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Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance Data— United States and 6 U.S. Dependent Areas—2010

Part A

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



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Contents

Commentary	4
Technical Notes	8
Tables	
1a Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by selected characteristics, 2010—United States	13
1b Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by selected characteristics, 2010—United States and 6 U.S. dependent areas	14
1c Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by area of residence, 2010—United States and 6 U.S. dependent areas	15
1d Stage 3 (AIDS) within 12 months after a diagnosis of HIV infection, among persons aged 13 years and older, by area of residence, 2009—United States and 6 U.S. dependent areas	16
2a Deaths of persons aged 13 years and older with a diagnosis of HIV infection, by year of death and area of residence, 2007–2009—United States and 6 U.S. dependent areas	17
2b Deaths of persons aged 13 years and older with a diagnosis of HIV infection ever classified as stage 3 (AIDS), by year of death and area of residence, 2007–2009—United States and 6 U.S. dependent areas	18
3a Persons surviving more than 3 years after a diagnosis of HIV infection during 2002–2006, by year of diagnosis and area of residence—United States and 6 U.S. dependent areas	19
3b Persons with HIV surviving more than 3 years after stage 3 (AIDS) classification during 2002–2006, by year and area of residence—United States and 6 U.S. dependent areas	20
4 Perinatally acquired HIV infection, by year of birth and mother’s race/ethnicity, 2007–2009—46 states	21
5a Estimated numbers and rates of persons aged 13 years and older living with HIV infection (prevalence), and numbers and percentages whose HIV infection was undiagnosed, by selected characteristics, 2009—United States	22
5b Estimated numbers of persons aged 13 years and older living with HIV infection (prevalence), and percentages whose HIV infection was diagnosed, 2006–2009—United States	23
6 Annual HIV transmission rates [T(x)] per 100 persons living with HIV, 2006–2009—United States	27

In July 2010, the White House released the *National HIV/AIDS Strategy for the United States* (NHAS), which outlined 3 goals for a coordinated national response to HIV in the United States. These goals are (1) reduce the number of people who become infected with HIV, (2) increase access to care and improve health outcomes for people living with HIV, and (3) reduce HIV-related health disparities. In response, the Division of HIV/AIDS Prevention (DHAP) of the Centers for Disease Control and Prevention (CDC) developed a strategic plan that aligns with NHAS and defines 15 objectives for measuring progress in reducing the burden of HIV in the United States. CDC collects data to monitor progress toward achieving these objectives by using a variety of systems, which include the National HIV Surveillance System, the Medical Monitoring Project, the National HIV Behavioral Surveillance System, and the national HIV prevention program monitoring and evaluation data set. This report illustrates how data from the National HIV Surveillance System can be used to assess progress on selected key objectives. Some data essential for monitoring progress toward achieving these objectives have been, and will be, reported in other publications.

Several key HIV indicators from NHAS and the DHAP Strategic Plan can be monitored by using data collected through the National HIV Surveillance System. Specific targets to be achieved by 2015 include the following:

- Increase by 25% the percentage of persons whose HIV infection is diagnosed at an earlier stage of disease (not stage 3, AIDS)
- Reduce the percentage of persons whose HIV infection is classified as stage 3 (AIDS) less than 12 months after diagnosis
- Increase to 85% the percentage of persons linked to HIV clinical care within 3 months after diagnosis of HIV infection
- Increase to 75% or more the percentage of persons who have a CD4+ T-lymphocyte (CD4) or viral load test result within 3 months after HIV diagnosis, for all races/ethnicities

- Increase the percentage of persons with HIV who receive HIV care and treatment consistent with current standards
- Increase by 10% the percentage of persons in HIV care whose most recent viral load test result was undetectable
- Increase by 20% (each) the percentage of gay, bisexual, and other men who have sex with men, blacks/African Americans, and Hispanics/Latinos with undetectable viral load results
- Increase the percentage of persons with a diagnosis of HIV infection who survive more than 3 years after stage 3 (AIDS) classification
- Reduce the number of deaths among persons with HIV infection (any stage)
- Reduce by 25% the rate of perinatally acquired HIV infection
- Increase to 90% the percentage of persons living with HIV who know their serostatus
- Reduce by 30% the rate of HIV transmission

Monitoring outcomes such as stage of disease at diagnosis, linkage to HIV care, retention in HIV care, and viral suppression is particularly dependent upon complete reporting of all HIV-related laboratory results (including CD4 and viral load results) to HIV surveillance programs and CDC. HIV indicators that are evaluated by using laboratory data will be presented in part B of this supplemental report.

This surveillance supplemental report (part A) complements the 2010 *HIV Surveillance Report* by presenting the results of focused analyses to measure progress toward achieving selected objectives of NHAS and the DHAP Strategic Plan. In this report, data from the 50 states, the District of Columbia, and 6 U.S. dependent areas were used. For analyses of deaths of persons with a diagnosis of HIV infection and analyses of diagnosed perinatally acquired HIV infections, **estimated** numbers and rates were based on data from 46 states and 5 U.S. dependent areas (where indicated) that have had confidential name-based HIV infection reporting for a sufficient length of time (i.e., implemented in an area since at least January 2007 and reported to CDC since at least June

2007) to allow for stabilization of data collection and adjustment of data in order to monitor trends. Data by transmission category were statistically adjusted to account for missing risk-factor information. The term *diagnosis of HIV infection* refers to a diagnosis of HIV infection regardless of the stage of disease (stage 1, 2, 3 [AIDS], or unknown) at the time of diagnosis and does not necessarily reflect when the person became infected. Diagnoses of HIV infection do not represent incidence, or new infections, because not all infected persons have been tested and reported to the surveillance system.

This report provides national estimates for persons living with HIV infection (prevalence) in the United States. For prevalence analyses, numbers were based on (1) HIV and AIDS data for persons aged 13 years and older at diagnosis from 46 states that have had confidential name-based HIV infection reporting since at least January 2007 (and have reported to CDC since at least June 2007) and (2) AIDS data from 5 areas (the District of Columbia, Hawaii, Maryland, Massachusetts, and Vermont) that had not established confidential name-based HIV infection reporting by January 2007. Data on persons living with HIV infection in the United States include persons with diagnosed infection and those with undiagnosed infection. The number and percentage of persons with undiagnosed HIV infection and the percentage of persons with diagnosed infection were calculated separately. Annual rates of HIV transmission in the United States were calculated by using HIV incidence (new infections) and prevalence estimates.

REPORT FORMAT

This report presents data tables that are organized as follows:

1. Stage 3 (AIDS) at the time of HIV diagnosis and within 12 months after HIV diagnosis (Tables 1a–d)
2. HIV outcomes: Deaths and survival of persons with a diagnosis of HIV infection and of persons with HIV ever classified as stage 3 (AIDS) (Tables 2a/b–3a/b)
3. Perinatally acquired HIV infection (Table 4)
4. Persons living with HIV infection (prevalence) and percentages of persons whose infection was undiagnosed (Tables 5a) and those whose infection was diagnosed (Table 5b)

5. Annual rates of HIV transmission (Table 6)

Readers are encouraged to read all titles and footnotes carefully to ensure a complete understanding of the data presented.

HIGHLIGHTS OF ANALYSES

Stage 3 (AIDS) Classification at the Time of HIV Diagnosis

During 2010, at the time of diagnosis of HIV infection, 27.7% of persons had a stage 3 (AIDS) classification (Table 1a).

- **Age group:** The percentage of persons with stage 3 (AIDS) classification at the time of HIV diagnosis increased as age increased (e.g., 12.7% among persons aged 13–24 years and 42.1% among persons aged 55 years and older).
- **Race/ethnicity:** The highest percentage of persons with stage 3 (AIDS) classification at the time of HIV diagnosis was that among Native Hawaiians/other Pacific Islanders (39.3%), followed by the percentages among American Indians/Alaska Natives (33.2%), Hispanics/Latinos (31.7%), Asians (31.3%), whites (28.0%), persons of multiple races (26.1%), and blacks/African Americans (25.8%).
- **Transmission category:** The highest percentages of persons with stage 3 (AIDS) classification at the time of diagnosis (regardless of transmission or sex) were those among males with infection attributed to injection drug use (41.8%) and males with infection attributed to heterosexual contact (36.2%). The lowest percentages were those among males with infection attributed to male-to-male sexual contact (25.6%) and among females with infection attributed to heterosexual contact (25.6%).

