat disease, and educate persons who are at increased risk for diseases and those who are affected by them. To help inform these efforts, NCHHSTP engages in surveillance activities to obtain data on overall disease prevalence and the burden of disease by age, sex, race/ethnicity, and other factors that place persons at increased risk.

The surveillance activities conducted at national, state, and local levels have enabled the identification of trends that involve not only a single disease and population, but also multiple diseases and characteristics. For instance, epidemiological studies have shown that persons infected with STDs are at least two to five times more likely than those who are uninfected to acquire HIV infection if they are exposed to the virus through sexual contact. In addition, if an HIV-infected person is also infected with another STD, that person is more able to transmit HIV through sexual contact than if the STD was not present. These relationships emphasize the importance of integrated data collection and prevention efforts, such as increased HIV testing in areas with high rates of STDs and the incorporation of STD screening into HIV prevention programs.

Relationships also exist between STDs (including HIV/AIDS) and types of viral hepatitis that are transmitted through sexual contact. In the United States, epidemiological studies have shown that the most common route of transmission of hepatitis B virus (HBV) infection among adults is heterosexual contact, followed by sexual activity among men who have sex with men (MSM) (39% and 24% of new HBV infections, respectively). About 35% of patients diagnosed with acute hepatitis B report having received treatment for an STD, and about 10% of persons infected with hepatitis C virus (HCV) also are infected with HIV. Of all HIV-infected persons, approximately 10% have hepatitis B and at least one-third have hepatitis C; this percentage of HCV co-infection likely is substantially higher among certain groups of people living with HIV. Knowledge of these particular interrelated patterns of disease can help inform public health initiatives. For example, agencies around the country that receive funding through the Ryan White HIV/AIDS Treatment Modernization Act provide patients with HIV-, HBV-, and HCV-related services ranging from counseling, support groups, and education to testing, vaccination, and treatment.

HIV and TB also are interrelated. Because HIV weakens the immune system, persons who are HIV-infected are disproportionately affected by clinical TB. In the

United States, an estimated 9% of persons with HIV also have TB. These persons are more likely to develop active TB disease (the contagious and symptomatic stage of TB) than are TB-infected persons who do not have HIV. In addition, multidrug-resistant TB (i.e., TB caused by bacterial strains that are resistant to front-line antibiotics), which poses significant treatment challenges, is more likely to cause death in HIV-infected persons than in those infected with TB alone. The associations that exist between TB and HIV create public health opportunities, including the creation of integrated education and screening initiatives. These relationships have also prompted CDC to create targeted recommendations: CDC recommends that everyone infected with HIV should be tested for TB and that all HIV-positive persons testing positive for latent TB should complete preventive therapy as soon as possible to prevent progression to TB disease.

Public health surveillance activities have revealed disease patterns that affect specific population groups, which create additional opportunities for targeted public health intervention. For instance, injection drug users (IDUs) are at increased risk for HIV, hepatitis B, and hepatitis C, all of which can be transmitted through the sharing of needles and syringes; outbreaks of hepatitis A virus (HAV) infection also occur among IDUs. Likewise, because hepatitis B and HIV are transmitted through high-risk sexual practices, MSM are at increased risk for both of these diseases.

About the 2006 Disease Profile

The *2006 Disease Profile* outlines the 2006 trends for HIV/AIDS, viral hepatitis, STDs, and TB and highlights the interrelationships observed between diseases and populations in the United States. NCHHSTP anticipates that gathering the data collected by each of NCHHSTP's divisions into a single publication will facilitate a more integrated effort to reach CDC's overall objectives of improving public health and reducing health disparities. In the years to come, it is hoped that additional interrelationships and interwoven disease trends are uncovered as a result of CDC's commitment to creating more efficient, cost-effective, and integrated surveillance systems. Recent advances in the way that electronic data are collected, collated, transmitted, analyzed, visualized, stored, and retrieved are paving the way for this type of public health effort.

NCHHSTP plans to publish the disease profile on an annual basis. Each year, the profile will highlight recent trends observed, both within and between diseases and populations. In addition, the publication will feature a chapter dedicated to a special focus population that is especially affected by more than one of the diseases within the purview of the NCHHSTP. The *2006 Disease Profile* focuses on African-American men, a population for which substantial health disparity was observed for many of these diseases in 2006.

The profile reflects the collaboration of four of the five NCHHSTP divisions. The data included within the profile were obtained primarily from 2006 annual surveillance reports and other surveillance materials previously published by each participating division; therefore, they are subject to the limitations found within these reports.

HIV/AIDS

About HIV/AIDS

Human immunodeficiency virus (HIV) is a retrovirus that affects the immune system of infected persons by destroying certain white blood cells, called T-cells, which the body relies on to fight infection. Although initial infection with HIV can result in flu-like symptoms (e.g., fever, chills, and swollen glands) about 2 weeks after virus transmission, HIV-infected persons typically have no symptoms for many years. As HIV infection progresses, infected persons begin to show signs and symptoms of a weakened immune system; they often become sick with diseases that reflect loss of the ability of the body to fight infection (e.g., Kaposi's sarcoma, shingles, tuberculosis, oral or vaginal thrush, and herpes simplex virus). When certain opportunistic infections/conditions develop or the immune system is suppressed below a specific level, HIV-infected persons are considered to have acquired immunodeficiency syndrome (AIDS).

HIV is fragile and cannot persist outside of the body. Because the virus is mainly found in blood, semen, and vaginal fluid, it is not transmitted through any type of casual contact. Instead, the virus is transmitted primarily through having sex (either anal, vaginal, or oral) with someone infected with HIV, sharing needles and syringes with someone infected with HIV, and being exposed (as a fetus or infant) to HIV before or during birth or through breastfeeding. Persons who receive blood, blood products, or organs from persons with HIV infection can also become infected; however, this type of transmission is now rare in the United States because the U.S. blood supply has been routinely screened for HIV since 1985.

No vaccine is available to protect persons from becoming infected with HIV. However, certain antiretroviral drugs can be used to reduce the viral load of HIV in the body and delay the progression of HIV infection to AIDS. Treatment with a regimen of antiretroviral drugs can prolong life expectancy and quality of life for persons who are infected. Also, timely use of appropriate antiretroviral regimens can drastically reduce the likelihood of HIV transmission from infected mothers to their newborn children and transmission associated with occupational exposure (e.g., needle sticks).

Tracking HIV/AIDS

HIV/AIDS surveillance can help inform prevention and control efforts at local, state, and national levels by determining burden of disease. To obtain an accurate measure of the HIV/AIDS epidemic, surveillance must be conducted for both HIV infection and AIDS. In the absence of HIV data, determining the annual number of newly diagnosed cases of AIDS in a specific population does not represent a complete picture of the burden or impact of the disease because many more persons have been infected with HIV and have not yet developed symptoms.

Since recognition of the HIV/AIDS epidemic in 1981, all states have conducted AIDS surveillance using a standardized, confidential name-based reporting system; each state removes all personally identifying information from each case before reporting it to the Centers for Disease Control and Prevention (CDC) through the agency's HIV/AIDS Reporting System. In 1994, CDC began integrating HIV diagnosis reporting with AIDS reporting, and 25 states started reporting HIV diagnoses to CDC. Over the years, additional states implemented HIV reporting. By 2004, all states had adopted some type of system enabling them to collect and report data on cases of HIV infection, regardless of whether these cases had progressed to AIDS. These data were reported as "HIV/AIDS" cases. The term HIV/AIDS refers to three categories of HIV diagnoses collectively, regardless of AIDS status: 1) diagnosis of HIV infection without a subsequent AIDS diagnosis; 2) diagnosis of HIV infection and then a later diagnosis of AIDS; and 3) concurrent diagnosis of HIV infection and AIDS

HIV/AIDS: Key Findings

- In 2006, there were an estimated* 35,314 new diagnoses of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) (i.e., HIV infection, regardless of progression to AIDS) from the 33 states with confidential name-based HIV infection reporting†‡; this number has remained stable since 2003.
- The rate of new HIV/AIDS diagnoses for 2006 in the 33 states was about 19 cases per 100,000.
- In 2006, the estimated rate of AIDS diagnoses§ was about 12 cases per 100,000.
- From 2002 through 2006, the number of estimated diagnosed AIDS cases decreased 64% among children aged <13 years.
- In 2006, most diagnosed cases of HIV/AIDS (16%) and AIDS (20%) occurred among persons aged 40–44 years, although the number of cases overall remained stable during 2003–2006.
- Almost half of all HIV/AIDS cases diagnosed in 2006 in the 33 states occurred among African Americans, for a rate of about 68 cases per 100,000; Hispanics also had elevated rates of newly diagnosed disease (26 cases per 100,000) compared with those observed among whites (8 cases per 100,000). The number of newly diagnosed cases for African Americans and Hispanics remained stable from 2003 through 2006.
- Rates of AIDS cases diagnosed in 2006 in the 50 states and the District of Columbia were also elevated among African Americans and Hispanics compared with whites (about 5 cases per 100,000), at approximately 48 cases and 16 cases per 100,000, respectively.
- About three-fourths of HIV/AIDS cases and cases of AIDS diagnosed in 2006 occurred among men.
- Men who have sex with men (MSM) and persons exposed to HIV through high-risk heterosexual contact (i.e., heterosexual contact with someone known to have, or to be at high risk for, HIV infection) accounted for 82% of all cases of HIV/AIDS diagnosed in 2006.
- From 2002 through 2006, the estimated number of diagnosed AIDS cases decreased 10% in the western region of the United States and 6% in the Northeast.
- The estimated number of AIDS-related deaths decreased 17% from 2002 through 2006.
- In 2006, approximately 492,000 persons were living with HIV/AIDS in the 33 states, representing an increase over previous years' estimates.

* These numbers are not actual reported case counts, but are estimates resulting from statistical adjustments. The reported case counts have been adjusted for reporting delays, but not for incomplete reporting.

† Thirty-eight U.S. reporting areas (representing 33 states and five U.S.-dependent areas) had collected consistent HIV data for a time period long enough to obtain accurate 2006 HIV/AIDS estimates.

‡ CDC used surveillance data from the following states to obtain 2006 HIV/AIDS estimates: Alabama, Alaska, Arizona, Arkansas, Colorado, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

§ AIDS estimates for 2006 include data from all 50 states and the District of Columbia.

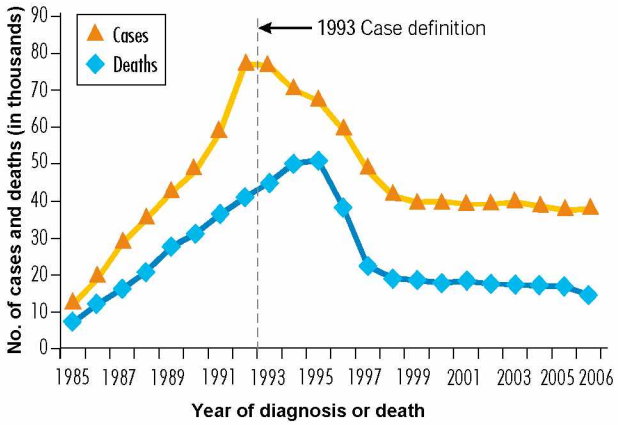
(i.e., diagnosis of HIV and AIDS within the same calendar month). However, because only 38 U.S. reporting areas (representing 33 states and five U.S.-dependent areas) had collected name-based HIV data for a time period long enough to obtain accurate 2006 HIV/AIDS estimates, CDC analyzed surveillance data from only these reporting areas. AIDS estimates for 2006, however, include data from all 50 states and the District of Columbia.

The period of time that elapses between the initial diagnosis of HIV/AIDS cases and the reporting of cases to state and local health departments often varies. Because cases reported in a certain time period could have been diagnosed prior to the year of report, data on estimated diagnosed cases are more useful than data on reported cases in characterizing the impact of HIV/AIDS in the United States for a particular period of time.

National Snapshot

In 2006, an estimated 35,314 new cases of HIV/AIDS (i.e., HIV infection, regardless of progression to AIDS) were diagnosed in 33 states*†; the annual number of diagnoses reported from those states has remained stable since 2003. The rate of new cases of HIV/AIDS diagnosed in these states in 2006 was about 19 cases per 100,000. For AIDS, the estimated number of cases diagnosed in 50 states and the District of Columbia‡ in 2006 was 36,828 (rate: 12 cases per 100,000). The annual number of AIDS diagnoses remained stable from 2002 through 2006 (Figure 1).

Figure 1: Estimated number of AIDS cases and deaths among adults and adolescents with AIDS—United States and dependent areas, 1985–2006



Note: Data have been adjusted for reporting delays.

In addition to the annual number of newly diagnosed cases of disease, CDC has calculated 2006 estimates for the number of persons living with HIV/AIDS and AIDS. From 2003 through 2006, the number of persons living with HIV/AIDS increased in the 33 states; approximately 492,000 persons were living with HIV/AIDS in 2006, compared with 352,000 in 2003. The number of persons living with AIDS has also increased over the past several years; CDC estimates that in the 50 states and the District of Columbia, approximately 437,000 persons were living with AIDS by the end of 2006, whereas in 2003, approximately 406,000 persons were living with AIDS.

Geographic Trends

Understanding the temporal trends and geographic distribution in HIV/AIDS diagnoses has been complicated by several factors, including state-to-state variations in the completeness and methods of reporting (particularly for HIV diagnoses). Because data on HIV diagnoses (regardless of progression to AIDS) have only recently begun to be collected routinely in many states, making state- or region-based determinations about HIV trends over time problematic. However, geographic differences and trends in the prevalence of AIDS can be determined annually, for which all 50 states, the District of Columbia, and dependent areas have been reporting data since the early 1980s.

AIDS data are analyzed by geographic region to help identify areas in need of specific public health interventions. CDC has estimated that during 2002–2006, more persons in the southern United States were living with AIDS than in any other part of the country, followed by persons in the Northeast. In 2006, about 178,000 and 126,000 persons were living with AIDS in these regions, respectively. Estimated numbers of persons living with AIDS have remained lower in the Midwest than in any other region for several years. The rate of persons living with AIDS varied substantially by U.S. reporting area in 2006, with the lowest rate for adults and adolescents (i.e., persons ≥13 years of age) occurring in the U.S.-dependent area of American Samoa, and the highest rates in the District of Columbia (3 cases and 2,017 cases per 100,000, respectively). The rate of children living with AIDS also varied, ranging from an estimated zero cases per 100,000 in several reporting areas to 37 cases per 100,000 in the District of Columbia.

The number of persons living with HIV/AIDS (regardless of progression to AIDS) has been estimated by state for 2006. Of the 33 states for which HIV data

* Thirty-eight U.S. reporting areas (representing 33 states and five U.S.-dependent areas) had collected consistent HIV data for a time period long enough to obtain accurate 2006 HIV/AIDS estimates.

† CDC used surveillance data from the following states to obtain 2006 HIV/AIDS estimates: Alabama, Alaska, Arizona, Arkansas, Colorado, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

‡ AIDS estimates for 2006 include data from all 50 states and the District of Columbia.

were analyzed, New York had the highest number of residents living with HIV/AIDS, followed by Florida and Texas.

Population Trends

Race/Ethnicity, Sex, and Age

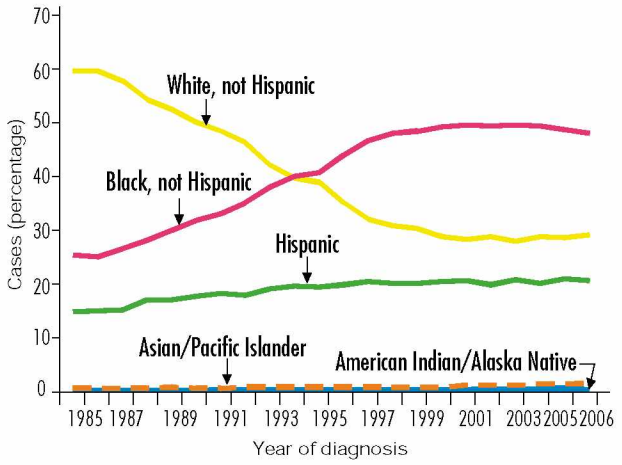
HIV/AIDS continues to affect persons in certain racial/ethnic groups, disproportionately. Almost half of all HIV/AIDS cases diagnosed in 2006 in the 33 states reporting HIV surveillance data occurred among African Americans, for a rate of almost 68 cases per 100,000. Hispanics also had substantially higher rates of HIV/AIDS (nearly 26 cases per 100,000) than American Indians/Alaska Natives, whites, and Asians/Pacific Islanders (about 9, 8, and 7 cases per 100,000, respectively). Although cases remained elevated among African Americans and Hispanics in 2006 compared with other racial/ethnic groups, the estimated number of diagnosed cases of HIV/AIDS in these populations remained stable from 2003 through 2006. In contrast, the number of cases increased among whites and Asians/Pacific Islanders.