Stage 3 (AIDS) Classification within 12 Months after HIV Diagnosis

Within 12 months after an HIV diagnosis during 2009, 32.7% of persons had a stage 3 (AIDS) classification (Table 1d). However, this percentage varied by area of residence.

Deaths of Persons with HIV Infection and of Those with Stage 3 (AIDS) Classification

In 2009, there were an estimated 20,281 deaths of persons with a diagnosis of HIV infection in the 46 states and 5 U.S. dependent areas (Table 2a). The overall rate was 8.3 deaths per 100,000 population. During 2009, the rates of deaths of persons with a diagnosis of HIV infection varied by area of residence. Rates were highest in the U.S. Virgin Islands (26.0), New York (19.4), Louisiana (17.0), and Florida (16.9). Rates were lowest in American Samoa (0.0), the Northern Mariana Islands (0.0), North Dakota (0.7), and Wyoming (0.9).

An estimated 17,537 deaths of persons with HIV infection ever classified as stage 3 (AIDS) occurred during 2009 (Table 2b) in the United States and 6 U.S. dependent areas. The overall rate was 6.8 per 100,000 population; the rates of deaths of persons with stage 3 (AIDS) classification varied by area of residence. The highest rates were in the District of Columbia (18.4), New York (16.3), and the U.S. Virgin Islands (16.0). The lowest rates were in American Samoa, the Northern Mariana Islands, and the Republic of Palau (each with a rate of 0.0 per 100,000), followed by North Dakota (0.5), Montana (0.8), and South Dakota (0.8).

Survival for More Than 3 Years after Diagnosis of HIV Infection

Overall, survival after a diagnosis of HIV infection increased over time (Table 3a). However, in 8 areas, less than 90% of persons survived more than 3 years after a diagnosis made in 2006.

Overall, survival after stage 3 (AIDS) classification increased over time (Table 3b). However, in 7 areas, less than 80% of persons survived more than 3 years after stage 3 (AIDS) classification in 2006.

Perinatally Acquired HIV Infection

Among blacks/African Americans, Hispanics/Latinos, and whites in the 46 states, the overall annual rate of perinatally acquired HIV infections decreased from 3.4 per 100,000 live births in 2007 to 2.1 in 2009 (Table 4). However, the annual rates differed by race/ethnicity. Although the annual rates among blacks/African Americans decreased from 15.2 in 2007 to 9.9 in 2009, these rates were substantially higher than

those among Hispanics/Latinos (2.1 in 2007 and 1.7 in 2009) and among whites (0.8 in 2007 and 0.1 in 2009).

Persons Living with HIV Infection (Prevalence) and Percentage of Persons with Undiagnosed Infection

From 2006 through 2009, the estimated number of persons living with HIV infection in the United States increased 8% (Table 5b). At the end of 2009, an estimated 1,148,200 persons aged 13 years and older were living with HIV infection, including 207,600 (18.1%) persons whose infections had not been diagnosed (Table 5a).

- **Age group:** At the end of 2009, the highest prevalence rate was that among persons aged 45–54 years (854.2 per 100,000 population), followed by the rates among those aged 35–44 years (770.3), 55–64 years (447.6), 25–34 years (421.0), 13–24 years (149.2), and 65 years and older (101.8). Generally, the percentage of persons with undiagnosed HIV infection decreased as age increased; the highest percentage of undiagnosed infections was that among persons aged 13–24 years (59.5%), followed by the percentages among persons aged 25–34 (28.1%) and 35–44 years (15.4%). Among persons aged 45 years and older, the percentages were similar (45–54 years, 11.2%; 55–64 years, 10.6%; 65 and older, 11.3%).
- **Race/ethnicity:** At the end of 2009, the highest prevalence rate was that among blacks/African Americans (1,685.3 per 100,000 population), followed by the rates among Hispanics/Latinos (617.4), persons of multiple races (537.5), Native Hawaiians/other Pacific Islanders (391.9), American Indians/Alaska Natives (228.2), whites (222.7), and Asians (136.0). The highest percentage of persons with undiagnosed HIV infection was that among Asians (27.4%), followed by the percentages among Native Hawaiians/other Pacific Islanders (26.5%), American Indians/Alaska Natives (24.7%), persons of multiple races (20.1%), Hispanics/Latinos (19.7%), blacks/African Americans (19.4%), and whites (14.8%).
- **Transmission category:** At the end of 2009, most (75.7%) persons living with HIV were male, and 68.1% of the males had infection attributed to male-to-male sexual contact. The highest percentages of persons with undiagnosed HIV were those

among males with infection attributed to heterosexual contact (24.4%) and male-to-male sexual contact (20.9%). The lowest percentages of persons with undiagnosed HIV infection were those among females with infection attributed to injection drug use (8.8%) and those among males with infection attributed to male-to-male sexual contact *and* injection drug use (9.1%).

Annual HIV Transmission Rate

From 2006 through 2009, the annual rate of HIV transmission (per 100 persons living with HIV) decreased 9%, from 4.58 in 2006 to 4.19 in 2009 (Table 6).

SUGGESTED READINGS

CDC. Establishing a holistic framework to reduce inequities in HIV, viral hepatitis, STDs, and tuberculosis in the United States: an NCHHSTP white paper on social determinants of health, 2010. <http://www.cdc.gov/socialdeterminants/docs/SDH-White-Paper-2010.pdf>. Accessed December 1, 2011.

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SURVEILLANCE OF HIV INFECTION

This report includes data reported to CDC through December 31, 2011, from 57 areas (50 states, the District of Columbia, American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the U.S. Virgin Islands) that had laws or regulations requiring confidential name-based HIV infection reporting for adults and adolescents with a confirmed diagnosis of HIV infection (including stage 3 [AIDS]) as of December 31, 2010. After the removal of personal identifying information, data from these reports were submitted to CDC. Although AIDS diagnoses have been reported to CDC since 1981, the implementation of HIV infection reporting has differed from state to state. All states, the District of Columbia, and 6 U.S. dependent areas had implemented such reporting by April 2008.

Data on diagnoses of HIV infection should be interpreted with caution. HIV surveillance data may not be representative of all persons infected with HIV because not all infected persons have been tested. In addition, many states offer anonymous HIV testing; the results of anonymous tests are not reported to the confidential name-based HIV infection reporting systems of state and local health departments. Therefore, reports of confidential test results may not represent all persons who tested positive for HIV infection.

Areas with Confidential Name-Based HIV Infection Reporting

As of April 2008, 57 areas (50 states, the District of Columbia, and 6 U.S. dependent areas) had implemented confidential name-based HIV infection reporting. All 57 areas were included in tabulations of numbers (unadjusted) for Tables 1a–d, 2a, and 3a.

Areas with Mature HIV Infection Reporting Systems

An area's confidential name-based HIV infection reporting is considered mature after 4 years—long enough for the calculation of reporting-delay estimates and the determination of reliable trends [1]. The data used to estimate the number of deaths of persons with a diagnosis of HIV infection (Table 2a) and the number of perinatally acquired HIV infections (Table

4) were those from 51 areas that have had laws or regulations requiring confidential name-based HIV infection reporting since at least January 2007 and that have been reporting these data to CDC since at least June 2007. The 51 areas comprise 46 states (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, Wyoming) and 5 U.S. dependent areas (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands).