Data regarding race/ethnicity are also collected and analyzed for diagnosed cases of AIDS. As with HIV/AIDS, 2006 AIDS diagnosis rates (calculated using data from all 50 states and the District of Columbia) were highest among African Americans (almost 47 cases per 100,000), although a downward trend occurred in the number of diagnosed cases from 2002 through 2006. Hispanics were also disproportionately affected by AIDS (nearly 16 cases per 100,000) in 2006 compared with American Indians/Alaska Natives, whites, and Asians/Pacific Islanders (about 6, 5, and 4 cases per 100,000, respectively) (Figure 2).

In 2006, about three-fourths of all diagnosed HIV/AIDS cases and cases of AIDS occurred among men. Although data reveal that a slight increase in diagnosed HIV/AIDS cases (5%) occurred among men from 2003 through 2006, the number of diagnosed AIDS cases remained stable among men over this time period. Among women, diagnosed HIV/AIDS cases decreased 6% from 2003 through 2006, and diagnosed cases of AIDS remained stable.

When examined by age, the number of diagnosed cases of HIV/AIDS decreased in children (i.e., persons younger than age 13 years) and in several other age groups over the period 2003 through 2006. Increases were observed in persons 15–29 years of age and in those older than 45 years. Although the number of cases remained stable for persons aged 40–44 years, this group accounted for the largest number of diagnosed HIV/AIDS cases (16%) during 2006 in the 33 states. Similar trends were observed by age for AIDS cases, including decreases in diagnosed cases among children. Twenty percent of all AIDS diagnoses in 2006 occurred among persons aged 40–44 years.

Figure 2: Proportions of AIDS cases among adults and adolescents, by race/ethnicity and year of diagnosis—United States and dependent areas, 1985–2006

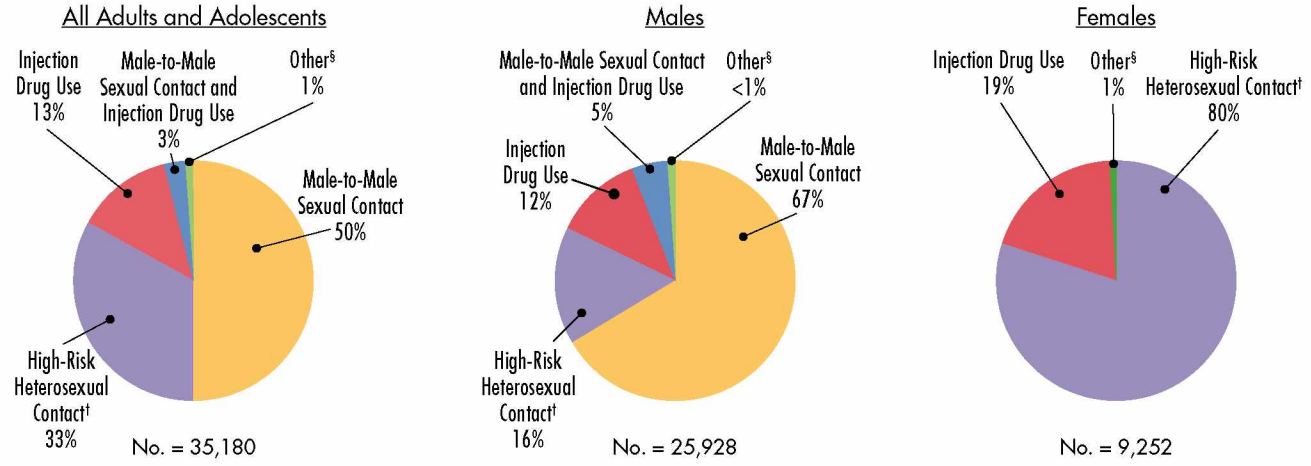


Note: Data have been adjusted for reporting delays.

Other Considerations

Beyond race/ethnicity, sex, and age, differences in HIV/AIDS diagnoses are associated with additional factors. For instance, most cases of HIV/AIDS diagnosed in 2006 within the 33 states occurred among MSM and persons engaging in high-risk heterosexual contact (Figure 3). These two populations accounted for 49% and 33%, respectively, of all diagnosed HIV/AIDS cases. Although the number of diagnosed HIV/AIDS cases increased among MSM during 2003–2006, it remained stable for persons engaging in high-risk heterosexual contact. For AIDS, the number of diagnosed cases remained stable from 2002 through 2006 among MSM and men exposed to HIV through high-risk heterosexual contact; the number of cases also remained stable among females who were exposed through high-risk heterosexual contact, although minor fluctuations were observed by year.

Figure 3: Transmission categories of adults and adolescents with HIV/AIDS diagnosed during 2006*



Note: Data have been adjusted for reporting delays, and cases without risk information were proportionally redistributed.
* Based on data from 33 states with long-term, confidential name-based HIV reporting.
† Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
§ Includes hemophilia, blood transfusion, perinatal exposure, and risk factors not reported or not identified.

Persons who inject drugs are also disproportionately affected by HIV/AIDS. In 2006, about 19% of all persons living with HIV/AIDS were classified in the injection drug user (IDU) transmission category. However, during 2003 through 2006, the estimated number of diagnosed HIV/AIDS cases decreased among both IDUs and MSM who also used injection drugs. A downward trend in the number of diagnosed AIDS cases was also observed among IDUs (including those who also identified themselves as MSM) from 2002 through 2006.

Infants and fetuses of HIV-infected mothers are also at increased risk for HIV/AIDS. In 2006, more than 90% of children diagnosed with HIV/AIDS were exposed to the disease by their infected mothers *in utero*, at birth, or through breastfeeding.

Factors that Affect Disease Prevalence

The typically slow progression of HIV infection to AIDS, along with the absence in many patients of symptoms associated with HIV infection, have challenged classic methods of determining the prevalence of infectious diseases. Collecting data regarding the true number of HIV infections is problematic because a percentage of persons infected with HIV have not yet been tested or diagnosed; other cases have yet to be reported to disease surveillance programs. Many states offer anonymous HIV testing, however the results of anonymous tests are not reported to the confidential name-based HIV registries of state and local health departments. In addition, availability of, and access to, medical care can substantially affect the number of cases diagnosed within a specific population or geographic location. Therefore, the actual number of persons living with HIV/AIDS is likely higher than is reflected in surveillance data.

Using Surveillance Data to Improve Public Health

The implementation of integrated name-based HIV/AIDS reporting by state and local jurisdictions has now been completed. As of April 1, 2008, all 50 states, the District of Columbia, and five U.S.-dependent areas (i.e., American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands) had established name-based HIV reporting.

CDC is engaging in activities to improve the quality and timeliness of HIV/AIDS data to help the agency reach its goal of reducing the number of new HIV infections in the United States. CDC recently developed improved HIV testing algorithms that enable cases of HIV within a population to be further classified as either "longstanding" or "recently acquired." This algorithm, known as the Serological Testing Algorithm for Recent HIV Seroconversion (STARHS), will enable CDC to understand trends in HIV incidence in

a timely manner*. In partnership with state and local health departments, CDC has been working for several years to develop and evaluate a new STARHS-based surveillance system. In 2002, a pilot program was instituted in five U.S. reporting areas, and as of January 2008, a total of 25 areas have been funded to conduct incidence surveillance using the STARHS system. The monitoring of HIV incidence will be critical in evaluating progress toward CDC's goal of reducing the number of new HIV infections in the United States and in allocating resources and evaluating prevention program effectiveness.

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* On August 2, 2008, new incidence estimates were released using new technology and methodology that more directly measure the number of new HIV infections in the United States (http://www.cdc.gov/hiv/topics/surveillance/incidence.htm).

VIRAL HEPATITIS

Introduction

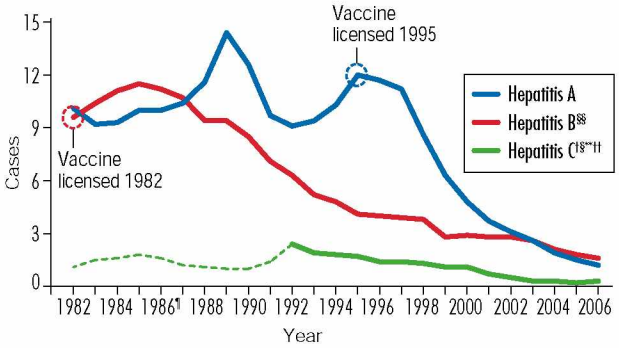
Infection with viral hepatitis is characterized by inflammation of the liver. Although several types of hepatitis viruses are known to cause illness, only hepatitis A, B, and C (caused by the hepatitis A virus [HAV], hepatitis B virus [HBV], and hepatitis C virus [HCV], respectively) typically affect persons living in the United States.

The rates of all three types of acute viral hepatitis have declined substantially over the past several decades, largely the result of effective public health interventions (Figure 4). For instance, widespread childhood vaccination against hepatitis A and B has reduced rates of these diseases to historic lows. In addition, the incidence of acute hepatitis C has declined by almost 80% in part because of efforts to ensure blood safety through the testing of the U.S. blood supply and the delivery of behavioral-based interventions targeting injection drug users (IDUs). Despite these achievements, cases of acute viral hepatitis still occur, particularly among persons in specific populations (e.g., IDUs and non-IDUs, international travelers, and persons with multiple sex partners) (Figure 5), and slight increases have occurred in the incidence of acute hepatitis C from 2005 to 2006. Chronic viral hepatitis also continues to affect millions of persons living in the United States.

Tracking Viral Hepatitis

Each week, cases of acute viral hepatitis are reported to the Centers for Disease Control and Prevention (CDC) through the National Notifiable Disease Surveillance System (NNDSS), an infectious disease tracking system that is used by health departments in all 50 U.S. states, the District of Columbia, and several U.S. territories. Additional data on cases of acute viral hepatitis have been collected through sentinel surveillance projects, including the Sentinel Counties Study of Acute Viral Hepatitis (1982–2006) and the Emerging Infections

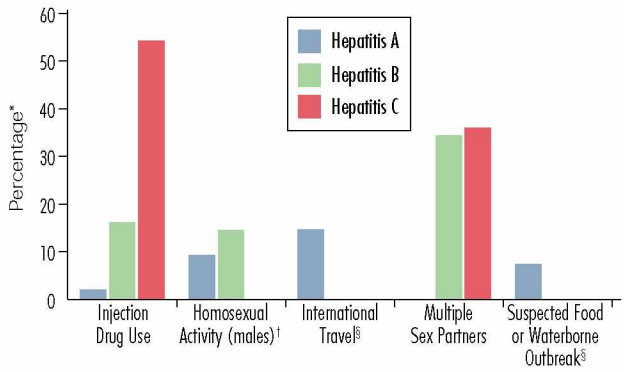
Figure 4: Incidence* of acute hepatitis A, B, and C— United States, 1982–2006



* Per 100,000 population.
† Non-A, non-B hepatitis became a reportable disease in 1982.
§ Numbers and rates for hepatitis C/non-A, non-B hepatitis were unreliable for 1982–1991, reflecting the erroneous reporting of chronically infected persons as acute cases that occurred when testing for antibody to hepatitis C virus (anti-HCV) first became widely available.
¶ Excludes cases from New York City; data were not available for 1985–1986.
** Excludes hepatitis cases from New Jersey and Missouri for 2001.
†† Excludes cases from Missouri for 2003–2004.
§§ Excludes cases from Arizona for 2006.

Source: National Notifiable Diseases Surveillance System, 1982–2006.

Figure 5: Selected epidemiologic characteristics among persons with acute hepatitis A, B, and C— United States, 2006



* Note: Percentage of cases for which a specific risk factor was calculated on the basis of the total number of cases for which any information for that exposure was reported.
† Among males, 22% reported homosexual behavior.
§ Persons with hepatitis B and C were not questioned about international travel or suspected food or waterborne outbreak as potential sources of infection.

Program Enhanced Hepatitis Surveillance Activities (2005–Present).

Surveillance for acute viral hepatitis provides data that can be used to a) identify trends that can help guide population-specific efforts to prevent new infections, b) evaluate the effectiveness of these interventions, and c) identify infected persons so that they can be provided with prevention and care services.

Using Surveillance Data to Improve Public Health

The surveillance systems used to collect data on hepatitis A, B, and C viral infections in the United States are useful for determining the burden of acute disease within specific populations, with the goal of informing public health interventions and, ultimately, improving health. For instance, hepatitis A surveillance data were instrumental in developing targeted and informed vaccine recommendations in the United States, such as hepatitis A vaccine recommendations for international travelers.

Surveillance data for acute hepatitis B and C also help inform public health action. Data demonstrating both ongoing transmission of hepatitis B among unvaccinated adults that engage in high-risk sexual behaviors and low vaccine coverage in this population prompted the Advisory Committee on Immunization Practices (ACIP) and CDC to develop and publish new guidelines in 2006 recommending that all adults in settings serving persons at risk (e.g., sexually transmitted disease [STD] and human immunodeficiency virus [HIV] prevention centers and correctional facilities) receive HBV vaccine. In addition, acute hepatitis C surveillance data informed recommendations for public and private health care professionals, many of which have led to decreases in hepatitis C incidence. For instance, CDC's 1992 guidelines recommending that the U.S. blood supply be routinely screened for HCV have resulted in substantial declines in new hepatitis C infections among recipients of blood products and solid organs. Likewise, public health prevention efforts aimed at reducing needle-sharing and other high-risk behaviors among IDUs have led to lower rates of acute hepatitis C in this population. In the future, more comprehensive and integrated surveillance systems, such as those that include tracking for chronic viral hepatitis infection, will be employed to help identify additional, previously undetected patterns of disease and to evaluate public health prevention programs.

Hepatitis A

Hepatitis A: Key Findings

- In 2006, a total of 3,579 acute symptomatic cases of hepatitis A were reported; the incidence was 1.2/100,000, the lowest rate ever recorded. After accounting for underreporting, this rate represents approximately 32,000 new hepatitis A virus (HAV) infections.
- In 2006, among the cases of hepatitis A with an identified risk, most were attributed to persons in certain high-risk populations, including international travelers, close contacts of infected persons, men who have sex with men (MSM), and injection drug users (IDUs).
- In 2006, international travel was the most frequently reported risk factor for hepatitis A (15%).
- Nearly 10% of men diagnosed with hepatitis A reported engaging in homosexual behavior in 2006, whereas only 3% reported this behavior in 2005.
- Hepatitis A rates among American Indians/ Alaska Natives have declined from 60 cases per 100,000 in the years leading up to 1995 to 0.5 cases per 100,000 in 2006.

About Hepatitis A

Infection with HAV can cause acute illness characterized by tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, clay-colored bowel movements, and jaundice (i.e., a yellowing of the skin and eyes). Children typically are asymptomatic or have milder symptoms than those occurring in adults. Unlike HBV and HCV infections, people do not become chronically infected with HAV. This disease is spread primarily through the ingestion of food or water that has been contaminated with the fecal matter of someone who is infected, and through close, personal contact. Casual

contact with an HAV-infected person is not usually associated with disease transmission.

Hepatitis A can be prevented through the use of the hepatitis A vaccine, which has been available since 1995. The hepatitis A vaccine is recommended for use in specific populations, including children at age 1 year, persons traveling to countries where HAV infection is common, MSM, and IDUs. In addition to the vaccine, immune globulin can be administered to provide short-term protection against this virus.

National Snapshot

Anyone can be infected with HAV through common-source outbreaks (i.e., those involving multiple patients who were exposed to the virus through the same source, like contaminated food) or as a result of an isolated event (e.g., exposure to an infected household member). Data from the National Health and Nutrition Examination Survey (NHANES) show that about one-third of persons living in the United States have been infected with HAV at some time during their lives.

In the United States, hepatitis A rates have varied cyclically, peaking approximately every 10–15 years; the last peak in morbidity was in 1995. The incidence of hepatitis A began to decline in 1995 following the introduction of licensed hepatitis A vaccines in the United States and the issuance in 1996 of the first public health recommendations for the use of vaccine in preventing transmission of HAV infection. In 2006, after only 10 years of vaccine use, about 3,500 acute cases of hepatitis A were reported, for a historically low rate of 1.2 cases per 100,000. Because many infections go unreported and others are asymptomatic, CDC estimates that during 2006, approximately 32,000 new infections likely occurred; most of these cases can be attributed to persons in certain high-risk groups, including international travelers, close contacts of infected persons, MSM, and IDUs.

Geographic Trends

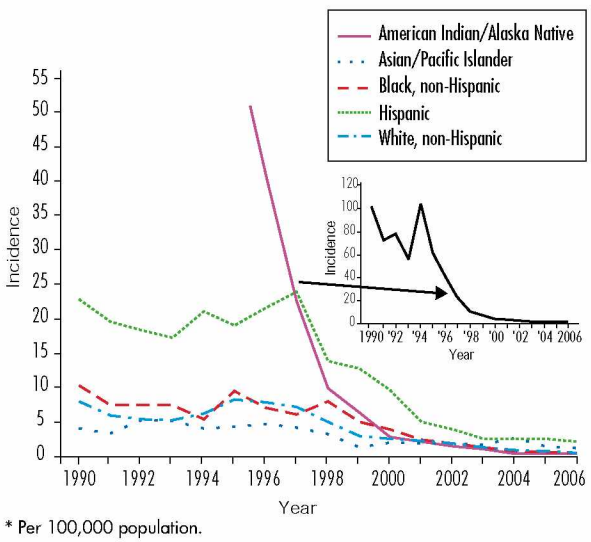
Historically, rates of hepatitis A have varied by U.S. geographical region and have been highest in western states. However, rates in these states began to decline following CDC's recommendation in 1999 encouraging states with elevated rates to implement routine childhood vaccination; rates in these states are now comparable with those reported in other regions of the country.

Population Trends

Race/Ethnicity, Sex, and Age

Persons in certain racial/ethnic populations historically have been affected disproportionately by HAV infection, with the highest rates occurring among American Indians/Alaska Natives and Hispanics (Figure 6). However, rates among American Indians/Alaska Natives have declined dramatically since the mid-1990s (from 60 cases per 100,000 in the years leading up to 1995 to 0.5 cases per 100,000 in 2006)—a reduction that can largely be attributed to the availability of the hepatitis A vaccine. Rates of hepatitis A among American Indians/Alaska Natives are now comparable with those occurring in other racial/ethnic populations. Hispanics also have been experiencing decreases in rates since the mid-1990s, although the 2006 rates of hepatitis A in this population remain higher than those observed in non-Hispanics.

Figure 6: Incidence* of acute hepatitis A, by race/ethnicity and year—United States, 1990–2006



* Per 100,000 population.

Surveillance data also are used to determine yearly rates of hepatitis by sex. Males historically have had higher rates of hepatitis A than females; in fact, during the 1990s, rates among men were almost twice those among women. Although men still have higher rates, rates have declined more in males than females since 1991, resulting in a smaller disparity by sex. The 2006

hepatitis A rate was 1.3 and 1.1 cases per 100,000 for men and women, respectively.

Rates also vary by age; rates of hepatitis A historically have been higher for children (5–14 years) and young adults (15–24 years and 25–39 years) compared with children <5 years of age and adults ≥ 40 years. However, beginning in 1997, the disparity in rates by age group began to close; by 2006, rates of hepatitis A showed little variation across age groups (range = 0.7 to 1.4 cases per 100,000).

Other Considerations

In addition to race/ethnicity, sex, and age, other groups of persons continue to be at increased risk for disease. For instance, persons who frequently travel to developing countries, where infection with HAV is common, are at substantial risk for acquiring hepatitis A. In 2006, more cases of hepatitis A were associated with international travel (15%) than any other risk factor for disease; most of these cases occurred among persons who reported traveling to Central or South America.

Hepatitis A continues to occur in other high-risk populations, such as MSM. In 2006, nearly 1 in 10 men diagnosed with hepatitis A reported engaging in homosexual behavior, representing an increase over the proportion reporting this behavior during 2005 (9% and 3%, respectively). The percentage of cases reporting sexual and household contact with a person infected with hepatitis A, which has historically been among the most frequently identified risks, was 10%.

Reported cases of hepatitis A among IDUs, a group that has historically been at higher risk for this disease, fluctuate from year to year. Data from 2006 indicate that 2% of reported hepatitis A cases occurred among persons who reported injecting drugs, whereas 13% of these cases were reported among IDUs in 2004.

Hepatitis B: Key Findings

- In 2006, a total of 4,713 cases of acute hepatitis B were reported to the Centers for Disease Control and Prevention (CDC); when accounting for underreporting, the actual number of new infections is estimated to be more than 46,000.
- The 2006 reported hepatitis B case rate was 1.6 cases per 100,000, the lowest ever recorded.
- According to the National Health and Nutrition Examination Survey (NHANES), approximately 1.3 million people are chronically infected with hepatitis B virus in the United States.
- Reported rates of hepatitis B were higher in southeastern states than states in other U.S. regions.
- Among African Americans, rates of acute hepatitis B remained twofold higher than those observed among whites during 2006 (2.3 cases versus 1.1 cases per 100,000, respectively).
- In 2006, about twice as many cases of acute hepatitis B were reported in men than women (2.0 cases per 100,000 among men versus 1.1 cases per 100,000 among women).
- During 2006, the highest reported rates of acute hepatitis B were observed among persons 25–44 years of age.
- From 1990 through 2006, rates of acute hepatitis B decreased by more than 90% among persons younger than 25 years of age.
- Most of the cases of acute hepatitis B reported during 2006 were attributable either to high-risk sexual behaviors or injection drug use.

Hepatitis B

About Hepatitis B

Infection with HBV affects the liver. Infants and young children <5 years of age are typically asymptomatic, as are 50%–70% of older children, adolescents, and adults. When symptomatic disease is present, it is characterized by symptoms that are common to all three types of viral hepatitis (i.e., tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, clay-colored bowel movements, and jaundice). However, unlike hepatitis A, hepatitis B may lead to chronic illness, scarring of the liver (i.e., cirrhosis), liver cancer, liver failure, and death. HBV is transmitted when blood from an infected person enters the body of a person who is not infected, which can happen when having unprotected sex, injecting drugs, or giving birth. Health

care-related transmission may also occur, although it is documented infrequently in the United States.

Hepatitis B can be prevented through vaccination with the hepatitis B vaccine, which has been available since 1982. The hepatitis B vaccine is recommended for routine use in persons ≤18 years of age, all persons who have a recognized risk for infection (e.g., persons with STDs or multiple sex partners, MSM, sexual and household contacts of infected persons, IDUs, and health care workers), and for all persons seeking protection from HBV infection. In addition to a dose of hepatitis B vaccine, which is recommended for all infants at birth, hepatitis B immune globulin (HBIG) also can provide protection to infants of infected mothers when administered within 12 hours of birth.

National Snapshot

In the United States, 1.3 million people are living with chronic HBV infection. In 2006, more than 4,700 new cases of hepatitis B were reported to CDC; however, because many cases are not reported, go undetected, or are asymptomatic, CDC estimates that 46,000 persons were newly infected with HBV during 2006. The number of hepatitis B cases reported in 2006 was lower than that reported for 2005 (4,758 and 5,494 cases, respectively), and the 2006 rate of 1.6 cases per 100,000 represents the lowest ever recorded for this disease. Dramatic declines in the incidence of acute hepatitis B began in the mid-1980s and have coincided with the stepwise implementation of a national vaccination strategy to eliminate HBV transmission. Currently, recommendations include the universal vaccination of infants (beginning at birth), prevention of perinatal HBV infection through routine screening of pregnant women and the provision of immunoprophylaxis of their infants, routine vaccination of children and adolescents, vaccination of adults in settings that serve adults at increased risk for HBV infection, and vaccination of all persons seeking protection against infection with HBV.

Geographic Trends

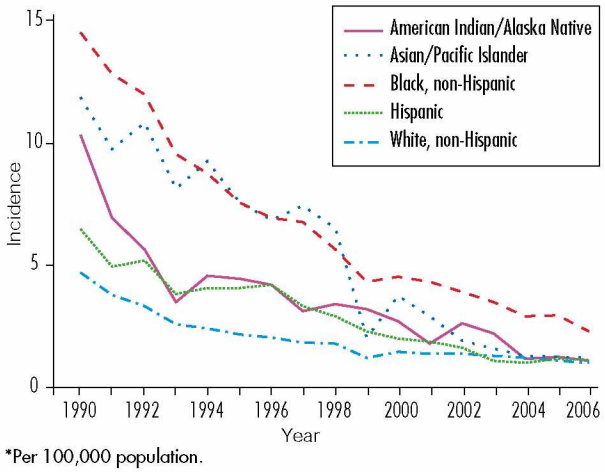
Rates of hepatitis B vary by U.S. geographical region. Historically, rates have been higher in the Southeast than in other parts of the country. Although rates decreased in all U.S. regions during 2006, they remained higher in southeastern states.

Population Trends

Race/Ethnicity, Sex, and Age

Progress has been made toward reducing health-related racial/ethnic disparities. Particularly notable has been the decline in rates of hepatitis B among Asians/Pacific Islanders since 1990, a group that by 2006 had rates similar to those among Hispanic and non-Hispanic white populations. However, persons in specific racial/ethnic populations continue to be affected disproportionately by hepatitis B (Figure 7). Despite a decline in the incidence of hepatitis B among all racial/ethnic populations, rates of acute hepatitis B were twofold higher among African Americans than those observed among whites during 2006 (2.3 cases per 100,000 versus 1.1 cases per 100,000, respectively).

Figure 7: Incidence* of acute hepatitis B, by race/ethnicity and year—United States, 1990–2006



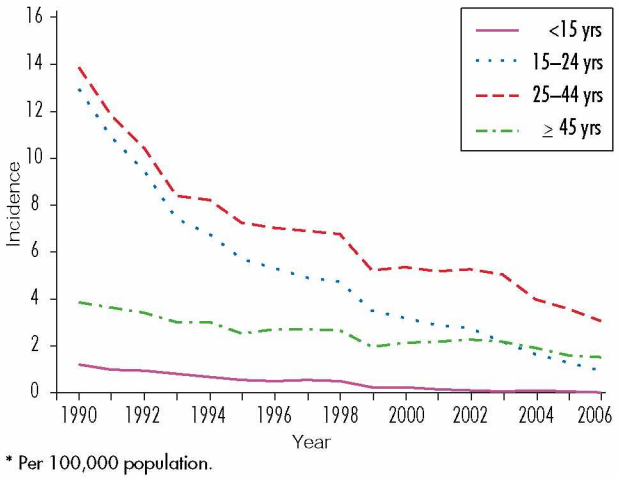
*Per 100,000 population.

Rates of hepatitis B also vary by sex. Historically, men have had higher rates of acute hepatitis B than women; this trend continued in 2006 as evidenced by rates among males that were almost twofold higher than those observed among females (2.0 cases per 100,000 versus 1.1 cases per 100,000, respectively).

Persons in certain age groups also are disproportionately affected by hepatitis B. In 2006, the highest rates were observed among persons 25–44 years of age; children aged <15 years had the lowest rates of this disease. Because children are now being routinely vaccinated with the hepatitis B vaccine, rates among persons in younger age groups have declined more dramatically

than those among older persons, although substantial reductions in rates have occurred among persons of all ages. Since 1990, a 93% decline has been observed in the incidence of hepatitis B in children and persons ≤24 years of age (Figure 8). Rates among persons aged 25–44 years and persons aged ≥45 years declined by 78% and 61%, respectively.

Figure 8: Incidence* of acute hepatitis B, by age group and year—United States, 1990–2006



* Per 100,000 population.

Other Considerations

Beyond race/ethnicity, sex, and age, hepatitis B continues to impact certain populations more than others. Among infected persons for whom information about exposures during the incubation period was available, approximately one-third reported engaging in at least one risky sexual behavior (8% had sexual contact with someone known to have hepatitis B, 34% had multiple sexual partners, and 15% had male homosexual activity). Injection drug use was reported for 16% of cases. Since 2001, the proportion of persons reporting either a sexual risk or injection drug use has increased gradually.

Perinatal (i.e., mother-to-child) transmission of HBV places newborn infants of infected mothers at increased risk for disease. A total of 86 cases of perinatal HBV infection were reported during 2006; because of incomplete testing and reporting, actual rates of HBV infection in newborns are estimated to have been 10 to 20 times higher. In addition, persons born in foreign countries in which HBV infection is endemic (e.g., Asia, Africa, and Eastern Europe) and who immigrate to the United States have higher rates of chronic disease than those born in the United States.

Hepatitis C

Hepatitis C: Key Findings

- A total of 802 cases of hepatitis C were reported to the Centers for Disease Control and Prevention (CDC) in 2006, for an overall rate of 0.3 cases per 100,000; the actual number of new infections, however, is likely closer to 19,000 cases after accounting for asymptomatic cases and those that are not reported.
- An estimated 3.2 million persons are living with chronic hepatitis C infection in the United States.
- Rates of reported cases were highest among Native Americans/Alaska Natives (0.6 cases per 100,000) and lowest among Asian/Pacific Islanders (0.07 cases per 100,000) in 2006.
- The difference in rates of reported cases between males and females narrowed in 2006 to 0.29 and 0.25 cases per 100,000, respectively.
- In 2006, 54% of persons with confirmed cases of hepatitis C reported injection drug use, an increase from the percentage of hepatitis C virus (HCV)-infected persons who reported this behavior during the past decade.

About Hepatitis C

HCV causes illness that affects the liver. This disease causes symptoms in only about 20% of infected persons, which are similar to those associated with all types of viral hepatitis (i.e., tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, clay-colored bowel movements, and jaundice). Most persons with acute hepatitis C go on to develop chronic infection. An estimated 55%–85% of infected persons develop chronic hepatitis C, and 20% of chronically infected persons develop liver disease, which causes death in 1%–5% of

cases. Alcohol abuse and HIV infection accelerate the progression of chronic hepatitis C. Like infection with HBV, HCV infection is transmitted when blood from an infected person enters the body of a person who is not infected; HCV may be spread through the sharing of needles during injection drug use and in health care settings by contaminated medical equipment. Other sources of infection include transmission from mother to child during childbirth; transmission also may result from sexual contact. HCV infection is not spread through casual contact.

No vaccine is available to protect persons from becoming infected with HCV. However, several treatment options exist for those already chronically infected with this virus; treatment with a combination of two drugs (i.e., ribavirin and interferon) is successful in about half of all patients infected with HCV type 1 and in 80% of those with types 2 or 3.

National Snapshot

A total of 802 acute cases of hepatitis C were reported to CDC in 2006 (rate: 0.3 cases per 100,000), representing a slight increase over the number reported in 2005. The actual number of new infections, however, is likely closer to 19,000 cases after accounting for asymptomatic cases and those that are not reported. Hepatitis C in its chronic form affects even more people in the United States; currently, 3.2 million are estimated to be living with this persisting and often debilitating infection.

Geographic Trends

CDC does not examine geographic trends for acute hepatitis C because of the small number of cases that are reported each year.

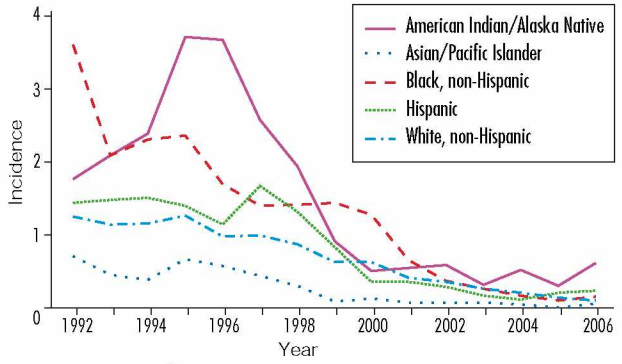
Population Trends

Race/Ethnicity, Sex, and Age

Similar to hepatitis A and B, the incidence of acute hepatitis C has been declining over time, but unlike cases of acute hepatitis A and B, a slight upturn in acute cases of hepatitis C was observed from 2005–2006. Rates have been similar for all racial/ethnic groups since 2002 (Figure 9); 2006 rates were highest among Native Americans/Alaska Natives (0.6 cases per 100,000) and lowest among Asian/Pacific Islanders (0.07 cases per 100,000). Although, historically, men have had higher rates of acute hepatitis C than women, the difference in rates between these groups is narrowing (Figure 10). In 2006, reported rates of acute hepatitis C in men and women were 0.29 and 0.25 cases per 100,000, respectively, representing the smallest ratio of male to female cases since reporting for hepatitis C began.

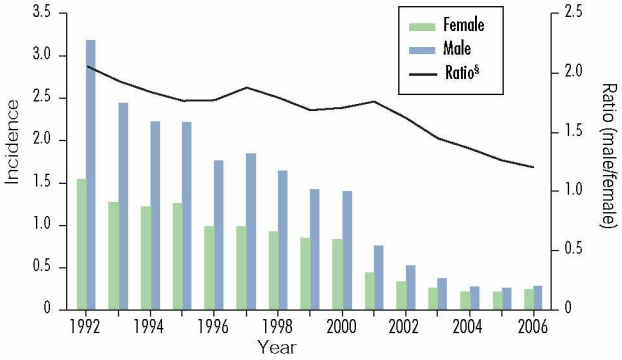
Differences in the disease burden of hepatitis C also can be observed by age. Historically, persons 25–39 years of age have had the highest rates of acute hepatitis C, although rates for persons in this age group have declined substantially since 2000. Despite this trend, rates for 2006 increased slightly among persons 25–39 and 15–24 years of age when compared with rates

Figure 9: Incidence* of acute hepatitis C, by race/ethnicity and year—United States, 1992–2006†



* Per 100,000 population.
† Until 1995, acute hepatitis C was reported as acute hepatitis non-A, non-B.

Figure 10: Incidence* of acute hepatitis C, by sex and year—United States, 1992–2006†



* Per 100,000 population.
† Until 1995, acute hepatitis C was reported as acute hepatitis non-A, non-B.
§ The bars indicate the rate per 100,000 population (the left y-axis) by sex; the line is the ratio (right y-axis) of the incidence among males compared to that among females.

reported during the previous year. Hepatitis C rarely is reported in children younger than 15 years of age.