TABULATION AND PRESENTATION OF DATA

The data in this report are provisional. Data are organized as follows:

- **Stage 3 (AIDS) at the time of HIV diagnosis or within 12 months after HIV diagnosis:** Tables 1a–d present numbers and percentages of persons with HIV infection, stage 3 (AIDS) at the time of diagnosis or within 12 months after diagnosis.
- **HIV outcomes:** Tables 2a/b present numbers (unadjusted) and statistically adjusted (estimated) numbers and rates (based on estimated numbers) of deaths of persons with a diagnosis of HIV infection and of persons with HIV infection ever classified as stage 3 (AIDS). Tables 3a/b present the proportions of persons surviving more than 3 years after a diagnosis of HIV infection and after stage 3 (AIDS) classification.
- **Perinatally acquired HIV infection:** Table 4 presents estimated numbers and rates (per 100,000 live births) of perinatally acquired HIV infection.
- **HIV prevalence:** Table 5a displays the national estimates for persons living with HIV infection (prevalence) and the estimated percentages of persons who were unaware of their infection. Table 5b displays annual prevalence estimates during

2006–2009 and the percentages of persons whose HIV infection had been diagnosed.

- **Annual rates of HIV transmission:** Table 6 presents the annual rates of HIV transmission per 100 persons living with HIV infection.

Stage of Disease at Diagnosis of HIV Infection

In 2008, the surveillance case definition for HIV infection among adults and adolescents was revised to incorporate an HIV infection classification staging system that includes AIDS (HIV infection, stage 3) [2].

The stages of HIV infection are defined as follows:

- **HIV infection, stage 1:** No AIDS-defining condition and either CD4 count of ≥ 500 cells/ μL or CD4 percentage of total lymphocytes of $\geq 29\%$.
- **HIV infection, stage 2:** No AIDS-defining condition and either CD4 count of 200–499 cells/ μL or CD4 percentage of total lymphocytes of 14%–28%.
- **HIV infection, stage 3 (AIDS):** CD4 count of < 200 cells/ μL , CD4 percentage of total lymphocytes of $< 14\%$, or documentation of an AIDS-defining condition. Documentation of an AIDS-defining condition supersedes a CD4 count of < 200 cells/ μL and a CD4 percentage of total lymphocytes of $< 14\%$.
- **HIV infection, stage unknown:** No information available on CD4 count or percentage and no reported information on AIDS-defining conditions (every effort should be made to report CD4 counts or percentages at the time of diagnosis to public health authorities).

Data on persons with HIV infection, stage 3 (AIDS) include persons whose infection has ever been classified as stage 3 (AIDS).

Information on stage 3 (AIDS) is available for all 50 states, the District of Columbia, and 6 U.S. dependent areas; therefore, stage 3 (AIDS) at the time of HIV diagnosis or within 12 months after diagnosis was calculated for persons in all areas (Tables 1a–d). Stage 3 (AIDS) at the time of HIV diagnosis (Tables 1a–c) was defined as stage 3 (AIDS) classification within 3 months after diagnosis of HIV infection. Stage 3 (AIDS) at the time of HIV diagnosis was based on persons whose HIV was diagnosed during 2010 (which allowed for stage 3 [AIDS] classification through March 2011 and reporting through December 2011). Stage 3 (AIDS) within 12 months after HIV diagnosis (Table 1d) was based on persons whose HIV

infection was diagnosed during 2009 (which allowed for stage 3 [AIDS] classification through December 2010 and reporting through December 2011).

Deaths

Persons reported to the National HIV Surveillance System are assumed to be living unless their deaths have been reported to CDC. Death data were based on deaths of persons with a diagnosis of HIV infection and of persons whose HIV infection was ever classified as stage 3 (AIDS), regardless of the cause of death. Because of delays in the reporting of deaths, 3 years (2007–2009) of death data are displayed. The exclusion of data from the most recent year allowed at least 18 months for deaths to be reported to CDC. The estimated numbers and rates of deaths resulted from statistical adjustment for delays in reporting (see **Rates** section for how rates were calculated). Readers should use caution when interpreting trend data on the estimated numbers of deaths because the estimates presented for the most recent year are subject to uncertainty.

Survival Analyses

The Kaplan-Meier method was used to estimate the probability of survival (Tables 3a/b) for more than 3 years for persons with a diagnosis of HIV infection and for persons whose infection had ever been classified as stage 3 (AIDS) (data reported to CDC by December 31, 2011). To allow at least 3 years from the time of HIV diagnosis to a death date on or before December 31, 2009, tables were limited to persons whose diagnosis or stage 3 (AIDS) classification was made during 2002–2006. Data for each HIV reporting area were included in the survival table beginning with the first full calendar year after implementation of code-based or name-based HIV infection reporting. The results of survival analyses for areas with < 100 diagnoses per year (i.e., < 500 during the 5-year period) were unstable and therefore are not presented in this report.

Persons Living with HIV Infection (Prevalence Estimation)

The data used to estimate the prevalence of diagnosed and undiagnosed HIV infection were HIV and AIDS data for adults and adolescents (persons aged ≥ 13 years at diagnosis) from 46 states that have had confidential name-based HIV infection reporting since at least January 2007 and AIDS data from the District of

Columbia, Hawaii, Maryland, Massachusetts, and Vermont (areas that had not established confidential name-based HIV infection reporting by January 2007). The estimates for overall HIV prevalence and the prevalence of undiagnosed infection were obtained in 4 steps.

1. HIV and AIDS data were statistically adjusted to mitigate the effects of delays in reporting new cases and deaths [3], incomplete reporting of diagnosed cases [4], and cases reported without sufficient risk factor information to be classified into an HIV transmission category [3].
2. On the basis of the estimated annual number of HIV diagnoses and the severity of disease at diagnosis (i.e., whether the infection was classified as stage 3 [AIDS] in the same calendar year the HIV diagnosis was made), an extended back-calculation model was fitted to estimate the cumulative number of persons aged ≥ 13 years who had been infected with HIV by the end of 2009 [4].
3. The estimated overall HIV prevalence was calculated by subtracting the estimated cumulative number of deaths that had occurred among those infected by the end of 2009 from the estimated cumulative number of HIV infections.
4. The prevalence of undiagnosed HIV infection was calculated by subtracting the estimated number of diagnosed HIV infections in living persons from the estimated overall HIV prevalence.

Differences between current prevalence estimates and previous estimates may be due to the availability of additional HIV surveillance data, additional information or more complete data for previous years, the inclusion of HIV data from 6 additional states (California, Delaware, Montana, Oregon, Rhode Island, and Washington), the inclusion of additional years of data, and the use of new race categories. In addition, differences may be due to changes in the methods used for adjusting for reporting delays and missing risk-factor information. However, any modified methods now align with the procedures used for weighting for reporting delays and missing risk factors for tables in the 2010 *HIV Surveillance Report* and this supplemental report.

Rates of HIV Transmission

Rates of HIV transmission $[T(x)]$ were calculated as the estimated incidence of HIV infection $[I(x)]$ divided

by the estimated prevalence of HIV infection $[P(x)]$, multiplied by 100, or $T(x) = [I(x)/P(x)] * 100$ [5,6].

Age

All tables in this report, with the exception of Table 4 (perinatally acquired HIV infection), reflect data for persons aged 13 years and older. In Tables 2a/b (deaths), persons were selected as aged 13 years or older based on the person's age at the time of death. For all other tables, the selection criteria and the specific age-group assignment (e.g., 25–34 years) were based on the person's age at the time of HIV diagnosis.

Race and Ethnicity

In the *Federal Register* for October 30, 1997 [7], the Office of Management and Budget (OMB) announced the Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity and mandated implementation by January 1, 2003. At a minimum, data should be collected for the following race categories:

- American Indian or Alaska Native
- Asian
- black or African American
- Native Hawaiian or other Pacific Islander
- white

Additionally, systems must be able to retain information when multiple race categories are reported. In addition to data on race, data on 2 categories of ethnicity should be collected:

- Hispanic or Latino
- not Hispanic or Latino

The Asian or Pacific Islander category displayed in annual surveillance reports published prior to the 2007 surveillance report was split into 2 categories: (1) Asian and (2) Native Hawaiian or other Pacific Islander. The Asian category (in tables where footnoted) includes persons categorized as Asian/Pacific Islander (referred to as legacy cases) that were reported before the new race categories were implemented in 2003 (e.g., diagnoses of HIV infection that were reported to CDC before 2003 but that were classified as stage 3 [AIDS] after 2003) and a small percentage of persons that were reported after 2003 but that were reported according to the old race category (Asian/Pacific Islander). In tables of diagnoses of HIV infection during 2007–2010, the Asian category does not include persons categorized as Asian/Pacific Islander

because their diagnosis was made after 2003 and reported to CDC in accordance with OMB's Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity [7].