Other Considerations

Hepatitis C continues to affect populations at risk disproportionately, most specifically those who engage in injection drug use. In 2006, about half of persons with acute hepatitis C reported injection drug use, an increase from the percentage of HCV-infected persons reporting this behavior during the previous decade. In addition, because both HIV and hepatitis C are transmitted through the use of injection drugs, at least one-third of HIV-infected IDUs are also infected with HCV; persons co-infected with hepatitis C and HIV are more likely to experience liver damage and other complications as a result of HCV infection.

Perinatal transmission of hepatitis C occurs in approximately 4% of infants born to infected mothers. This percentage increases for infants of mothers who are co-infected with HIV; approximately 20% of these newborns will become infected with HCV.

The risk of HCV transmission is low among long-term sex partners of HCV-infected persons. However, the risk of transmitting HCV infection through sexual contact might be higher for other groups of persons; reports from Europe describe increased incidence of HCV infection among HIV-infected MSM who engage in certain sexual practices.

SEXUALLY TRANSMITTED DISEASES

Introduction

Sexually transmitted diseases (STDs), including chlamydia, gonorrhea, syphilis, herpes, and human papillomavirus (HPV), substantially impact public health in the United States. These diseases negatively affect the lives of more than 65 million Americans, pose a substantial economic burden, and contribute to other reproductive health problems (e.g., infertility, pelvic inflammatory disease [PID], and ectopic pregnancy).

Although progress has been made in the prevention, diagnosis, and treatment of STDs over the past several years, the number of new infections continues to rise in specific populations. Approximately 19 million new cases of STDs occur each year, with almost half occurring among adolescents and young adults (i.e., those aged 15–24 years).

Tracking STDs

STD surveillance data collected both nationally and at the local level can be used to guide population-specific efforts to prevent new infections, identify infected persons, and ensure that persons who have been diagnosed with an STD receive optimal treatment and education. Nationally notifiable STD surveillance data are collected and compiled from reports sent by the STD control programs and health departments in the 50 states, the District of Columbia, selected cities, and U.S. dependencies.

Using STD Surveillance Data to Improve Health

The STD data collected through existing surveillance systems can be used to inform public health activities aimed at improving the detection of STDs, preventing disease transmission, and improving the lives of persons who have been diagnosed with these infections. In addition, understanding how activities aimed at improving case detection (e.g., expanded screening practices and the use of more sensitive tests) affect disease rates in certain populations also can lead to strengthened, more targeted disease prevention and control efforts.

Notifiable STDs

The Council of State and Territorial Epidemiologists (CSTE), in collaboration with the Centers for Disease Control and Prevention (CDC) and local public health departments, has determined that national surveillance data be collected annually for several notifiable STDs (e.g., chlamydia, gonorrhea, and syphilis). These data allow for the identification and analysis of statistical trends occurring for these diseases each year; however, they represent only a minimal proportion of the true burden of STDs in the United States. Many cases of notifiable STDs are not diagnosed, and other cases of STDs for which reporting is not mandatory (e.g., trichomonas, herpes, and HPV) are believed to be much more common.

The following section provides an overview of the chlamydia, gonorrhea, and syphilis data obtained through the conduct of routine surveillance activities at the national, state, and local levels during 2006. Key findings are highlighted, and population- and risk group-specific data are discussed and compared with the previous years' data.

Chlamydia

About Chlamydia

Chlamydia is an STD caused by the bacterium *Chlamydia trachomatis*. Although people infected with *C. trachomatis* usually are either asymptomatic or exhibit only mild symptoms, chlamydia can cause substantial damage to the reproductive system of women. Untreated infection in women can lead to PID, which can cause permanent damage to the fallopian

Chlamydia: Key Findings

- Chlamydia infection remains the most commonly reported notifiable disease in the United States; in 2006, more than 1 million cases of chlamydia were reported to CDC from health departments in all 50 states and the District of Columbia, representing a nearly 6% increase over the 2005 total.
- In 2006, the national rate of reported chlamydia was 348 cases per 100,000, which represents a 5.6% increase from 2005. This increase in reported cases can partially be attributed to the availability of more sensitive diagnostic tests and to the recent expansion of existing screening efforts.
- Adolescent and young women (i.e., those aged 15–24 years) remain the population most affected by chlamydia. In 2006, case rates for females aged 15–19 and 20–24 years (2,863 and 2,797 cases per 100,000, respectively) were higher than those observed in any other population or risk group.
- In 2006, 47% of all reported chlamydia cases occurred in African Americans.
- More cases of chlamydia were reported among African-American women than women in any other racial/ethnic group during 2006; the rate of chlamydia among African-American females was seven times higher than rates among white females.
- The 2006 chlamydia rate among Hispanics was three times higher than that among whites.
- Alaska Native/American Indian women had the second highest rates of chlamydia in 2006, at 1,262 per 100,000.
- Approximately 7% of females 15–24 years of age screened in family planning clinics are found to have chlamydia. Of those screened in selected prenatal clinics in 23 states, approximately 8% tested positive for this STD.
- With the exception of Asians/Pacific Islanders (who experienced a 5.9% decrease in chlamydia rates), chlamydia rates increased in all racial/ethnic groups in 2006.

tubes, uterus, and surrounding tissues. This damage can lead to an array of health problems, including infertility, chronic pelvic pain, and ectopic pregnancy.

National Snapshot

Chlamydia is the most commonly reported notifiable disease in the United States, and it is the most commonly occurring bacterial STD. In 2006, more than 1 million cases of chlamydia were reported to CDC from health departments in all 50 states and the District of Columbia, representing a nearly 6% increase over the number of cases reported for 2005. Rates of reported chlamydia infections among women have been increasing annually since the late 1980s, when public programs for screening and treatment of women were first established to avert cases of PID and related complications. The continued increase in chlamydia case reports in 2006 most likely represents a continued increase in screening for this infection, but it may also reflect a true increase in morbidity.

Geographic Trends

Chlamydia rates historically have varied by U.S. geographic region. Over the past several years, rates have been higher in the South, Midwest, and West compared with those reported in the Northeast. In 2006, however, chlamydia rates in the South, West, and Northeast (363, 358, and 299 cases per 100,000, respectively) were higher than those reported in 2005. Rates remained stable in the Midwest.

State-based chlamydia surveillance for 2006 revealed rates ranging from 152 (New Hampshire) to 682 cases per 100,000 (Alaska). When examined by metropolitan statistical area (MSA), the rate of chlamydia increased from 2005 through 2006 in the majority of the 50 most populated MSAs.

Population Trends

Race/Ethnicity, Sex, and Age

Chlamydia rates increased for all racial and ethnic populations from 2005 through 2006 except for Asians/Pacific Islanders, who experienced an 11% decrease (Figure 11). Rates were highest among African

Figure 11: Chlamydia—Rates by race/ethnicity: United States, 1997–2006

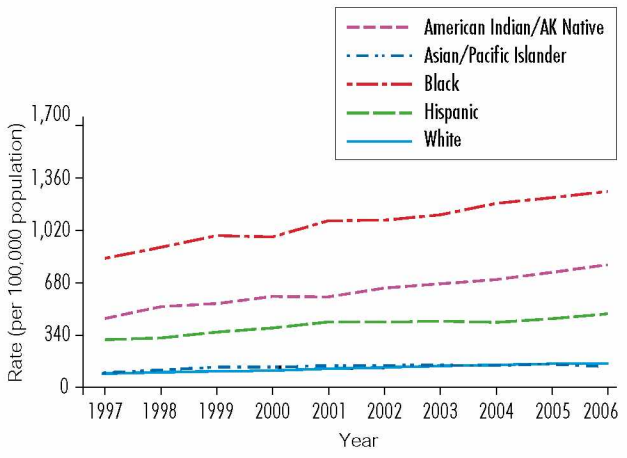
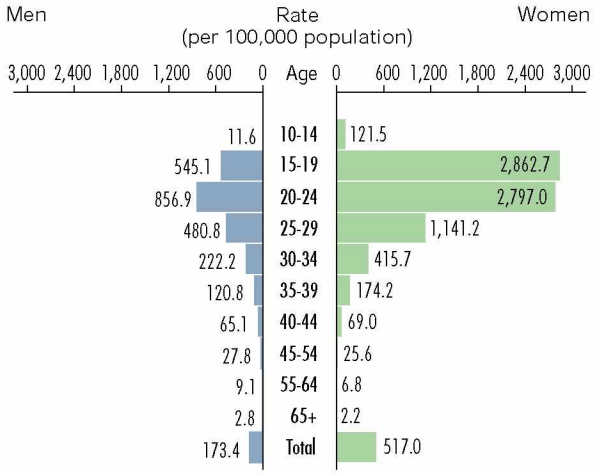


Figure 12: Chlamydia—Age- and sex-specific rates: United States, 2006



Americans; the chlamydia rate in this population was more than eight times higher than that reported in whites (1,275 and 153 cases per 100,000, respectively).

Surveillance data reveal that chlamydia rates also vary substantially by sex. Rates of reported chlamydia infections are three times higher among women than men. Chlamydia rates have been increasing since the late 1980s, when public programs for screening and treatment of women were first established to prevent PID and related complications. Recent increases in reported cases can be attributed to expanded efforts to screen women for chlamydia, more sensitive tests, and more complete national reporting, but they may also reflect a true increase in morbidity. Highly sensitive tests, which have been used for the past several years, can be used to diagnose chlamydia noninvasively in men and women who are either symptomatic or asymptomatic, resulting in increased detection of chlamydia infections. This increase is partially reflected in the 2006 data, which reveal a more than 36% increase in the rate of chlamydia reported during 2002–2006 among men and a 16% increase in women for the same time period.

Among females, the highest rates of reported chlamydia infection in 2006 occurred among adolescent and young women (2,863 cases and 2,797 cases per 100,000 females for those aged 15–19 and 20–24 years, respectively) (Figure 12). Increased rates in this population also likely reflect increased screening efforts. Among men, those 20–24 years of age had the highest rates.

Other Considerations

Several surveillance efforts are being conducted to ascertain information about chlamydia in specific populations, particularly those in groups of people who are known to be affected disproportionately by this disease. For instance, the National Job Training Program has been screening its entrants for chlamydia since 1990. This effort has enabled data to be collected for the unique population of economically disadvantaged young men and women 16–24 years of age, which can be used to help inform and improve public health interventions. According to National Job Training Program data, the state-specific median prevalence of chlamydia in women in 2006 was 13%. The state-specific median prevalence in men was 7.9%.

Because persons who enter corrections facilities are at increased risk for STDs, data for chlamydia are being collected in juvenile and adult facilities as part of corrections-based monitoring projects. Overall, the data collected by participating juvenile detention and adult corrections facilities in 2006 reveal that for almost all age groups, women are more likely to test positive for chlamydia than men. In participating juvenile detention facilities across the country, substantial percentages of young women (i.e., those 12–18 years of age) tested positive for this STD (facility-specific median: 14%).

Data from participating corrections facilities for adults also reveal a high percentage of positive chlamydia tests among women (facility-specific median: 8.3%), a percentage that decreases with age.

Because chlamydia can negatively impact fertility and prenatal health, efforts to collect data on the percentage of women with chlamydia also are conducted through the National Infertility Prevention Project, a screening program implemented in all 10 Health and Human Services regions. Data from family planning and prenatal care clinics in this program reveal that a substantial percentage of young women ages 15–24 years tested positive for chlamydia in 2006 (state-specific median of 8.1% and 6.7% in participating prenatal clinics and family planning clinics, respectively) (Figure 13). The number of women testing positive for chlamydia varied by U.S. geographic region. Women attending clinics in the South were more likely to test positive for this STD than those visiting clinics located in other regions of the United States.

Chlamydia infection also is monitored among men who have sex with men (MSM) through a prevalence monitoring project that focuses on MSM. This project includes STD clinics located in eight cities across the United States that report information about clinical visits involving male patients who report having sex with men. Across all participating clinics, most MSM clients received testing for urethral chlamydia in 2006 (clinic-specific median: 75%); a median of 6% tested positive for this STD.

Factors Affecting Rates

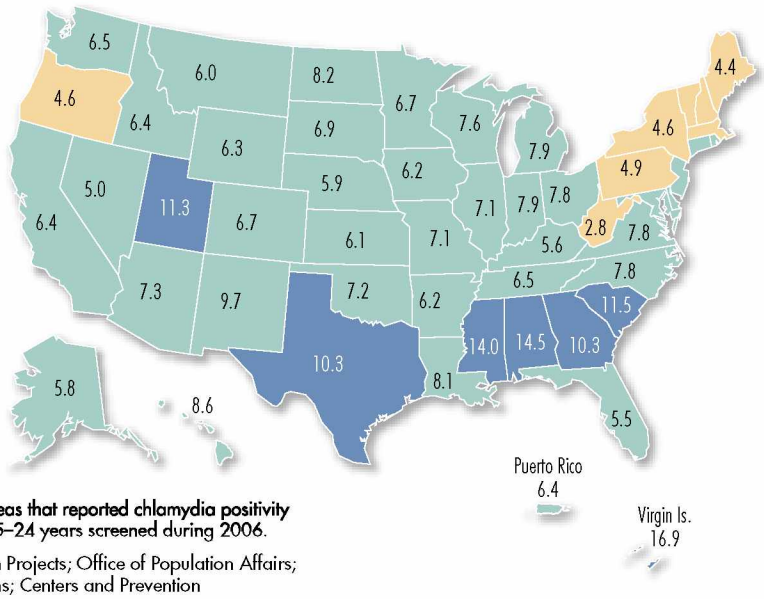
Although surveillance data reveal that statistical trends in chlamydia vary by geographic region, race/ethnicity, age, and sex, it is likely that several other factors contribute to chlamydia prevalence. For instance, the increase in reported chlamydial infections during the last 10 years can be attributed to the expansion of chlamydia screening activities, use of increasingly sensitive diagnostic tests, and an increased emphasis on case reporting from providers and private laboratories.

Gonorrhea

About Gonorrhea

Gonorrhea is a bacterial STD caused by *Neisseria gonorrhoeae*. Although persons infected with *N. gonorrhoeae* typically are either asymptomatic or experience only mild symptoms, if left untreated, gonorrhea can cause substantial health problems. In men, gonorrhea can cause epididymitis and prostatitis, but this is rare. Untreated gonorrhea in women can lead to PID, which can result in infertility and ectopic pregnancy.

Figure 13: Chlamydia—Positivity among 15- to 24-year-old women tested in family planning clinics by state: United States and outlying areas, 2006



Note: Includes states and outlying areas that reported chlamydia positivity data on at least 500 women aged 15–24 years screened during 2006.

Source: Regional Infertility Prevention Projects; Office of Population Affairs; Local and State STD Control Programs; Centers and Prevention

Gonorrhea: Key Findings

- A total of 358,366 cases of gonorrhea were reported in 2006, an increase of nearly 6% from 2005.
- In 2006, rates of gonorrhea were highest in the southern region of the United States; during this year, rates in the South increased for the first time in 8 years (from 142 in 2005 to 159 per 100,000 in 2006).
- Gonorrhea isolates collected in 2006 through the Gonococcal Isolate Surveillance Project (GISP) (a sentinel surveillance project located in 28 sexually transmitted disease (STD) clinics) revealed that resistance to fluoroquinolones is increasing; 14% of isolates demonstrated resistance to these drugs, compared with 9% in 2005.
- From 2005 through 2006, the rate of fluoroquinolone-resistant gonorrhea nearly doubled (from nearly 4% to 7%) among heterosexual men; the rate increased from 29% to 39% among men who have sex with men (MSM).
- The 2006 GISP data revealing increasing rates of fluoroquinolone-resistant strains among both MSM and heterosexuals prompted CDC to revise its treatment guidelines in 2007. CDC now no longer recommends fluoroquinolones as treatment for gonorrhea.
- Among African Americans, rates of gonorrhea increased by more than 6% during 2005–2006, representing the first increase in this population since 1998.
- In 2006, the rate of gonorrhea among African Americans was 18 times higher than the rate among whites.
- The 2006 rates of gonorrhea were highest in young adults aged 20–24 years; rates among persons in this age group were four times higher than the overall rate of gonorrhea in the United States.
- In 2006, the gonorrhea rate was slightly higher among women than men, at 124 and 117 cases per 100,000, respectively.
- Only four states and Puerto Rico reported gonorrhea rates that were lower than the *Healthy People 2010* national target (i.e., 19 cases per 100,000) during 2006.