This report also presents data for persons for whom multiple race categories are specified. In this report, persons categorized by race were not Hispanic or Latino. The number of persons reported in each race category may, however, include persons whose ethnicity was not reported.

Demographic information for the live birth registry is based on that of the mother [8]. Therefore, Table 4, which presents estimated numbers and rates of perinatally acquired HIV infection, categorizes race/ethnicity according to the mother's race/ethnicity.

Transmission Categories

Transmission category is the term used to summarize a person's possible HIV risk factors; the summary classification results from selecting, from the presumed hierarchical order of probability, the one risk factor most likely to have been responsible for transmission. For surveillance purposes, a diagnosis of HIV infection is counted only once in the hierarchy of transmission categories. Persons with more than one reported risk factor for HIV infection are classified in the transmission category listed first in the hierarchy. The exception is the category for male-to-male sexual contact *and* injection drug use; this group makes up a separate transmission category.

Persons whose transmission category is classified as male-to-male sexual contact include men who ever had sexual contact with other men (i.e., homosexual contact) and men who ever had sexual contact with both men and women (i.e., bisexual contact). Persons whose transmission category is classified as heterosexual contact are persons who ever had specific heterosexual contact with a person known to have, or to be at high risk for, HIV infection (e.g., an injection drug user).

Persons with no reported risk factor for HIV infection listed in the hierarchy of transmission categories are classified as "no risk factor reported or identified" [9]. No identified risk factor (NIR) includes persons that have been followed up by local health department staff; persons whose risk-factor information is missing because they died, declined to be interviewed, or were lost to follow-up; and persons who were interviewed or for whom other follow-up

information was available but for whom no risk factor was identified.

Because a substantial proportion of persons with diagnosed HIV infection are reported to CDC without an identified risk factor, multiple imputation is used to assign a risk factor [10]. Multiple imputation is a statistical approach in which each missing risk factor is replaced with a set of plausible values that represent the uncertainty about the true, but missing, value [11]. The plausible values are analyzed by using standard procedures, and the results from these analyses are then combined to produce the final results.

Reporting Delays

Reporting delays (time between diagnosis or death and the reporting of diagnosis or death to CDC) may differ among demographic and geographic categories; some reporting delays have been as long as several years. The statistical adjustment of the data on deaths and perinatally acquired infections is based on estimates of reporting-delay distributions, which are calculated by using a modified semiparametric life-table statistical procedure. This procedure takes into account differences in reporting delays due to sex, race/ethnicity, and HIV transmission categories; reporting city, state, or territory; geographic region; the size of the metropolitan statistical area of residence; and the type of facility where the diagnosis was made or death occurred [1].

Rates

Rates based on estimated numbers less than 12 should be interpreted with caution because the estimates have relative standard errors greater than 30% and are considered unreliable.

Rates per 100,000 population were calculated for the estimated numbers of deaths of persons with a diagnosis of HIV infection. At the time this report was developed, complete 2010 census data were not available from the U.S. Census Bureau. Therefore, the population denominators used to compute these rates for the 50 states, the District of Columbia, and Puerto Rico were based on the official postcensus estimates for 2009 from the U.S. Census Bureau [12]. The population denominators for American Samoa, Guam, the Northern Mariana Islands, the Republic of Palau, and the U.S. Virgin Islands were based on estimates and projections from the U.S. Census Bureau's International Data Base [13]. Each rate was calculated by

dividing the estimated total number of deaths for the calendar year by the population for that calendar year and then multiplying the result by 100,000. The denominators used for calculating age-, sex-, and race/ethnicity-specific rates were computed by applying the 2009 postcensus estimates for age, sex, and race/ethnicity for the 50 states and the District of Columbia [12].

Population denominators used to calculate estimated rates of perinatally acquired HIV infections per 100,000 live births were based on birth years 2007 through 2009 from the National Center for Health Statistics VitalStats data set [8]. At the time this report was developed, birth data for 2010 were not yet available.

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Table 1a. Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by selected characteristics, 2010—United States

	Total No.	Stage 3 (AIDS) at diagnosis ^a			
		Yes		No	
		No.	%	No.	%
Sex					
Male	33,490	9,398	28.1	24,092	71.9
Female	9,411	2,500	26.6	6,911	73.4
Age at diagnosis (yr)					
13–24	9,011	1,143	12.7	7,868	87.3
25–34	11,662	2,620	22.5	9,042	77.5
35–44	10,190	3,371	33.1	6,819	66.9
45–54	8,221	3,156	38.4	5,065	61.6
≥55	3,817	1,608	42.1	2,209	57.9
Race/ethnicity					
American Indian/Alaska Native	214	71	33.2	143	66.8
Asian	722	226	31.3	496	68.7
Black/African American	20,431	5,263	25.8	15,168	74.2
Hispanic/Latino ^b	8,489	2,689	31.7	5,800	68.3
Native Hawaiian/Other Pacific Islander	61	24	39.3	37	60.7
White	12,286	3,443	28.0	8,843	72.0
Multiple races	698	182	26.1	516	73.9
Transmission category					
Male-to-male sexual contact	25,882	6,638	25.6	19,244	74.4
Injection drug use					
Males	2,129	890	41.8	1,239	58.2
Females	1,338	426	31.8	912	68.2
Male-to-male sexual contact and injection drug use	1,328	354	26.7	974	73.3
Heterosexual contact ^c					
Males	4,120	1,491	36.2	2,629	63.8
Females	8,058	2,061	25.6	5,996	74.4
Other ^d					
Males	31	25	81.6	6	18.4
Females	16	13	82.1	3	17.9
Total	42,901	11,898	27.7	31,003	72.3

Note. Data by transmission category have been statistically adjusted to account for missing risk-factor information. Data exclude 20 persons whose month of diagnosis of HIV infection is unknown.

^a Based on CD4 data or documentation of an AIDS-defining condition within 3 months after diagnosis.

^b Hispanics/Latinos can be of any race.

^c Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^d Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Table 1b. Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by selected characteristics, 2010—United States and 6 U.S. dependent areas

	Total No.	Stage 3 (AIDS) at diagnosis ^a			
		Yes		No	
		No.	%	No.	%
Sex					
Male	34,037	9,552	28.1	24,485	71.9
Female	9,609	2,551	26.5	7,058	73.5
Age at diagnosis (yr)					
13–24	9,102	1,152	12.7	7,950	87.3
25–34	11,855	2,650	22.4	9,205	77.6
35–44	10,385	3,423	33.0	6,962	67.0
45–54	8,388	3,224	38.4	5,164	61.6
≥55	3,916	1,654	42.2	2,262	57.8
Race/ethnicity					
American Indian/Alaska Native	214	71	33.2	143	66.8
Asian	724	226	31.2	498	68.8
Black/African American	20,445	5,268	25.8	15,177	74.2
Hispanic/Latino ^b	9,214	2,887	31.3	6,327	68.7
Native Hawaiian/Other Pacific Islander	63	24	38.1	39	61.9
White	12,288	3,445	28.0	8,843	72.0
Multiple races	698	182	26.1	516	73.9
Transmission category					
Male-to-male sexual contact	26,135	6,698	25.6	19,438	74.4
Injection drug use					
Males	2,258	929	41.1	1,329	58.9
Females	1,357	432	31.8	925	68.2
Male-to-male sexual contact and injection drug use	1,350	359	26.6	991	73.4
Heterosexual contact ^c					
Males	4,263	1,541	36.2	2,722	63.8
Females	8,236	2,106	25.6	6,130	74.4
Other ^d					
Males	31	25	81.6	6	18.4
Females	16	13	82.1	3	17.9
Total	43,646	12,103	27.7	31,543	72.3

Note. Data by transmission category have been statistically adjusted to account for missing risk-factor information. Data exclude 20 persons whose month of diagnosis of HIV infection is unknown.