National Snapshot

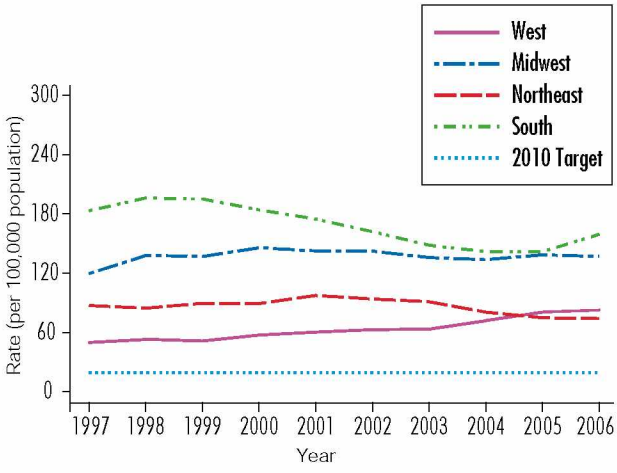
Gonorrhea is the second most commonly reported notifiable disease in the United States. A total of 358,366 cases of gonorrhea were reported in 2006, and the overall rate was 121 cases per 100,000 (representing an almost 6% increase over the 2005 rate).

Geographic Trends

Rates of gonorrhea vary by U.S. geographic region (Figure 14). Historically, rates have been highest among persons living in the South, followed by those living in the Midwest and Northeast. Although gonorrhea rates for 2006 remained highest in the South (159 cases per 100,000), rates in the West increased by 32% from 2002 through 2006, surpassing those in the Northeast during 2006 (74 cases per 100,000). It is likely that this increase in cases in western states can be attributed both to actual increases in disease incidence and to recent changes in testing practices.

When broken down by state, 2006 data demonstrate that only four states (i.e., Vermont, New Hampshire, Maine, and Idaho) reported rates lower than the *Healthy People 2010* target rate of 19 cases per 100,000. When examined by MSA, the overall rate among the 50 most populated MSAs was 131 cases per 100,000, representing a more than 3% increase over the 2005 rate. None of these MSAs achieved the *Healthy People 2010* target.

Figure 14: Gonorrhea—rates by region: United States 1997–2006 and the *Healthy People 2010* Target



Note: The *Healthy People 2010* target for gonorrhea is 19.0 cases per 100,000 population.

Population Trends

Race/Ethnicity, Sex, and Age

Gonorrhea rates vary substantially by age and by racial/ethnic population. In 2006, the rate of gonorrhea was highest among African Americans (Figure 15); African-American men had rates 25 times higher than those reported among white men, and African-American women had reported rates 14 times greater than those of their white counterparts. Although gonorrhea rates among African Americans had declined over the past several years, during 2005–2006, a 6% increase in reported cases occurred in this population. Gonorrhea rates among American Indian/Alaska Natives and Hispanics were approximately four and two times greater, respectively, than rates observed among whites. Among racial/ethnic groups, Asians/Pacific Islanders had the lowest rate of this disease.

Over the past several years, gonorrhea rates have remained slightly higher among women than men (Figure 16). In 2006, the rate of gonorrhea in women was 124 cases per 100,000, whereas the rate among men was 117. For both men and women, gonorrhea was reported more often among those in younger age groups (i.e., females 15–19 years of age and males ages 20–24 years) (Figure 17).

Several surveillance efforts are being conducted to gather information about gonorrhea in specific populations, particularly in those groups of people who are known to be affected disproportionately by this disease. For instance, the National Job Training Program has been screening its female entrants for several STDs, including gonorrhea, since 1990; within the last few years, male entrants also have begun to be tested. This effort has facilitated the collection of data for a population of economically disadvantaged young men and women aged 16–24 years; these data can be used to help guide population-specific prevention efforts and other public health interventions. National Job Training Program data from 2006 indicated that men entering this program had a higher prevalence of gonorrhea than women (state-specific median: 2.4% in women and 3.6% in men).

Other Considerations

Other surveillance efforts are being conducted to determine the burden of STDs, including gonorrhea,

Figure 15: Gonorrhea—Rates by race/ethnicity: United States, 1997–2006

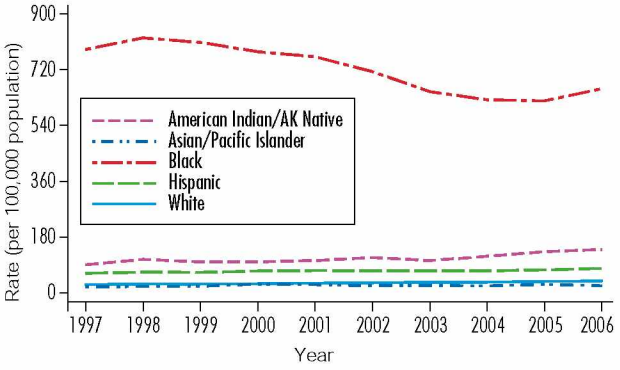
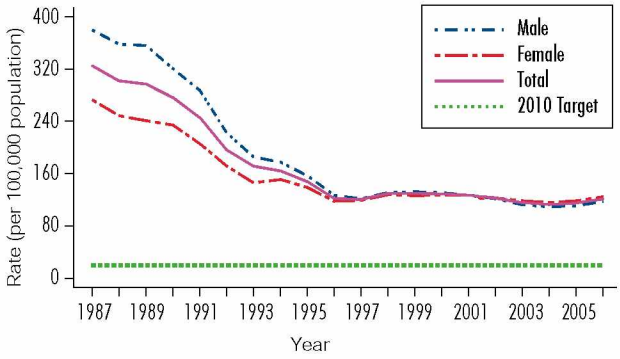
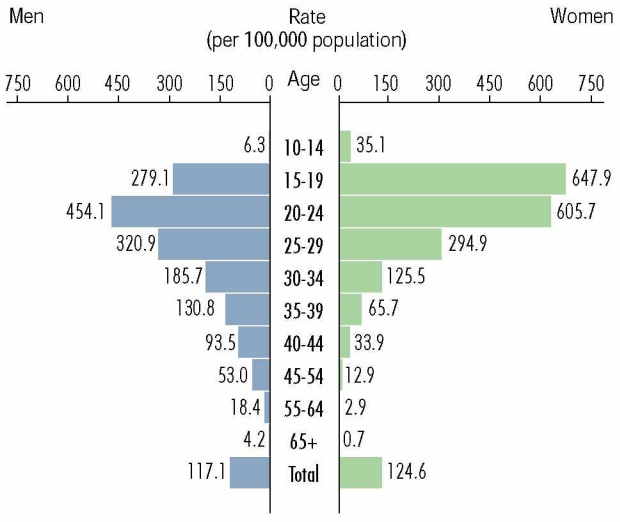


Figure 16: Gonorrhea—Rates: total and by sex: United States, 1987–2006 and the *Healthy People 2010* target



Note: The *Healthy People 2010* target for gonorrhea is 19.0 cases per 100,000 population.

Figure 17: Gonorrhea—Age- and sex-specific rates: United States, 2006



in specific populations. Several monitoring projects have been established to obtain information about gonorrhea in women and men detained in juvenile and adult corrections facilities (populations recognized as having high rates of STDs). The data obtained through screening efforts conducted at participating facilities reveal that rates of gonorrhea are higher among females than among males in both types of correctional settings. Of adolescent females and males detained in juvenile facilities and screened for gonorrhea during 2006, 3.8% and 0.9% tested positive, respectively. Of persons in adult corrections facilities that were screened for gonorrhea, 4.1% of women and 2.3% of men were found to have this STD.

Additional gonorrhea surveillance data are obtained for women through the National Infertility Prevention Project, a screening program implemented in all 10 U.S. Department of Health and Human Services (HHS) regions. Prenatal and family planning clinics engaging in screening efforts as part of this program in 2006 reported that the rates of women testing positive for gonorrhea varied only slightly from the rates reported during recent years; among young women aged 15– 24 years attending participating prenatal and family planning clinics, the median, state-specific rates of positive gonorrhea screening tests were approximately 1.0% and 1.1%, respectively.

Gonorrhea infection is also monitored among MSM through a prevalence monitoring project that focuses on MSM. As part of this project, STD clinics located in eight cities across the United States report information about clinical visits involving MSM. Project data from 2006 demonstrated substantial rates of urethral, rectal, and pharyngeal gonorrhea among MSM seeking care in these settings (clinic-based median: 10%, 7%, and 7%, respectively).

Factors Affecting Rates

Beyond population group, several other factors remain important considerations in the prevention and control of gonorrhea. Drug resistance has a substantial impact on the treatment of persons who have gonorrhea. Prior to 1999, fewer than nine quinolone-resistant *N. gonorrhoeae* (QRNG) isolates were reported each year through a national sentinel surveillance system. In recent years, however, this number has increased dramatically; in 2006, a total of 843 isolates (almost 14% of the total) collected through participating sites were quinolone-resistant, compared with 581 (9% of the total) in 2005.

Trends in drug resistance can be observed by region and population. Since 1999, QRNG increased each year, first in Hawaii and the Pacific Islands, followed by western states, and then among MSM. By 2006, increases were also observed among heterosexuals and in every region of the country; in 2007, CDC no longer recommended fluoroquinolones for use in the treatment of gonorrhea and associated conditions, such as PID.

Changes and limitations in screening practices and testing also affect reported rates of gonorrhea and other STDs. For gonorrhea, data collected in 2006 may also have been affected by a shift in reporting source. Reporting by STD clinics (versus other health care providers) has been decreasing over the past several years. In 2002, more than 35% of gonorrhea cases were reported by STD clinics, whereas only 27% of cases were reported by these clinics in 2006, suggesting that cases of gonorrhea are increasingly being diagnosed in the private sector.

Syphilis: Primary and Secondary (P&S) and Congenital

About Syphilis

Syphilis is an STD caused by the bacterium *Treponema pallidum pallidum*. This disease is classified by stages (i.e., primary, secondary, latent, and late) that are distinguished by disease progression and symptoms. The primary stage of syphilis is marked by the appearance of chancres, and the secondary stage is characterized by rash and mucous membrane lesions. Persons with latent stage syphilis are asymptomatic; if the infection progresses, it can lead to damage of the internal organs (e.g., brain, nerves, and heart). Syphilis in pregnant women can result in perinatal transmission of disease causing congenital syphilis, which can be fatal to the infected fetus. Among infants, congenital infection can also cause developmental delay, seizures, and death if left untreated.

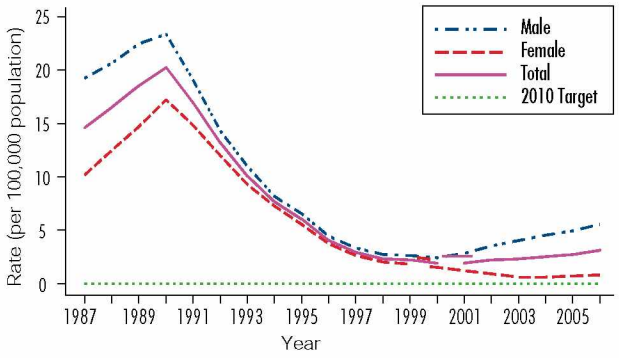
National Snapshot

Although syphilis rates decreased steadily in the United States during 1990–2000, rates have been increasing since 2001 (Figure 18). For 2006, the overall number of P&S syphilis cases reported in the United States was

Syphilis: Key Findings

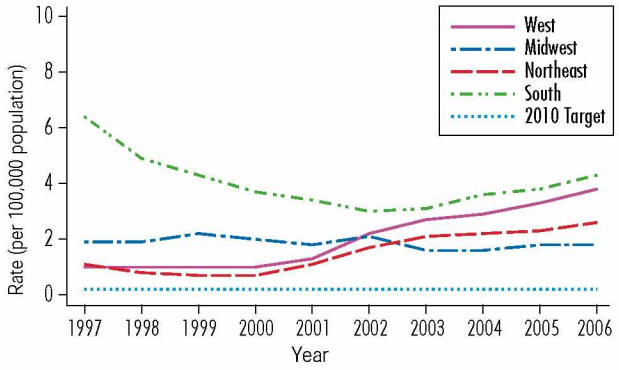
- For 2006, the overall number of primary and secondary (P&S) syphilis cases reported in the United States was 9,756, representing a 12% increase over the number of cases reported in 2005 (n=8,724).
- The 2006 rate of congenital syphilis (8.5 cases per 100,000) is 8.5 times higher than the target rate of 1.0 case identified in *Healthy People 2010*.
- Following a 14-year decline in rates of congenital syphilis, a 3.7% increase was observed during 2005–2006.
- For congenital syphilis, 2006 rates among African Americans and Hispanics were approximately 15 and 10 times higher, respectively, than those reported in whites.
- Men who have sex with men (MSM) accounted for approximately 64% of the reported cases of P&S syphilis in the United States during 2006; an estimate of 4% of cases occurred among MSM in 2000.
- In 2006, P&S syphilis rates among women were highest in those aged 20–24 years (2.9 cases per 100,000); among men, the highest rates were observed in those 35–39 years of age (13.5 cases).
- Almost half (47.1%) of the cases of P&S syphilis reported in 2006 occurred in persons living in the South.
- Among African Americans, the overall rate of P&S syphilis in 2006 of 11 cases per 100,000 represents a 17% increase over the 2005 rate of 9.7.
- African Americans continued to be disproportionately affected by P&S syphilis in 2006. Reported rates in this racial group were nearly six times higher than those observed among whites. Rates for African-American women were 16 times higher than those reported in white women, and African-American men experienced rates more than five times higher than their white counterparts.
- Among American Indians/Alaska Natives, the P&S syphilis rate increased 38% from 2005 through 2006, from 2.4 cases per 100,000 to 3.3 cases. P&S syphilis rates also increased among Asians/Pacific Islanders and Hispanics during this time period; increases of 18% and 13% were observed in these populations, respectively.

Figure 18: Primary and secondary syphilis—Rates: total and by sex: United States, 1987–2006 and the *Healthy People 2010* target



Note: The *Healthy People 2010* target for P&S syphilis is 0.2 case per 100,000 population.

Figure 19: Primary and secondary syphilis—Rates by region: United States, 1997–2006 and the *Healthy People 2010* target



Note: The *Healthy People 2010* target for P&S syphilis is 0.2 case per 100,000 population.

9,756, representing a 12% increase over the number of cases reported in 2005 (n=8,724). Congenital syphilis rates, which also had been declining for more than a decade, increased 3.7% during 2005–2006.

Geographic Trends

Rates of P&S syphilis vary by U.S. geographical region. Over the past decade, the highest rates of P&S syphilis have been reported in southern states (Figure 19). This trend continued for the period 2005–2006, with 47% of the total number of U.S. cases occurring among persons living in this region. Surveillance data from 2006 reveal that P&S syphilis rates in the South increased by 13% over the previous year's rate (from 3.8 to 4.3 cases per 100,000, respectively), a trend that also was observed in other

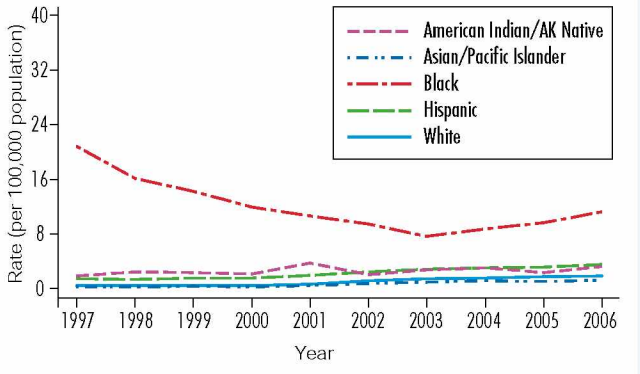
U.S. geographic regions; P&S syphilis rates increased 13% in the Northeast (from 2.3 to 2.6 per 100,000) and 15.2% in the West (from 3.3 to 3.8 per 100,000). Rates for 2006 remained stable in the Midwest, the region with the lowest rates of reported disease in 2006 at 1.8 cases per 100,000. Most states failed to meet the *Healthy People 2010* target of 0.2 cases per 100,000. The rates reported in each of the 50 most populated MSAs also exceeded this target.

Population Trends

Race/Ethnicity, Sex, and Age

P&S syphilis rates vary substantially by race and ethnicity and other demographic characteristics for which data are collected; rates of congenital disease typically mirror trends in women. In 2006, all racial/ethnic populations experienced an increase in rates of P&S syphilis (Figure 20); American Indians/Alaska Natives had the greatest increase over the period 2005–2006 (38%), but increases were also observed among Asians/Pacific Islanders (18%), African Americans (17%), Hispanics (13%), and non-Hispanic whites (6%). African Americans continue to be disproportionately affected by P&S syphilis. Although the disparity in the syphilis disease burden between African Americans and whites has narrowed over the past decade (from rates among African Americans that were 29 times higher than those observed among whites during 1999 to rates six times higher during 2006), rates among African Americans still remain disproportionately high. Health disparities also persist in the Hispanic and American Indian/Alaska Native populations, with 2006 syphilis rates in both populations being almost two times higher than those reported among whites.

Figure 20: Primary and secondary syphilis— Rates by race/ethnicity: United States, 1997–2006



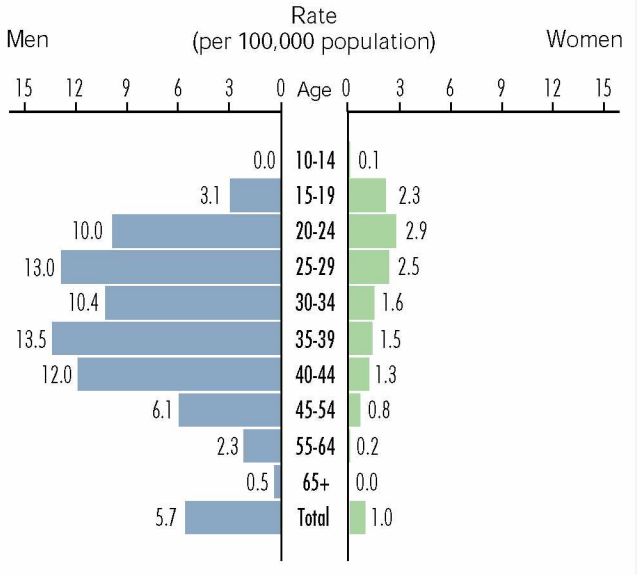
Surveillance data reveal that the overall increase in P&S syphilis rates between 2005 and 2006 primarily reflects an increase in the number of cases reported among males, although the P&S syphilis rate for females also increased during this period. The 2006 P&S syphilis rate among men was 5.7 cases per 100,000, whereas the rate among women was 1.0 case, representing an 11%–12% increase over 2005 rates for both groups. The elevated rates of P&S syphilis in men can be largely attributed to increases in the number of cases reported among MSM. The factors contributing to increased rates among women remain unclear.

P&S syphilis rates also vary by age (Figure 21). In 2006, P&S syphilis rates overall were highest among persons aged 25–29 years (7.8 cases per 100,000). When examined by sex, the highest rate for men was among those aged 35–39 years, whereas the highest rate for women was among those 20–24 years of age.

Other Considerations

To obtain information about syphilis prevalence in other populations, CDC collects data in a variety of settings. For instance, P&S syphilis data for persons entering corrections facilities (a population recognized as having a high prevalence of STDs) are obtained each year as part of a monitoring project designed to obtain information about STDs, including syphilis, in women and men detained in juvenile and adult

Figure 21: Primary and secondary syphilis— Age- and sex-specific rates: United States, 2006



corrections facilities. In 2006, participating corrections facilities in 16 states provided data for syphilis; these data revealed that among adolescents (i.e., those aged 12–18 years) entering 15 juvenile corrections facilities, females were more likely to test positive for this STD (state-specific median: 1.4%) than were males (state-specific median: 0.0%); tests indicate either current or past infection. Similarly, among persons detained in correctional facilities for adults, women also were more likely to test positive for syphilis than were their male counterparts (state-specific median: 3.9% and 1.4%, respectively).

Syphilis surveillance data for MSM, a group recognized as being disproportionately affected by certain STDs, are being collected through an MSM prevalence monitoring project. As part of this project, STD clinics located in eight cities across the United States report data obtained from clinical visits involving patients who identify themselves as MSM. In 2006, of the 83% of MSM who received a nontreponemal serologic test for syphilis during a visit to a participating STD clinic, a median of 10% exhibited seroreactivity (i.e., had blood tests indicative of current or previous infection with *T. pallidum).*

Factors Affecting Rates

After reaching a low in 2000, the numbers of case reports of P&S syphilis are again on the increase; currently, more than 60% of new infections are estimated to occur among MSM. Syphilis is now increasingly diagnosed in the private sector, generating concerns about the effectiveness of its detection and management. The evolving epidemiology, changing risk groups, and social environments pose challenges for elimination and STD program activities. Moreover, public health services face increasing pressures from rising demand and decreasing financial resources; and the social contexts of poverty, racism, homophobia, and socioeconomic discrimination continue to drive the concentration of the disease in those with high-risk sexual behaviors, poor access to care, or both.

Non-notifiable STDs of Public Health Importance

Although state and local health departments routinely collect and report data on only a few STDs, others continue to pose substantial public health challenges. For example, genital herpes and genital HPV are two STDs that have been recognized as negatively impacting the health of millions of persons living in the United States; at least 45 million Americans have genital herpes, and approximately 20 million are thought to be infected with HPV.

Genital Herpes

Herpes is an ulcerative disease caused by either herpes simplex virus type 1 (HSV-1) or type 2 (HSV-2), although most genital infections can be attributed to the latter. Most persons who have genital herpes are asymptomatic or have only minimal signs or symptoms. Symptoms associated with genital herpes include genital blisters that become ulcers as the disease progresses, flu-like symptoms, and swollen glands, but many persons with genital herpes are less severely affected. Although HSV-1 and HSV-2 persist in the body of infected persons indefinitely, symptoms tend to lessen with time.

Overall, trends have indicated that the prevalence of genital herpes (i.e., HSV-2) has been declining in the general population. However, data obtained through the National Disease and Therapeutic Index (NDTI), a probability sample survey of private physicians' clinical management practices, indicate that the number of visits made for new cases of genital herpes has increased. According to NDTI, 371,000 visits due to new cases of genital herpes were identified in 2006, an increase of more than 100,000 visits over the 266,000 identified in 2005.

Human Papillomavirus Infection

Genital HPV infection, which can be caused by more than 30 strains of the human papillomavirus, usually is asymptomatic; however, some infected persons have visible genital warts and precancerous changes in the cervix, vulva, anus, or penis. Very rarely, HPV infection results in anal or genital cancers.

Substantial breakthroughs in the prevention of HPV infection have been made in recent years. In 2006, the U.S. Food and Drug Administration approved an HPV vaccine, Gardasil®, and the Advisory Committee on Immunization Practices (ACIP) recommended routine vaccination of females aged 11–12 years with three doses of the quadrivalent HPV vaccine. Vaccination also is recommended for females aged 13–26 years

who have not been previously vaccinated or who have not completed the full series. Gardasil® is formulated to protect against four HPV types, which together cause 70% of cervical cancers and 90% of genital warts in the United States.

Recent data published from the National Health and Nutrition Examination Survey (NHANES) demonstrated the prevalence of high- and low-risk HPV (i.e., those associated with cervical cancer and genital warts, respectively). This household survey of women aged 14–59 years in the civilian, noninstitutionalized U.S. population found an overall HPV prevalence (i.e., high- and low-risk types) of 26.8% in 2003–2004. The prevalence of vaccine-preventable types 6 and 11 (i.e., low-risk types associated with genital warts) and 16 and 18 (high-risk types associated with cervical cancer) was 3.4%. Another recently published study of women aged 14–65 years receiving routine cervical screening found an overall high-risk HPV prevalence of 23%, with prevalence highest (35%) among those aged 14–19 years of age.

TUBERCULOSIS

Tuberculosis: Key Findings

- A total of 13,779 cases of tuberculosis (TB) were reported in the United States during 2006, representing a 2.1% decline in cases reported during the previous year.
- For the third year in a row, the largest percentage of TB cases occurred in Hispanics, followed by African Americans and Asians (30%, 27%, and 24% of cases, respectively).
- TB rates remained high among foreign-born persons in 2006; the TB case rate was 22.0 for those born in foreign countries compared with 2.3 per 100,000 for U.S.-born persons.
- In 2006, among persons aged 45 years or older, TB rates in men were twice as high as those reported in women.
- Thirty-four percent of TB cases occurred among persons 25–44 years of age in 2006.
- Approximately 1% of TB cases reported in 2006 were multidrug resistant (MDR).
- In 2006, three cases of extensively drug-resistant (XDR) TB were reported.

About Tuberculosis

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, although other mycobacteria species (e.g., *M. bovis* and *M. africanum*) also can cause disease. TB is spread when the germs of persons with infectious TB disease are released into the air (e.g., through coughing, sneezing, and talking) and are inhaled by another person. The symptoms of TB disease include lethargy, weight loss, fever, and night sweats. TB disease can occur anywhere in the body; however, most disease occurs in the lungs. If the disease affects the lungs, other symptoms can include coughing, chest pain, and coughing up blood.

Latent TB infection must be distinguished from active TB disease. The term "latent TB" is used to describe infection with inactive TB germs. Persons who have latent TB have been exposed to the disease and infected, but have no symptoms; these persons are not infectious, although they are at risk for eventually developing active disease. In general, persons with active TB (or TB disease) are symptomatic, and if they have pulmonary and laryngeal TB, they can transmit the infection to others. According to the National Health and Nutrition Examination Survey (NHANES), a group of health surveys conducted each year involving populations across the country, more than 11 million persons in the United States have latent TB. An estimated 5%–10% of persons with latent TB will eventually have active disease. If left untreated, TB disease causes death in approximately half of the persons who have active TB. In addition, HIV-infected persons who also have TB disease are more likely to die, even with treatment. In 2005, the last year for which mortality data are available, 646 persons died from active TB, representing a rate of 0.2 deaths per 100,000.

Most persons with active TB disease can be treated with a 6- to 12-month course of multidrug antibiotic therapy; however, some cases are caused by organisms that are resistant to these medications. Multidrug-resistant TB (MDR TB) is TB that is resistant to at least two of the first-line drugs used to treat the disease (i.e., isoniazid and rifampin). MDR TB complicates public health efforts to control disease. Other cases of TB are caused by organisms that are resistant not only to first-line antibiotics, but also to the best second-line drugs—fluoroquinolones and at lease one of three injectable drugs. This type of TB, or extensively drug-resistant (XDR) TB, occurs only rarely in the United States; only 2–4 cases of XDR TB have been reported annually over the past few years, whereas approximately 120 cases of MDR TB have been reported each year since 2004.

Tracking TB

TB surveillance carried out at the national, state, and local levels can help inform prevention and control efforts. Each year, as part of the National Tuberculosis Surveillance System, all 50 U.S. states and several other reporting areas (i.e., the District of Columbia, New York City, Puerto Rico, and other U.S.-dependent areas in the Pacific and Caribbean) routinely report cases of active TB to the Centers for Disease Control and Prevention (CDC). TB data are then examined by race/ethnicity, age, and sex to determine how various populations are affected by this disease. Data are also examined for other risk factors known to be associated with TB (e.g., birth in a country with high rates of TB or human immunodeficiency virus (HIV) infection, residence in correctional and long-term care facilities, homelessness, and drug and alcohol abuse). In an effort to monitor TB caused by drug-resistant strains more effectively, CDC also gathers information regarding drug susceptibility testing for culture-confirmed cases.

National Snapshot

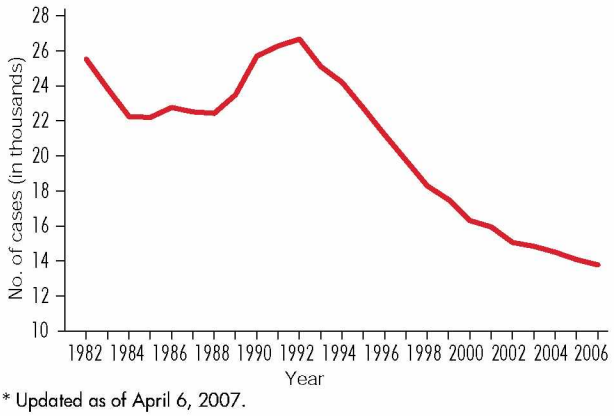
The number of TB cases reported in the United States began to increase steadily during the mid-1980s, and reached a peak of more than 26,000 cases in 1992 (Figure 22). This surge was attributed to several factors, including the HIV epidemic, increases in TB cases among persons born in foreign countries, outbreaks in congregate settings (e.g., places where people reside in close proximity to one another), a deterioration of the TB services infrastructure, and the emergence of MDR TB. By implementing more effective TB control programs, this trend began to reverse in 1993; the total number of TB cases decreased by an average of 6.6% per year from 1993 through 2002. Although numbers of reported TB cases have continued to decline in recent years, smaller decreases in reported cases have been observed since 2002. In 2006, there were 13,779 TB cases reported, representing a 2.1% decline from the number of cases reported in 2005. The rate of TB (i.e., number of cases per 100,000) also gradually declined over the past several years, from 5.6 cases in 2001 to 4.6 cases per 100,000 in 2006.

Geographic Trends

Variations in the rates of TB by state largely reflect the place of birth and the race/ethnicity of the people that reside in a particular geographic area of the country. For instance, for several years rates have been disproportionately high among American Indians/Alaska Natives, Asians, African Americans, Pacific Islanders, and Hispanics compared with whites; therefore, states in which substantial numbers of persons belonging to these racial/ethnic populations reside have had higher rates of disease. In 2006, rates were highest in Alaska, the District of Columbia, Hawaii, California, Texas, and New York (Figure 23). Except for Alaska, these jurisdictions are home to substantial numbers of persons who are foreign born. In 27 states, 50% or more of the 2006 TB cases occurred among persons born outside the United States; in 11 states, foreign-born persons accounted for at least 70% of cases.

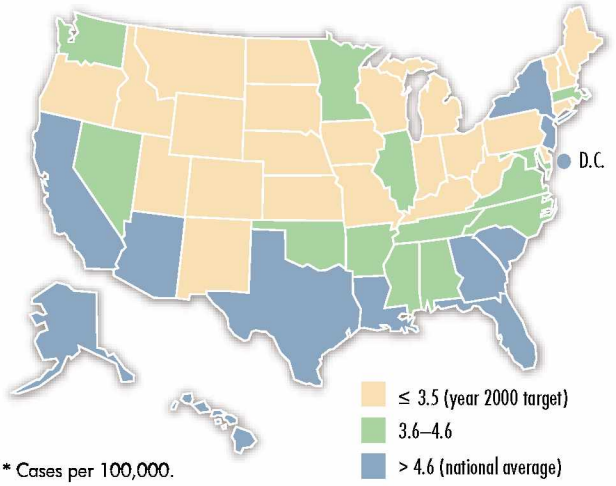
In 2006, a total of 26 states achieved the year 2000 Advisory Committee on the Elimination of Tuberculosis

Figure 22: Reported TB cases* United States, 1982–2006



* Updated as of April 6, 2007.

Figure 23: TB case rates,* United States, 2006



* Cases per 100,000.

(ACET) interim target of 3.5 TB cases per 100,000, reflecting an overall trend of decreasing numbers of active TB cases and rates. Conversely, 11 states (along with the District of Columbia) reported rates above the 2006 national average of 4.6 cases, accounting for 63% of the national burden of disease. Despite having higher rates of TB, these 11 states and the District of Columbia have experienced decreases in annual disease rates since 1992.

Population Trends

Race/Ethnicity, Origin of Birth, Sex, and Age

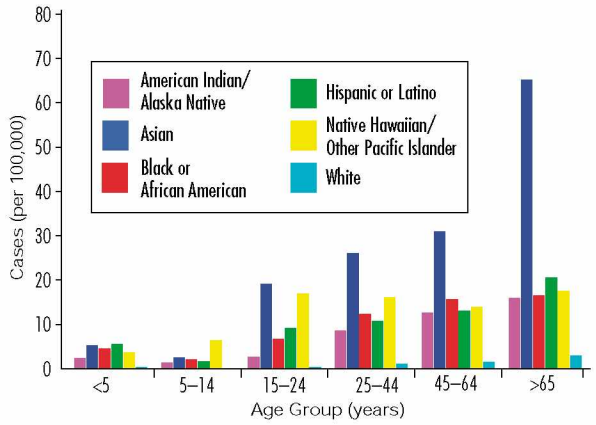
The number of reported cases of TB in the United States is highest among racial and ethnic minorities. In 2006, 83% of the total number of reported cases occurred among persons who were either Hispanic (30% of cases), African American (27%), Asian (24%), American Indian/Alaska Native (1%), or Pacific Islander (<1%). Since 2004, more cases of TB have occurred among Hispanics than any other racial/ethnic group.

When examined by rate, 2006 surveillance data reveal that Asians were most affected by TB; the rate for this group was 25.6 per 100,000. Asians had the highest TB rate for each age group older than 15 years, and the rate of TB among Asians aged ≥65 years was more than three times higher than the TB rate among any other racial/ethnic population (Figure 24).

The disproportionate burden of TB in racial/ethnic minorities likely can be attributed to several factors; however, one major factor is country of birth. Persons born in countries with high rates of TB who are diagnosed with TB in the United States may have acquired TB infection or developed active TB disease in their countries of origin before entering the United States. The 2006 case rate of TB among foreign-born persons is 9.5 times higher than that in persons who were born in the United States. In addition, of the total number of TB cases reported in 2006, 57% were among foreign-born persons, representing an increase from 1993 when 29% of cases were attributable to this population (Figure 25). Although rates of TB are decreasing among all groups, data from 1993 through 2006 reveal that rates declined less in foreign-born persons (from 34 cases per 100,000 in 1993 to 22 cases in 2006) than in those born in the United States (from 7.4 cases in 1993 to 2.3 cases in 2006) during this period. Of the cases of TB among foreign-born persons, 62% occurred in persons born either in Mexico (25%), the Philippines (11%), Viet Nam (8%), India (7%), China (5%), Haiti (3%), or Guatemala (3%), all of which have higher background rates of this disease than the United States.