^a Based on CD4 data or documentation of an AIDS-defining condition within 3 months after diagnosis.

^b Hispanics/Latinos can be of any race.

^c Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^d Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Table 1c. Stage 3 (AIDS) at the time of diagnosis of HIV infection, among persons aged 13 years and older, by area of residence, 2010—United States and 6 U.S. dependent areas

Area of residence	Total No.	Stage 3 (AIDS) at diagnosis ^a			
		Yes		No	
		No.	%	No.	%
Alabama	709	137	19.3	572	80.7
Alaska	38	12	31.6	26	68.4
Arizona	630	215	34.1	415	65.9
Arkansas	201	53	26.4	148	73.6
California	5,117	1,453	28.4	3,664	71.6
Colorado	416	142	34.1	274	65.9
Connecticut	413	142	34.4	271	65.6
Delaware	137	45	32.8	92	67.2
District of Columbia	841	194	23.1	647	76.9
Florida	4,909	1,269	25.9	3,640	74.1
Georgia	1,944	506	26.0	1,438	74.0
Hawaii	88	29	33.0	59	67.0
Idaho	44	19	43.2	25	56.8
Illinois	1,625	480	29.5	1,145	70.5
Indiana	489	127	26.0	362	74.0
Iowa	116	50	43.1	66	56.9
Kansas	141	50	35.5	91	64.5
Kentucky	339	98	28.9	241	71.1
Louisiana	1,140	329	28.9	811	71.1
Maine	57	16	28.1	41	71.9
Maryland	1,514	380	25.1	1,134	74.9
Massachusetts	648	205	31.6	443	68.4
Michigan	761	209	27.5	552	72.5
Minnesota	345	95	27.5	250	72.5
Mississippi	486	154	31.7	332	68.3
Missouri	582	120	20.6	462	79.4
Montana	20	6	30.0	14	70.0
Nebraska	114	39	34.2	75	65.8
Nevada	381	123	32.3	258	67.7
New Hampshire	49	9	18.4	40	81.6
New Jersey	1,359	403	29.7	956	70.3
New Mexico	154	50	32.5	104	67.5
New York	4,278	1,197	28.0	3,081	72.0
North Carolina	1,487	355	23.9	1,132	76.1
North Dakota	13	4	30.8	9	69.2
Ohio	1,005	271	27.0	734	73.0
Oklahoma	286	64	22.4	222	77.6
Oregon	241	88	36.5	153	63.5
Pennsylvania	1,507	464	30.8	1,043	69.2
Rhode Island	118	31	26.3	87	73.7
South Carolina	794	292	36.8	502	63.2
South Dakota	34	8	23.5	26	76.5
Tennessee	860	195	22.7	665	77.3
Texas	4,446	1,222	27.5	3,224	72.5
Utah	79	25	31.6	54	68.4
Vermont	13	2	15.4	11	84.6
Virginia	1,027	269	26.2	758	73.8
Washington	550	158	28.7	392	71.3
West Virginia	79	26	32.9	53	67.1
Wisconsin	258	60	23.3	198	76.7
Wyoming	19	8	42.1	11	57.9
Subtotal	42,901	11,898	27.7	31,003	72.3
U.S. dependent areas					
American Samoa	0	0	0.0	0	0.0
Guam	2	0	0.0	2	100.0
Northern Mariana Islands	0	0	0.0	0	0.0
Puerto Rico	716	195	27.2	521	72.8
Republic of Palau	0	0	0.0	0	0.0
U.S. Virgin Islands	27	10	37.0	17	63.0
Total	43,646	12,103	27.7	31,543	72.3

Note. Data exclude 20 persons whose month of diagnosis of HIV infection is unknown.

^a Based on CD4 data or documentation of an AIDS-defining condition within 3 months after diagnosis.

Table 1d. Stage 3 (AIDS) within 12 months after a diagnosis of HIV infection, among persons aged 13 years and older, by area of residence, 2009—United States and 6 U.S. dependent areas

Area of residence	Total No.	Stage 3 (AIDS) within 12 months after HIV diagnosis			
		Yes ^a		No ^b	
		No.	%	No.	%
Alabama	701	147	21.0	554	79.0
Alaska	19	4	21.1	15	78.9
Arizona	647	245	37.9	402	62.1
Arkansas	201	67	33.3	134	66.7
California	5,346	1,838	34.4	3,508	65.6
Colorado	378	132	34.9	246	65.1
Connecticut	358	147	41.1	211	58.9
Delaware	158	64	40.5	94	59.5
District of Columbia	870	272	31.3	598	68.7
Florida	5,299	1,713	32.3	3,586	67.7
Georgia	2,124	660	31.1	1,464	68.9
Hawaii	88	27	30.7	61	69.3
Idaho	46	17	37.0	29	63.0
Illinois	1,779	571	32.1	1,208	67.9
Indiana	476	173	36.3	303	63.7
Iowa	125	55	44.0	70	56.0
Kansas	152	65	42.8	87	57.2
Kentucky	350	113	32.3	237	67.7
Louisiana	1,210	413	34.1	797	65.9
Maine	55	20	36.4	35	63.6
Maryland	1,650	479	29.0	1,171	71.0
Massachusetts	670	238	35.5	432	64.5
Michigan	811	243	30.0	568	70.0
Minnesota	389	112	28.8	277	71.2
Mississippi	530	148	27.9	382	72.1
Missouri	538	176	32.7	362	67.3
Montana	32	10	31.3	22	68.8
Nebraska	113	44	38.9	69	61.1
Nevada	374	129	34.5	245	65.5
New Hampshire	45	24	53.3	21	46.7
New Jersey	1,456	502	34.5	954	65.5
New Mexico	168	67	39.9	101	60.1
New York	4,621	1,506	32.6	3,115	67.4
North Carolina	1,651	489	29.6	1,162	70.4
North Dakota	17	7	41.2	10	58.8
Ohio	1,056	348	33.0	708	67.0
Oklahoma	306	86	28.1	220	71.9
Oregon	250	110	44.0	140	56.0
Pennsylvania	1,709	546	31.9	1,163	68.1
Rhode Island	119	44	37.0	75	63.0
South Carolina	789	315	39.9	474	60.1
South Dakota	25	13	52.0	12	48.0
Tennessee	926	260	28.1	666	71.9
Texas	4,319	1,465	33.9	2,854	66.1
Utah	124	36	29.0	88	71.0
Vermont	12	0	0.0	12	100.0
Virginia	995	277	27.8	718	72.2
Washington	544	187	34.4	357	65.6
West Virginia	78	29	37.2	49	62.8
Wisconsin	290	79	27.2	211	72.8
Wyoming	19	6	31.6	13	68.4
Subtotal	45,008	14,718	32.7	30,290	67.3
U.S. dependent areas					
American Samoa	0	0	0.0	0	0.0
Guam	4	0	0.0	4	100.0
Northern Mariana Islands	1	0	0.0	1	100.0
Puerto Rico	807	263	32.6	544	67.4
Republic of Palau	1	0	0.0	1	100.0
U.S. Virgin Islands	32	15	46.9	17	53.1
Total	45,853	14,996	32.7	30,857	67.3

Note. Data exclude 27 persons whose month of diagnosis of HIV infection is unknown.

^a Includes persons whose infection was classified as stage 3 (AIDS) at the time of diagnosis.

^b Includes persons whose infection had not progressed to stage 3 (AIDS).