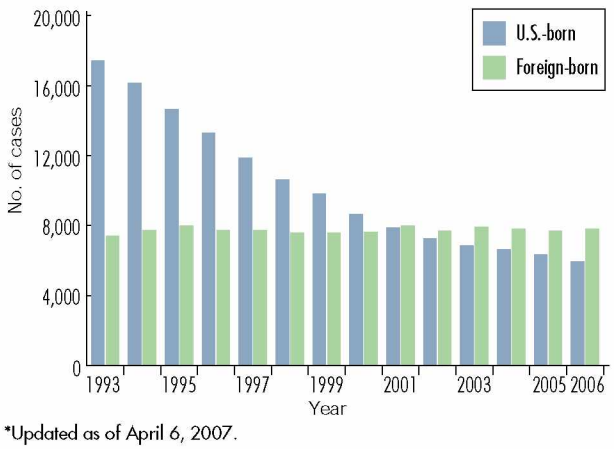
Of all persons born in the United States, African Americans had the highest percentage (44%) of cases in 2006, followed by whites (33%) and Hispanics (17%). Over the past several years, TB rates have declined more in U.S.-born blacks (from 28.0 in 1993 to 7.0 in 2006) than in their white counterparts (from 3.4 in 1993 to 1.0 in 2006) even though African-American TB patients are more likely than whites to have risk

Figure 24: TB case rates by age group and race ethnicity,* United States, 2006



*All races are non-Hispanic. Persons reporting two or more races accounted for less than 1% of all cases.

Figure 25: Number of TB cases in U.S.-born vs. foreign-born persons United States, 1993–2006*



*Updated as of April 6, 2007.

factors associated with TB, including homelessness, incarceration, HIV infection, and a recent history of substance abuse.

In 2006, TB rates were higher in males than females, regardless of age, although this difference widened with advancing age. Among children, rates for both sexes were low, at <3 cases per 100,000. Among persons in older age groups (i.e., ≥45 years of age), rates for men were at least double those observed for women.

In 2006, 34% of TB cases occurred among persons 25–44 years of age, followed by those ages 45–64 and ≥65 years (29% and 19%, respectively). Declines in rates have been occurring among persons in all age groups since 1993. For the period 1993–2006, the most substantial declines (approximately 50%) occurred among persons >24 years of age.

Other Considerations

Beyond race/ethnicity, country of birth, sex, and age, several specific populations also are known to be disproportionately affected by TB. For instance, persons infected with HIV have higher rates of TB. TB occurs more frequently in HIV-infected persons because HIV weakens the immune system, greatly increasing the likelihood of progression from latent to active TB disease in persons who have latent TB infection. Although data for 2006 were not available at the time this profile was published, data collected from 1993 through 2005 reveal that HIV co-infection in persons with TB decreased substantially among persons of all age groups during this time period, particularly among those aged 25–44 years. In 2005, approximately 9% of all persons with TB were co-infected with HIV. Groups of TB patients at greater risk for HIV infection include injection drug users (IDUs), non-IDUs, homeless persons, non-Hispanic blacks, correctional facility inmates, and persons who abuse alcohol.

Because TB is an airborne disease (i.e., transmitted through the air after a patient with active disease coughs or sneezes), it is transmitted more efficiently to persons who are in close contact for extended periods of time with a person who has the active disease. Therefore, rates of TB historically have been higher in groups of persons living in congregate settings, including correctional facilities, long-term-care and residential facilities, and homeless shelters. To help inform TB prevention and control activities, data are collected each year for persons in these settings. In 2006, approximately 4% of the total number of reported TB cases occurred among persons living in correctional facilities, 2% were among persons living in long-term-care facilities, and 6% were among persons who identify themselves as being homeless.

TB rates are disproportionately high among persons who abuse drugs. Although the relationship between TB and drug use is not completely understood, states routinely collect data regarding the use of injection and noninjection drugs among persons testing positive for active TB disease. In 2006, of all reported TB cases, 2% were among persons who reported having injected drugs within the 12 months preceding TB diagnosis; almost 8% of reported cases of TB involved patients who reported using noninjection drugs during the same time period.

Factors that Affect TB Prevalence

Drug resistance poses a challenge to public health efforts aimed at controlling and preventing TB disease. In 2006, drug resistance continued to affect certain populations disproportionately. For instance, although the percentage of TB cases resistant to isoniazid (i.e., mono-drug resistance) has decreased over the past decade, in 2006, this percentage remained more than twice as high in persons born in foreign countries compared with persons born in the United States (10.2% versus 4.3%, respectively). Foreign-born persons emigrating from countries with high rates of MDR TB are contributing increasingly to the proportion of MDR TB cases in the United States. From 1993 through 2006, the percentage of all cases of MDR TB attributable to persons born in other countries increased from 31% (1993) to 82% (2006).

Using Surveillance Data to Improve Public Health

The population-specific data collected through existing surveillance systems can be used to inform public health activities aimed at improving the detection of TB, preventing disease transmission, and improving the lives of persons who have been diagnosed with this disease. Several activities have resulted in better case detection and prevention. For instance, surveillance data demonstrating that certain populations are at increased

risk for disease have prompted CDC to publish several formal ACET recommendations regarding TB control and prevention in these groups. Specifically, in 1992, CDC published *MMWR* recommendations regarding TB case finding, case reporting, case management, treatment, and prevention in homeless persons. These guidelines, intended to be used by private-sector and public health care professionals and persons working for homeless shelters and other social service organizations, were prepared by CDC and ACET to help control and prevent TB in a population being affected disproportionately by this disease.

Surveillance data collected for persons born outside of the United States have helped inform additional TB prevention and control efforts at the national level. Because 2006 data revealed that more than half of TB cases occurred among foreign-born persons, CDC has committed to collaborating with national and international public health organizations to achieve the following goals:

- Improve overseas screening of immigrants and refugees by systematically monitoring and evaluating the screening process.
- Strengthen the current notification system that alerts public health departments about the arrival of immigrants or refugees who have suspected TB to enhance the evaluation and treatment of these persons.
- Improve the coordination of TB control activities between the United States and Mexico to ensure completion of treatment among TB patients who cross the border.
- Test recent arrivals from high-incidence countries for latent TB infection and monitor treatment completion.
- Survey foreign-born TB patients in the United States to determine opportunities for the improvement of prevention and control interventions.

To ensure that future TB elimination goals are reached, the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention recognizes the need to increase prevention efforts among high-risk population groups, including African Americans and Asians, persons who are incarcerated or living in other congregate settings, persons who abuse drugs and alcohol, HIV-infected persons, and those who are homeless. In addition, surveillance data must be leveraged to identify those geographical areas within the United States that have a low incidence of TB to ensure that TB expertise and capacity are maintained at the local level, even in communities where cases rarely are reported.

SPECIAL FOCUS: AFRICAN-AMERICAN MEN

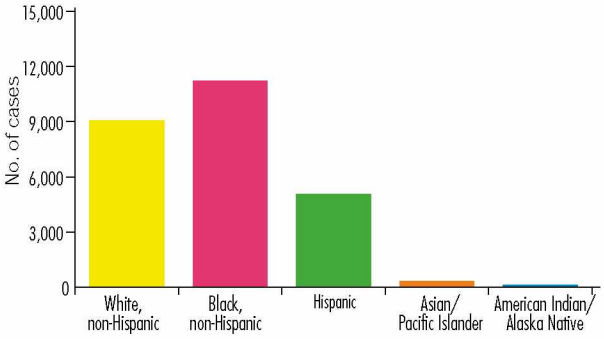
This issue of the disease profile highlights the unique health issues facing African-American men who continue to be affected disproportionately by one or more of the often interrelated diseases described in this report. The decision to dedicate a chapter of the profile to a discussion of the health disparities facing African-American men was driven by recent national surveillance data and data from behavioral and other scientific studies. These data demonstrate that persons in this demographic group have an elevated burden of disease and remain in need of additional, substantive health interventions.

Increased rates of human immunodeficiency virus (HIV), viral hepatitis, sexually transmitted diseases (STDs), and tuberculosis (TB) among African-American men relative to other populations can be attributed to a complex set of historical, structural, and sociocultural factors such as racism, discrimination, poverty, and denial, as well as limited access to preventive services and health care. Use of injection drugs and high rates of incarceration also increase the risk for many of these diseases in this population. For some of these diseases, such as HIV, hepatitis B, and several other STDs, homophobia and stigma (i.e., negative attitudes, beliefs, and actions directed at people living with these diseases or directed at people who engage in behaviors that might put them at risk) serve as barriers to the receipt of available health services, including vaccination and testing and treatment.

HIV/AIDS

The health disparities that persist between African-American men and men of other racial/ethnic populations are apparent at all stages of HIV-related illness, from initial HIV infection through AIDS-related death. Of all cases of HIV/AIDS diagnosed among males in 2006, the largest percentage occurred among African-American men (43%) (Figure 26). Further, the rate of

Figure 26: Estimated number of HIV/AIDS cases* and rates for male adults and adolescents, by race/ethnicity—33 states, 2006



Note: Data include persons with a diagnosis of HIV infection, regardless of their AIDS status at diagnosis.
Data from 33 states with confidential name-based HIV infection reporting since at least 2003.
Data have been adjusted for reporting delays.
* Includes 115 male adults and adolescents of unknown race or multiple races.

AIDS diagnoses in 2006 for African-American men was more than 7 times greater than that for white men.

For African-American men, HIV is most often transmitted through unprotected sex with another man who has HIV infection, followed by sharing equipment for drug injection (e.g., needles and syringes) with an infected person, and having unprotected sex with a woman who is HIV infected. Although most of the burden of HIV/AIDS among all men can be attributed to cases among men who have sex with men (MSM), African-American MSM have a higher prevalence of HIV/AIDS than their white counterparts. In a recent study conducted in five large U.S. cities, HIV prevalence among African-American MSM was more than twice that observed among white MSM (46% versus 21%, respectively). In addition, percentages of both undetected and late diagnosis of HIV infection are higher in black MSM than in other groups. A recent study showed that about 90% of young, HIV-positive African-American MSM were unaware that they were

infected with HIV at the time they were tested, compared with 60% of white MSM of a comparable age; these data suggest that African-American MSM are less likely to be tested for HIV infection in the earlier stages of disease.

Recent data indicate that the number of HIV-diagnosed cases has declined among heterosexual African-American men and African-American men who report injection drug use; similar reductions have not been observed in African-American MSM. The declines are encouraging, but it is likely that they do not directly reflect trends in HIV incidence because they are also affected by changes in testing behavior and surveillance practices.

Understanding the burden of HIV/AIDS in African-American men is complicated by several factors, including access to HIV testing. A history of racism, oppression, and lack of trust in governmental institutions have made it more challenging for public health agencies to effectively reach African Americans. In many communities, homophobia and stigma may discourage African-American MSM from identifying themselves as gay or bisexual. As a result, they may be disinclined to access education and testing services, which in turn may increase the likelihood that they will transmit HIV to others as well as compromise opportunities to benefit from life-saving therapies.

The Centers for Disease Control and Prevention (CDC) recognizes the need to address the high rate of HIV infection in African-American men through the implementation of culturally appropriate HIV/AIDS prevention strategies. The agency, in collaboration with state and local public health partners and community leaders, embarked on a new initiative to reduce the burden of disease in this population. The Heightened National Response to the HIV/AIDS Crisis among African Americans initiative has four main objectives: 1) expand the reach of prevention services; 2) increase opportunities for diagnosing and treating HIV (which includes efforts to encourage African Americans to learn their HIV status); 3) develop new prevention interventions, including behavioral, social, and structural interventions; and 4) mobilize broader action within communities to help change community perceptions about HIV/AIDS, to motivate African Americans to seek early HIV diagnosis and treatment, and to encourage healthier behaviors and community norms that prevent the spread of HIV infection.

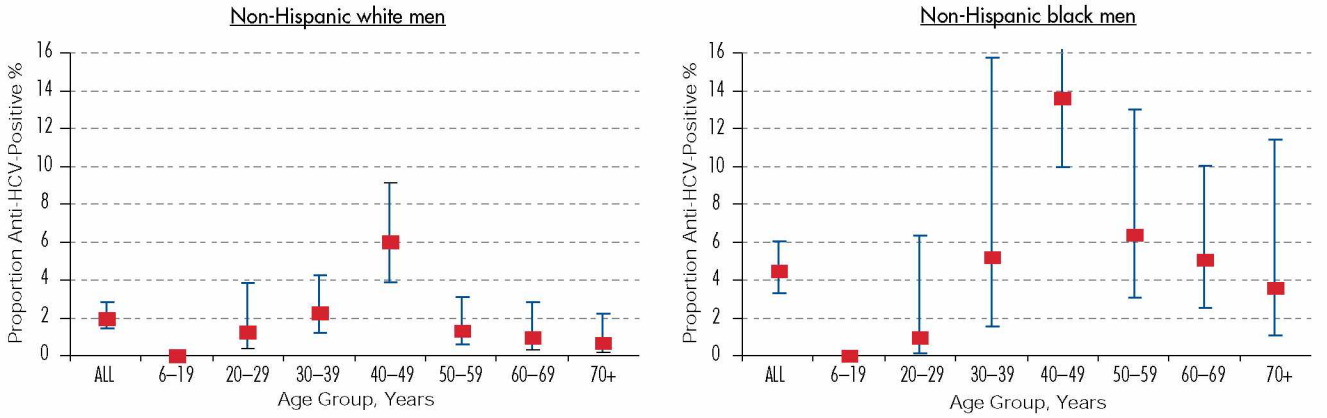
Viral Hepatitis

Rates of viral hepatitis have not been examined specifically for African-American men as a distinct population group in most published reports. However, they have been examined for select groups based on demographic or behavioral characteristics that often include African-American men. For instance, although the incidence of acute hepatitis A is not elevated among African Americans overall, African-American MSM, along with MSM of all other racial/ethnic populations, are at elevated risk for this disease.

In contrast to hepatitis A, a greater incidence of acute hepatitis B has been observed among African Americans compared with other racial/ethnic populations. The incidence of hepatitis B also is greater among men, regardless of race/ethnicity; in 2006, nearly twice as many cases of acute infection were reported among men than women. Prevalence studies of hepatitis B infection have revealed similar differences by race/ethnicity and by sex. The overall prevalence of hepatitis B virus infection is considerably higher among African Americans (12.8%) than among non-Hispanic whites (2.8%) or among Mexican Americans (4.8%). The prevalence of hepatitis B infection among men who report having engaged in male-to-male sex is more than twice as high (35.5%) as the prevalence among those who do not report this behavior (14.3%). Because incidence and prevalence rates of hepatitis B are higher among African Americans and men as separate population groups, it can be inferred that African-American men are at higher risk for this disease.

Findings by race/ethnicity and by sex for hepatitis C are similar to those for hepatitis B. Data from the 1999–2000 National Health and Nutrition Examination Survey (NHANES) (an annual survey that examines a nationally representative sample of about 5,000 persons) revealed that among U.S. adults, the prevalence of hepatitis C virus infection was significantly higher in men (2.1%) than women (1.1%). In addition, these data showed that hepatitis C prevalence among non-Hispanic black adults (3.0%) was twice as high as that observed among non-Hispanic white adults (1.5%). When these data were examined by race/ethnicity, age, and sex, they further demonstrated that chronic infection was more prevalent among African-American men than white men for those aged 40–59 years (Figure 27). This difference in prevalence, in part, can

Figure 27: Prevalence of antibodies to hepatitis C virus (HCV) among non-Hispanic black and non-Hispanic white men by age group, National Health and Nutrition Examination Survey, 1999–2002, United States



Note: The vertical bars through each point estimate represent 95% confidence intervals (CI). The upper CI is not shown for 40- to 49-year-old non-Hispanic black men.
Source: Armstrong et al., *Ann Intern Med* 2006;144:705–714.

be attributed to many of the factors mentioned above that place this population at increased risk for disease.

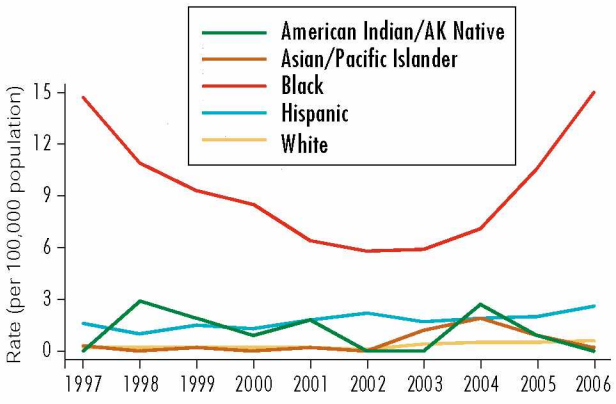
CDC has recently implemented at least three new initiatives to reduce health disparities associated with viral hepatitis among African-American men and other populations. To promote adult hepatitis B vaccination, CDC recommends universal hepatitis B vaccination in settings that serve clients who are at risk for HBV infection. To help public health programs implement its recommendations, CDC directed $20 million to 51 state and local grantees for the purchase of hepatitis B or hepatitis A/B vaccine and to expand delivery of vaccination in STD clinics, correctional facilities, reproductive health centers, and other public health settings serving at-risk adults. Secondly, as many as one-third of persons with HIV also are infected with HCV. HIV co-infection hastens the progression of HCV-related liver disease. To improve screening for HIV together with screening for HCV, the criteria for funding through the Heightened National Response to the HIV/AIDS Crisis among African Americans were expanded to support testing for both of these blood-borne infections. Lastly, CDC issued a cooperative agreement announcement with the primary objective of reducing health disparities through integration of STD, HIV, and viral hepatitis training activities; improving public health professionals' and clinicians' knowledge, skills, and abilities related to viral hepatitis; and educating populations at risk for viral hepatitis. New and ongoing prevention activities are supported by the work of viral hepatitis prevention coordinators funded by CDC in 49 states, the District of Columbia, and 6 major cities.