Table 2a. Deaths of persons aged 13 years and older with a diagnosis of HIV infection, by year of death and area of residence, 2007–2009—United States and 6 U.S. dependent areas

Area of residence	2007			2008			2009		
	No. ^b	Estimated ^a		No. ^b	Estimated ^a		No. ^b	Estimated ^a	
		No.	Rate		No.	Rate		No.	Rate
Alabama	290	323	8.4	241	282	7.3	249	318	8.2
Alaska	17	19	3.4	22	26	4.6	13	17	2.9
Arizona	209	229	4.5	241	283	5.4	204	273	5.1
Arkansas	134	149	6.4	99	115	4.9	114	145	6.1
California	1,893	2,087	7.1	1,865	2,188	7.3	1,647	2,242	7.4
Colorado	139	153	3.8	109	128	3.2	132	179	4.3
Connecticut	276	303	10.4	248	281	9.6	247	311	10.5
Delaware	91	101	14.1	96	113	15.5	86	110	15.0
District of Columbia	411	—	—	343	—	—	84	—	—
Florida	2,561	2,731	17.8	2,487	2,717	17.5	2,300	2,632	16.9
Georgia	728	792	10.3	582	656	8.4	614	742	9.4
Hawaii	40	—	—	50	—	—	27	—	—
Idaho	7	8	0.6	16	19	1.5	9	12	1.0
Illinois	697	795	7.6	611	752	7.1	268	388	3.6
Indiana	181	202	3.9	190	223	4.2	179	228	4.3
Iowa	31	34	1.4	24	28	1.1	28	37	1.5
Kansas	41	45	2.0	49	57	2.5	38	50	2.2
Kentucky	107	119	3.4	137	160	4.5	119	152	4.2
Louisiana	538	600	16.7	484	568	15.6	493	625	17.0
Maine	24	26	2.3	20	23	2.0	9	11	1.0
Maryland	435	—	—	484	—	—	450	—	—
Massachusetts	292	—	—	278	—	—	286	—	—
Michigan	293	326	3.9	287	335	4.0	231	293	3.5
Minnesota	90	102	2.4	78	95	2.2	90	129	3.0
Mississippi	246	274	11.5	252	295	12.3	231	296	12.3
Missouri	234	262	5.4	225	269	5.4	234	321	6.5
Montana	11	12	1.5	6	7	0.9	6	8	1.0
Nebraska	36	39	2.7	25	29	2.0	25	33	2.2
Nevada	162	180	8.6	129	151	7.1	131	173	8.1
New Hampshire	17	19	1.7	13	15	1.3	19	24	2.1
New Jersey	1,019	1,078	15.0	954	1,045	14.5	859	990	13.7
New Mexico	61	68	4.2	69	80	5.0	53	69	4.2
New York	2,772	3,029	18.6	2,749	3,173	19.4	2,508	3,181	19.4
North Carolina	550	612	8.2	544	636	8.4	582	739	9.6
North Dakota	5	6	1.0	3	4	0.7	3	4	0.7
Ohio	323	359	3.8	348	407	4.2	336	427	4.4
Oklahoma	123	137	4.6	132	154	5.2	109	139	4.6
Oregon	76	83	2.7	74	87	2.7	75	98	3.1
Pennsylvania	769	876	8.3	706	868	8.2	627	893	8.4
Rhode Island	31	34	3.8	48	56	6.2	41	52	5.8
South Carolina	431	481	13.1	379	445	11.9	361	462	12.2
South Dakota	10	11	1.7	7	8	1.3	6	8	1.1
Tennessee	256	285	5.6	196	228	4.4	149	191	3.7
Texas	1,573	1,753	9.2	1,394	1,618	8.4	1,504	1,845	9.4
Utah	32	35	1.7	26	30	1.4	29	39	1.8
Vermont	4	—	—	8	—	—	7	—	—
Virginia	397	446	7.0	388	461	7.1	376	487	7.4
Washington	161	177	3.3	160	186	3.4	178	238	4.3
West Virginia	43	48	3.1	40	47	3.1	34	44	2.8
Wisconsin	84	94	2.0	77	90	1.9	82	105	2.2
Wyoming	5	6	1.3	5	6	1.3	3	4	0.9
Subtotal	18,956	19,547	8.3	17,998	19,443	8.1	16,485	19,764	8.2
U.S. dependent areas									
American Samoa	0	0	0.0	0	0	0.0	0	0	0.0
Guam	5	5	3.9	6	7	5.2	3	4	2.9
Northern Mariana Islands	0	0	0.0	0	0	0.0	0	0	0.0
Puerto Rico	476	495	15.3	474	513	15.7	427	490	14.8
Republic of Palau	0	—	—	0	—	—	0	—	—
U.S. Virgin Islands	14	15	16.7	12	13	14.0	19	24	26.0
Total	19,451	20,062	8.4	18,490	19,976	8.2	16,934	20,281	8.3

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Deaths of persons with a diagnosis of HIV infection may be due to any cause.

^a Includes data from areas that have had laws or regulations requiring confidential name-based HIV infection reporting since at least January 2007 and that have reported these data to CDC since at least June 2007 (see Technical Notes). Estimated numbers resulted from statistical adjustment that accounted for reporting delays, but not for incomplete reporting. Rates are per 100,000 population.

^b Includes data from areas with confidential name-based HIV reporting as of April 2008.

Table 2b. Deaths of persons aged 13 years and older with a diagnosis of HIV infection ever classified as stage 3 (AIDS), by year of death and area of residence, 2007–2009—United States and 6 U.S. dependent areas

Area of residence	2007			2008			2009		
	No.	Estimated ^a		No.	Estimated ^a		No.	Estimated ^a	
		No.	Rate		No.	Rate		No.	Rate
Alabama	209	233	6.1	179	209	5.4	177	226	5.8
Alaska	14	15	2.8	16	19	3.3	15	19	3.4
Arizona	191	209	4.1	186	216	4.1	168	226	4.2
Arkansas	102	114	4.9	84	98	4.2	81	104	4.4
California	1,646	1,806	6.1	1,607	1,876	6.3	1,433	1,948	6.5
Colorado	111	121	3.0	88	103	2.5	103	137	3.3
Connecticut	247	271	9.3	223	252	8.6	220	277	9.4
Delaware	77	86	11.9	68	80	11.0	68	87	11.8
District of Columbia	374	429	84.9	314	387	76.1	66	95	18.4
Florida	2,258	2,390	15.5	2,143	2,311	14.9	1,977	2,207	14.1
Georgia	588	634	8.2	496	554	7.1	482	561	7.1
Hawaii	34	37	3.5	37	43	4.0	25	33	3.0
Idaho	8	9	0.7	13	15	1.3	9	12	1.0
Illinois	586	669	6.4	515	634	6.0	222	322	3.0
Indiana	147	164	3.2	159	187	3.6	154	198	3.7
Iowa	31	34	1.4	20	24	0.9	27	36	1.5
Kansas	41	45	2.0	47	55	2.4	37	50	2.1
Kentucky	86	96	2.7	114	133	3.7	93	120	3.3
Louisiana	469	524	14.6	412	484	13.3	417	530	14.4
Maine	17	19	1.7	16	18	1.6	9	11	1.0
Maryland	385	440	9.4	436	533	11.3	383	541	11.4
Massachusetts	241	265	4.8	220	248	4.5	235	293	5.2
Michigan	251	279	3.3	252	295	3.5	200	255	3.1
Minnesota	64	73	1.7	62	76	1.7	76	108	2.5
Mississippi	165	184	7.7	186	218	9.1	166	213	8.9
Missouri	173	193	3.9	176	211	4.3	182	250	5.0
Montana	9	10	1.2	5	6	0.7	5	7	0.8
Nebraska	31	34	2.3	23	26	1.8	24	32	2.2
Nevada	129	143	6.9	108	126	6.0	102	134	6.3
New Hampshire	15	17	1.5	10	11	1.0	11	14	1.2
New Jersey	795	828	11.5	753	807	11.2	650	721	9.9
New Mexico	48	53	3.3	63	73	4.5	36	48	2.9
New York	2,411	2,618	16.1	2,364	2,701	16.5	2,144	2,669	16.3
North Carolina	349	389	5.2	366	428	5.6	375	477	6.2
North Dakota	4	4	0.8	4	5	0.9	2	3	0.5
Ohio	258	287	3.0	270	315	3.3	259	328	3.4
Oklahoma	103	115	3.9	106	124	4.1	89	114	3.8
Oregon	68	74	2.4	71	83	2.6	65	86	2.7
Pennsylvania	678	772	7.3	577	711	6.7	524	748	7.0
Rhode Island	29	32	3.6	45	52	5.8	40	51	5.7
South Carolina	376	420	11.5	323	379	10.2	315	406	10.7
South Dakota	7	8	1.2	5	6	0.9	4	5	0.8
Tennessee	211	235	4.6	164	191	3.7	127	162	3.1
Texas	1,321	1,469	7.7	1,169	1,348	7.0	1,266	1,523	7.7
Utah	27	29	1.4	22	25	1.2	28	37	1.8
Vermont	4	4	0.8	6	7	1.3	5	6	1.2
Virginia	312	351	5.5	292	347	5.4	276	358	5.5
Washington	144	158	2.9	133	153	2.8	151	201	3.6
West Virginia	39	43	2.8	37	44	2.9	32	41	2.7
Wisconsin	66	74	1.6	60	70	1.5	71	91	1.9
Wyoming	5	6	1.3	5	6	1.3	4	6	1.3
Subtotal	15,954	17,511	7.0	15,050	17,323	6.9	13,630	17,127	6.8
U.S. dependent areas									
American Samoa	0	0	0.0	0	0	0.0	0	0	0.0
Guam	4	4	3.1	3	3	2.6	2	3	2.0
Northern Mariana Islands	0	0	0.0	0	0	0.0	0	0	0.0
Puerto Rico	415	426	13.1	418	445	13.6	357	393	11.9
Republic of Palau	0	0	0.0	0	0	0.0	0	0	0.0
U.S. Virgin Islands	11	12	13.0	10	10	11.5	12	14	16.0
Total	16,384	17,953	7.1	15,481	17,782	7.0	14,001	17,537	6.8

Note. Deaths of persons with a diagnosis of HIV infection may be due to any cause.

^a Estimated numbers resulted from statistical adjustment that accounted for reporting delays, but not for incomplete reporting. Rates are per 100,000 population.

Table 3a. Persons surviving more than 3 years after a diagnosis of HIV infection during 2002–2006, by year of diagnosis and area of residence—United States and 6 U.S. dependent areas

Area of residence	No. of persons	Proportion survived >3 years				
		2002	2003	2004	2005	2006
Alabama	3,370	0.87	0.89	0.89	0.89	0.90
Alaska	183	*	*	*	*	*
Arizona	3,618	0.89	0.89	0.89	0.90	0.90
Arkansas	1,391	0.90	0.91	0.89	0.89	0.90
California	21,943	—	0.91	0.92	0.92	0.93
Colorado	2,131	0.93	0.94	0.96	0.95	0.95
Connecticut	3,033	0.89	0.88	0.92	0.91	0.93
Delaware	1,025	0.88	0.93	0.86	0.86	0.86
District of Columbia	5,094	0.87	0.87	0.87	0.90	0.90
Florida	33,448	0.88	0.88	0.89	0.89	0.89
Georgia	8,677	—	—	0.90	0.91	0.92
Hawaii	564	0.87	0.88	0.91	0.91	0.89
Idaho	174	*	*	*	*	*
Illinois	11,182	0.88	0.90	0.90	0.92	0.92
Indiana	2,582	0.90	0.91	0.91	0.93	0.90
Iowa	526	0.92	0.97	0.92	0.95	0.94
Kansas	784	0.89	0.86	0.93	0.93	0.94
Kentucky	1,592	0.91	0.92	0.93	0.91	0.92
Louisiana	5,288	0.87	0.87	0.87	0.88	0.87
Maine	395	*	*	*	*	*
Maryland	10,131	0.86	0.85	0.91	0.92	0.93
Massachusetts	4,107	0.94	0.94	0.93	0.94	0.94
Michigan	4,233	0.91	0.90	0.90	0.92	0.93
Minnesota	1,665	0.95	0.95	0.94	0.96	0.97
Mississippi	2,552	0.86	0.86	0.86	0.88	0.86
Missouri	2,858	0.91	0.91	0.90	0.93	0.92
Montana	94	*	*	*	*	*
Nebraska	482	*	*	*	*	*
Nevada	1,998	0.88	0.89	0.92	0.90	0.93
New Hampshire	289	*	*	*	*	*
New Jersey	10,004	0.86	0.88	0.87	0.89	0.90
New Mexico	679	0.86	0.90	0.90	0.93	0.87
New York	32,237	0.90	0.91	0.90	0.91	0.93
North Carolina	8,188	0.89	0.89	0.90	0.90	0.92
North Dakota	60	*	*	*	*	*
Ohio	4,974	0.90	0.92	0.92	0.93	0.92
Oklahoma	1,349	0.89	0.89	0.89	0.89	0.92
Oregon	1,416	0.92	0.88	0.90	0.97	0.94
Pennsylvania	4,499	—	—	—	0.91	0.91
Rhode Island	517	0.93	0.89	0.91	0.96	0.93
South Carolina	4,254	0.89	0.88	0.88	0.89	0.88
South Dakota	135	*	*	*	*	*
Tennessee	4,814	0.89	0.89	0.89	0.91	0.94
Texas	22,120	0.90	0.90	0.90	0.90	0.91
Utah	585	0.92	0.93	0.96	0.98	0.96
Vermont	96	*	*	*	*	*
Virginia	5,139	0.92	0.90	0.92	0.92	0.92
Washington	2,761	0.93	0.94	0.92	0.92	0.95
West Virginia	439	*	*	*	*	*
Wisconsin	1,231	0.94	0.96	0.93	0.95	0.95
Wyoming	72	*	*	*	*	*
Subtotal	240,978	0.89	0.90	0.90	0.91	0.91
U.S. dependent areas						
American Samoa	0	*	*	*	*	*
Guam	16	*	*	*	*	*
Northern Mariana Islands	2	*	*	*	*	*
Puerto Rico	6,046	0.79	0.82	0.81	0.84	0.87
Republic of Palau	0	*	*	*	*	*
U.S. Virgin Islands	184	*	*	*	*	*
Total	247,226	0.89	0.89	0.90	0.91	0.91

Abbreviations: dash (—) indicates HIV reporting not implemented; asterisk (*) indicates sample too small (<100 diagnoses per year or <500 diagnoses during the 5-year period) for the calculation of meaningful survival estimates.

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data exclude persons whose month of diagnosis or month of death is unknown.

Table 3b. Persons with HIV surviving more than 3 years after stage 3 (AIDS) classification during 2002–2006, by year and area of residence—United States and 6 U.S. dependent areas