Sexually Transmitted Diseases

African-American men are disproportionately affected by many STDs. Rates of three notifiable bacterial STDs (chlamydia, gonorrhea, and primary and secondary [P&S] syphilis) are substantially higher among African-American men than among white men. For instance, in 2006, rates of chlamydia, gonorrhea, and syphilis among African-American men were 11, 25, and 5 times higher, respectively, than rates among white men. Recent data indicate that P&S syphilis rates among African-American men are increasing faster than those among white men (18% and 6%, respectively, from 2005 through 2006) (Figure 28). Population-based surveys (which are not subject to the biases that can be associated with case reporting) examining the prevalence of chlamydia, gonorrhea, and herpes in the United States have also revealed substantial racial disparities. The rates of STDs, particularly chlamydia and gonorrhea, among African-American men are especially high in corrections facilities, settings in which the population is disproportionately black.

The high prevalence of STDs in African-American men partially reflects increased cases among MSM, but it also reflects the substantial burden of disease among heterosexual men. Most surveys have shown that

Figure 28: Primary and secondary syphilis— Rates among 15- to 19-year-old males by race/ethnicity: United States, 1997–2006



African-American MSM are at higher risk than white MSM for many STDs (e.g., chlamydia, gonorrhea, and syphilis); however, prevalence of STDs is high among both groups. The disparities between African-American and white MSM are not as great as those between African-American and white heterosexual men. CDC only began collecting information on male sexual behaviors in persons with syphilis in 2005; these data have shown that cases among both African American MSM and heterosexuals have increased in recent years.

CDC is committed to reducing the increased burden of STDs among African Americans. For example, CDC has been working with public health, medical, and community partners since 2006 to implement an updated National Plan to Eliminate Syphilis. These efforts are designed to sustain progress made since the early 1990s in populations traditionally at risk, including African Americans, and to support innovative solutions to fight the resurgence of syphilis among MSM. In collaboration with external partners, CDC also recently sponsored the Consultation to Address STD Disparities in African-American Communities to inform and guide future public health strategies to reduce STD-related health disparities in the United States. The consultation laid the conceptual groundwork for an increased public health response by raising awareness about the problem of bacterial STDs (e.g., chlamydia, gonorrhea, and syphilis) in African-American men and women, defining the causes of STD-related disparities that face this population, outlining strategies for addressing this issue, and identifying next steps in CDC's disparity-elimination efforts.

Tuberculosis

As with the other diseases that are within the purview of the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), TB disproportionately affects both African-American men and women. In 2006, 27% of TB cases occurred in African Americans, whereas 17% occurred in whites; TB incidence rates during this year were 10.2 per 100,000 among African Americans and 1.2 per 100,000 among whites. In addition, the incidence rate of TB in African-American men was more than eight times higher than that for white men, with reported rates of 13.2 and 1.6 per 100,000, respectively. A total of 2,312 cases of TB were reported among African-American men during 2006, representing the second highest number of cases by race/ethnicity. Only Hispanic men accounted for a greater number with 2,684 reported cases.

The burden of TB among African Americans is particularly high in certain settings. For instance, African Americans have historically accounted for a disproportionate number of TB cases diagnosed in correctional facilities within the United States. Almost half (46%) of all TB cases reported in correctional facilities from 1993 through 2006 occurred among African Americans (n=4,276 cases). Of these cases, most occurred among men (n=3,709). African-American inmates accounted for an average of 5% of the total number of TB cases reported during the same time period, whereas inmates of all other races and ethnicities (excluding Hispanics) accounted for 3% or less of all cases.

African Americans also are burdened by diseases that can occur with TB; such co-infections have implications for prevention and treatment. In 2005, nearly two-thirds of persons co-infected with HIV infection and TB were African American. High rates of both HIV infection and TB disease among African Americans emphasize the need in this population to prevent, promptly diagnose, and provide access to care for both conditions. Knowing the HIV status of TB patients is essential to optimal patient management.

NCHHSTP has initiated several activities to gain an understanding of the burden of TB within the African-American community, representing critical steps toward eliminating the TB-related health disparity in this population. These activities include creating community awareness and involvement, developing various educational and informational materials, supporting state-based initiatives, and funding scientific studies aimed at understanding the epidemiology and best practices to prevent TB. These actions have helped to raise awareness and enhance targeted efforts within state TB control programs. It is hoped that in the future, existing prevention activities will be reinforced with policy and programmatic changes that address the factors that place African Americans at greater risk for TB and build on the lessons learned from these initial efforts.

Conclusions/Future Directions

As illustrated in this Special Focus chapter, African-American men are particularly vulnerable to HIV/AIDS, viral hepatitis, STDs, and TB. The increased occurrence and burden of these infections and diseases among African-American men result from a number of factors ranging from individual and societal to structural and environmental that contribute to disease prevalence. While these disease patterns and trends are made evident by the tracking systems established by each program within NCHHSTP, it is only by examining the data across systems that determinations can be made regarding whether certain populations are affected disproportionately by more than one disease, as is the case for African-American men.

NCHHSTP recognizes that HIV/AIDS, viral hepatitis, STDs, and TB can be more effectively and efficiently prevented and treated by finding new relationships between these diseases and the populations that are most affected by them. These relationships, or disease patterns, can only be uncovered when data can be directly compared and examined through surveillance and programmatic integration. This report is a first step to find disease patterns by bringing together surveillance data and reports from each specific disease. This type of data review will help CDC better define and prioritize its prevention efforts.

CONCLUSION

CONCLUSION

The *2006 Disease Profile* brings together annual surveillance data for HIV/AIDS, viral hepatitis, STD, and TB, reported separately by each Division within the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP).* This is the first of a series of planned annual profiles. It is anticipated that this type of combined report will facilitate the identification of emerging, overlapping disease patterns and trends that will better define prevention priorities that warrant further study and focus. This edition also includes data to focus attention on health disparities among African-American men, a population disproportionately affected by many of the diseases within the purview of NCHHSTP. Future issues will address other populations known to be at increased risk for these diseases, including adolescents and women of reproductive age. Understanding HIV/AIDS, viral hepatitis, STDs, and TB not only as individual threats, but also as diseases that together compromise health, will help inform the development of more effective programs that can improve the lives of those who are at greatest risk.

The profile also represents a preliminary step toward the creation of a more unified, integrated approach to monitoring HIV/AIDS, viral hepatitis, STDs, and TB at the national level. It is hoped that this effort will further a commitment by state and local health departments to ensure a more integrated approach at the community level. In addition, it is hoped that the efforts to integrate surveillance activities at all levels will facilitate and support integration in other areas, such as funding opportunities, program operations, and training, and ultimately foster a more comprehensive approach to prevention and control of these diseases throughout the United States.

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* Division-specific surveillance reports can be accessed at:
http://www.cdc.gov/std/stats/pdf/Surv2006.pdf
http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2006report/pdf/2006SurveillanceReport.pdf
http://www.cdc.gov/tb/surv/surv2006/pdf/FullReport.pdf
http://www.cdc.gov/mmwr/PDF/ss/ss5702.pdf

SELECTED BIBLIOGRAPHY

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Introduction

1. Centers for Disease Control and Prevention. Reported HIV status of tuberculosis patients—United States, 1993–2005. *MMWR.* 2007;56:1103–110.
2. Cotler SJ, Jensen DM. Treatment of hepatitis C virus and HIV co-infections. *Clin Liver Dis.* 2001;5(4):1045–61.
3. Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Infect.* 1999;75(1):3–17.
4. Highleyman L. HIV and hepatitis coinfection. *Bull Exper Treat AIDS.* 2002/2003; Winter.
5. Koziel MJ, Peters MG. Viral hepatitis and HIV infection. *N Engl J Med.* 2007;356:1445–1454.

HIV/AIDS

1. CDC. HIV/AIDS surveillance report, 2006. Volume 18. Atlanta, GA: U.S. Department of Health and Human Services; 2008.
2. CDC. Surveillance case definition for AIDS among adolescents and adults. *MMWR.* 1992; 41(No. RR-17):1–17.
3. CDC. Guidelines for national human immunodeficiency virus case surveillance, including monitoring for human immunodeficiency virus infection and acquired immunodeficiency syndrome. *MMWR.* 1999; 48(No. RR-13):1–28.
4. CDC. Twenty-five years of HIV/AIDS—United States, 1981–2006. *MMWR.* 2006;55:585–89.
5. CDC. Epidemiology of HIV/AIDS—United States, 1981–2005. *MMWR.* 2006;55:589–92.

Viral Hepatitis

1. Armstrong GL, Wasley A, Simard EP, McQuillan GM, Kuhnert WL, Alter MJ. The prevalence of hepatitis C virus infection in the United States, 1999 through 2002. *Ann Intern Med* 2006;144:705–14.
2. Bell BP, Kruszon-Moran D, Shapiro CN, Lambert SB, McQuillan GM, Margolis HS. Hepatitis A virus infection in the United States: serologic results from the Third National Health and Nutrition Examination Survey. *Vaccine.* 2005;23(50):5798–806.
3. CDC. Surveillance for acute viral hepatitis—United States, 2006. Surveillance Summaries March 21, 2008. *MMWR.* 2008;57(No. SS-2).
4. CDC. Update: Prevention of hepatitis A after exposure to hepatitis A virus and in international travelers: updated recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR.* 2007;56(41):1080–4.
5. CDC. A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States. *MMWR.* 2006;55(No. RR-16):1–25.

6. CDC. Prevention of hepatitis A through active or passive immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR.* 1999;48(No. RR-12):1–37.
7. CDC. Public Health Service inter-agency guidelines for screening donors of blood, plasma, organs, tissues, and semen for evidence. *MMWR.* 1991;40(No. RR-4):1–17.
8. Gotz HM, van Doornum G, Niesters HG, et al. A cluster of acute hepatitis C virus infection among men who have sex with men—results from contact tracing and public health implications. *AIDS.* 2005;19(9):969–974.
9. McQuillan GM, Coleman PJ, Kruszon-Moran D, Moyer LA, Lambert SB, Margolis HS. Prevalence of hepatitis B virus infection in the United States: the National Health and Nutrition Examination Surveys, 1976 through 1994. *Am J Public Health.* 1999;89(1):11–3.

Sexually Transmitted Diseases

1. CDC. Quadrivalent human papillomavirus vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR.* 2007;56(No. RR-2):1–24.
2. CDC. Sexually transmitted disease surveillance 2006 supplement, Chlamydia Prevalence Monitoring Project. Atlanta, GA: U.S. Department of Health and Human Services; 2007.
3. CDC. Sexually transmitted disease surveillance, 2006. Atlanta, GA: U.S. Department of Health and Human Services; 2007.
4. CDC. Sexually transmitted disease surveillance 2006 supplement: Gonococcal Isolate Surveillance Project (GISP) Annual Report—2006. Atlanta, GA: U.S. Department of Health and Human Services; In press 2008.
5. Datta SD, Sternberg M, Johnson RE, et al. Gonorrhea and chlamydia in the United States among persons 14 to 39 years of age, 1999 to 2002. *Ann Intern Med.* 2007;147(2):89–96.
6. Datta SD, Koutsky LA, Ratelle S, et al. Human papillomavirus infection and cervical cytology in women screened for cervical cancer in the United States, 2003–2005. *Ann Intern Med.* 2008;148(7):493–500.
7. Dunne EF, Unger ER, Sternberg M, et al. Prevalence of HPV infection among females in the United States. *JAMA.* 2007;297:813–9.
8. Joesoef MR, Mosure DJ. Prevalence of chlamydia in young men in the United States from newly implemented universal screening in a national job training program. *Sex Transm Dis.* 2006;33(10):636–9.
9. Joesoef MR, Mosure DJ. Prevalence trends in chlamydial infections among young women entering the national job training program, 1998–2004. *Sex Transm Dis.* 2006;33(9):571–5.
10. Joesoef MR, Weinstock HS, Kent CK, et al. Sex and age correlates of chlamydia prevalence in adolescents and adults entering correctional facilities, 2005: implications for screening policy. *Sexually Transmitted Diseases*; In press 2008.
11. US Department of Health and Human Services. Healthy people 2010. Washington, DC: HHS; 2000. Available from http://www.healthypeople.gov.
12. Weinstock H, Berman S, Cates W, Jr. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspect Sex Reprod Health.* 2004;36(1):6–10.

Tuberculosis

1. Bennett D, Courval JM, Onorato I, et al. Prevalence of tuberculosis infection in the United States population: the national health and nutrition examination survey, 1999–2000. *Am J Respir Crit Care Med.* 2008;177:348–55.
2. CDC. Prevention and control of tuberculosis in U.S. communities with at-risk minority populations: recommendations of the Advisory Council for the Elimination of Tuberculosis. *MMWR.* 1992; 41(No. RR-5).

3. CDC. Reported tuberculosis in the United States, 2006. Atlanta, GA: U.S. Department of Health and Human Services. 2007 Sep.
4. CDC. Targeted tuberculin testing and treatment of latent tuberculosis infection. *MMWR.* 2000; 49(No. RR-6):8–9.

Special Population: African-American Men

1. Armstrong GL, Wasley A, Simard EP, McQuillan GM, Kuhnert WL, Alter MJ. The prevalence of hepatitis C virus infection in the United States, 1999 through 2002. *Ann Intern Med.* 2006;144:705–14.
2. Beltrami JF, Shouse RL, Blake PA. Trends in infectious diseases and the male to female ratio: possible clues to changes in behavior among men who have sex with men. *AIDS Educ Prev.* 2005;17(suppl): S49-S59.
3. CDC. Complex factors influencing transmission. A Heightened National Response to the HIV/AIDS Crisis among African Americans. Accessed August 21, 2008.
4. CDC. Gonorrhea among men who have sex with men—selected sexually transmitted disease clinics, 1993–1996. *MMWR.* 1997;46:889–92.
5. CDC. Trends in HIV/AIDS diagnoses among men who have sex with men—33 states, 2001–2006. *MMWR.* 2008;57:681–686.
6. CDC. Resurgent bacterial sexually transmitted disease among men who have sex with men—King County, Washington, 1997–1999. *MMWR.* 1999;48:773–7.
7. CDC. Outbreak of syphilis among men who have sex with men—Southern California, 2000. *MMWR.* 2001;50:117–20.
8. CDC. Primary and secondary syphilis among men who have sex with men—New York City, 2001. *MMWR.* 2002;51:853–6.
9. CDC. Primary and secondary syphilis—United States, 2003–2004. *MMWR.* 2006;55:269–73.
10. CDC. HIV prevalence, unrecognized infection, and HIV testing among men who have sex with men—five U.S. cities, June 2004–April 2005. *MMWR.* 2005;54:597–601.
11. CDC. Racial/ethnic disparities in diagnoses of HIV/AIDS—33 States, 2001–2005. *MMWR.* 2007;56:189–93.
12. CDC. Reported HIV status of tuberculosis patients—United States, 1993–2005. *MMWR.* 2007;56(42):1103–6.
13. CDC. Racial/ethnic disparities in diagnoses of HIV/AIDS—33 States, 2001–2004. *MMWR.* 2006;55(5):121–125.
14. CDC. HIV/AIDS diagnoses among blacks—Florida, 1999–2004. *MMWR.* 2007;56(4):69–73.
15. Fox KK, del Rio C, Holmes K, et al. Gonorrhea in the HIV era: a reversal in trends among men who have sex with men. *Am J Public Health.* 2001;91:959–64.
16. Koziel MJ, Peters MG. Viral hepatitis and HIV infection. *N Engl J Med.* 2007;356:1445–1454.
17. MacKellar DA, Valleroy L, Secura G, et al. Unrecognized HIV infection, risk behaviors, and perceptions of risk among young men who have sex with men: opportunities for advancing HIV prevention in the third decade of HIV/AIDS. *J Acquired Immune Deficiency Syndromes.* 2005;38:603–14.
18. McQuillan GM, Coleman PJ, Kruszon-Moran D, Moyer LA, Lambert SB, Margolis HS. Prevalence of hepatitis B virus infection in the United States: the National Health and Nutrition Examination Surveys, 1976 through 1994. *Am J Public Health.* 1999;89(1):11–3.
19. U.S. Commission on Civil Rights. The health care challenge: acknowledging disparity, confronting discrimination, and ensuring equality. Washington, DC: USCCR; 1999.