Area of residence	No. of persons	Proportion survived >3 years				
		2002	2003	2004	2005	2006
Alabama	2,217	0.71	0.73	0.75	0.79	0.80
Alaska	137	*	*	*	*	*
Arizona	2,363	0.79	0.80	0.75	0.84	0.81
Arkansas	983	0.80	0.82	0.77	0.77	0.79
California	21,021	0.85	0.87	0.86	0.86	0.88
Colorado	1,559	0.87	0.87	0.88	0.90	0.92
Connecticut	2,460	0.81	0.83	0.85	0.86	0.86
Delaware	796	0.77	0.87	0.80	0.78	0.76
District of Columbia	4,098	0.82	0.80	0.80	0.81	0.80
Florida	22,913	0.77	0.77	0.78	0.80	0.78
Georgia	8,405	0.80	0.82	0.82	0.83	0.84
Hawaii	416	*	*	*	*	*
Idaho	123	*	*	*	*	*
Illinois	6,892	0.79	0.82	0.83	0.85	0.84
Indiana	1,854	0.80	0.82	0.85	0.85	0.81
Iowa	381	*	*	*	*	*
Kansas	554	0.77	0.81	0.89	0.88	0.85
Kentucky	1,068	0.79	0.84	0.86	0.81	0.82
Louisiana	4,367	0.74	0.76	0.74	0.74	0.76
Maine	218	*	*	*	*	*
Maryland	7,558	0.80	0.79	0.85	0.87	0.89
Massachusetts	3,278	0.89	0.89	0.88	0.91	0.92
Michigan	3,120	0.81	0.82	0.82	0.82	0.86
Minnesota	1,071	0.88	0.91	0.89	0.88	0.92
Mississippi	1,968	0.74	0.73	0.77	0.75	0.81
Missouri	2,014	0.86	0.81	0.85	0.85	0.87
Montana	79	*	*	*	*	*
Nebraska	358	*	*	*	*	*
Nevada	1,381	0.76	0.78	0.82	0.83	0.84
New Hampshire	202	*	*	*	*	*
New Jersey	6,960	0.77	0.79	0.78	0.80	0.82
New Mexico	518	0.77	0.86	0.84	0.89	0.78
New York	27,091	0.83	0.86	0.84	0.86	0.86
North Carolina	4,924	0.80	0.78	0.80	0.82	0.83
North Dakota	36	*	*	*	*	*
Ohio	3,297	0.81	0.86	0.81	0.85	0.87
Oklahoma	1,035	0.79	0.78	0.78	0.80	0.85
Oregon	1,163	0.82	0.81	0.85	0.94	0.89
Pennsylvania	7,045	0.79	0.79	0.81	0.84	0.81
Rhode Island	534	0.85	0.85	0.87	0.89	0.92
South Carolina	3,583	0.80	0.80	0.79	0.79	0.79
South Dakota	80	*	*	*	*	*
Tennessee	3,573	0.76	0.79	0.77	0.82	0.87
Texas	14,070	0.79	0.82	0.81	0.82	0.82
Utah	316	*	*	*	*	*
Vermont	70	*	*	*	*	*
Virginia	3,053	0.83	0.83	0.82	0.83	0.81
Washington	2,043	0.88	0.87	0.87	0.88	0.89
West Virginia	372	*	*	*	*	*
Wisconsin	862	0.87	0.86	0.84	0.92	0.86
Wyoming	50	*	*	*	*	*
Subtotal	184,529	0.81	0.82	0.82	0.84	0.84
U.S. dependent areas						
American Samoa	0	*	*	*	*	*
Guam	0	*	*	*	*	*
Northern Mariana Islands	14	*	*	*	*	*
Puerto Rico	4,647	0.60	0.67	0.63	0.69	0.72
Republic of Palau	2	*	*	*	*	*
U.S. Virgin Islands	121	*	*	*	*	*
Total	189,313	0.80	0.82	0.82	0.83	0.84

Abbreviation: asterisk (*) indicates sample too small (<100 diagnoses per year or <500 diagnoses during the 5-year period) for the calculation of meaningful survival estimates.

Note. Data exclude persons whose month of diagnosis or month of death is unknown.

Table 4. Perinatally acquired HIV infection, by year of birth and mother's race/ethnicity, 2007–2009—46 states

Race/ethnicity ^a	2007		2008		2009	
	Est. No.	Rate	Est. No.	Rate	Est. No.	Rate
Black/African American	89	15.2	58	10.0	57	9.9
Hispanic/Latino ^b	22	2.1	18	1.7	17	1.7
White	18	0.8	18	0.8	3	0.1
Total	129	3.4	93	2.5	77	2.1

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Estimated numbers resulted from statistical adjustment that accounted for reporting delays, but not for incomplete reporting. Rates are per 100,000 live births.

^a Live birth data reflect race/ethnicity of the infant's mother.

^b Hispanics/Latinos can be of any race.

Table 5a. Estimated numbers and rates of persons aged 13 years and older living with HIV infection (prevalence), and numbers and percentages whose HIV infection was undiagnosed, by selected characteristics, 2009—United States

	Persons living with HIV (total)				Persons with undiagnosed HIV		
	No.	95% CI	Rate	95% CI	No.	95% CI	%
Sex							
Male	869,000	843,000–895,000	701.0	680.0–722.0	164,900	155,000–174,700	19.0
Female	279,100	263,500–294,800	215.9	203.8–228.0	42,700	37,700–47,800	15.3
Age group (yr)							
13–24	76,400	68,900–83,900	149.2	134.6–163.8	45,500	40,300–50,700	59.5
25–34	175,000	164,000–185,900	421.0	394.6–447.2	49,200	43,800–54,600	28.1
35–44	319,900	304,000–335,800	770.3	732.0–808.6	49,200	43,800–54,600	15.4
45–54	380,900	362,700–399,000	854.2	813.4–894.8	42,600	37,600–47,600	11.2
55–64	155,700	144,300–167,200	447.6	414.8–480.6	16,500	13,400–19,700	10.6
≥65	40,300	34,700–45,800	101.8	87.7–115.7	4,500	2,900–6,200	11.3
Race/ethnicity							
American Indian/Alaska Native	4,300	3,500–5,100	228.2	185.7–270.6	1,100	600–1,500	24.7
Asian ^a	15,400	12,100–18,800	136.0	106.8–166.0	4,200	3,100–5,400	27.4
Black/African American	510,600	490,000–531,300	1,685.3	1,617.3–1,753.6	99,200	91,100–107,200	19.4
Hispanic/Latino ^b	220,400	205,400–235,300	617.4	575.4–659.2	43,300	38,000–48,600	19.7
Native Hawaiian/Other Pacific Islander	1,400	800–2,000	391.9	224.0–559.9	400	100–600	26.5
White	380,300	362,100–398,500	222.7	212.0–233.4	56,300	50,200–62,300	14.8
Multiple races	15,700	13,800–17,700	537.5	472.4–605.9	3,200	2,200–4,200	20.1
Transmission category							
Male-to-male sexual contact	592,100	569,800–614,500	—	—	123,500	114,500–132,500	20.9
Injection drug use							
Males	113,200	102,800–123,500	—	—	11,300	8,600–14,000	10.0
Females	70,200	61,400–79,000	—	—	6,200	4,200–8,200	8.8
Male-to-male sexual contact and injection drug use	60,200	52,500–67,900	—	—	5,500	3,600–7,300	9.1
Heterosexual contact ^c							
Males	100,600	91,700–109,400	—	—	24,500	20,500–28,500	24.4
Females	207,100	193,300–220,900	—	—	36,400	31,600–41,300	17.6
Other ^d	4,800	3,800–5,700	—	—	300	100–500	5.5
Total	1,148,200	1,117,800–1,178,500	453.4	441.4–465.3	207,600	196,500–218,700	18.1

Abbreviation: CI, confidence interval.

Note. Estimates were derived by using extended back-calculation on HIV and AIDS data for persons aged 13 years and older at diagnosis from 46 states that have had confidential name-based HIV infection reporting since at least January 2007 and on AIDS data from 5 areas (Hawaii, Maryland, Massachusetts, Vermont, and the District of Columbia). Rates are per 100,000 population. Rates are not calculated by transmission category because of the lack of denominator data.

^a Includes Asian/Pacific Islander legacy cases (see Technical Notes).

^b Hispanics/Latinos can be of any race.

^c Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^d Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Table 5b. Estimated numbers of persons aged 13 years and older living with HIV infection (prevalence), and percentages whose HIV infection was diagnosed, 2006–2009—United States

	Persons living with HIV		Persons with diagnosed HIV	
	No.	95% CI	%	95% CI
2006				
Sex				
Male	798,400	772,300–824,500	79.9	78.8–81.1
Female	262,700	247,200–278,300	82.5	80.5–84.3
Age group (yr)				
13–24	55,300	49,200–61,500	44.0	38.4–49.7
25–34	169,900	158,800–180,900	70.6	67.7–73.3
35–44	373,000	355,200–390,900	83.1	81.5–84.6
45–54	323,200	305,800–340,600	86.6	85.0–88.1
55–64	111,500	101,100–122,000	86.9	84.1–89.3
≥65	28,200	22,700–33,700	85.4	79.1–90.1
Race/ethnicity				
American Indian/Alaska Native	3,700	3,000–4,500	77.0	66.0–85.3
Asian ^a	12,500	9,500–15,600	70.4	60.6–78.6
Black/African American	468,200	447,500–488,800	79.4	77.8–81.0
Hispanic/Latino ^b	200,900	186,100–215,600	78.5	75.9–81.0
Native Hawaiian/Other Pacific Islander	1,200	700–1,800	65.1	44.4–81.4
White	359,200	340,800–377,700	83.8	82.1–85.4
Multiple races	15,400	13,300–17,500	77.7	71.1–83.1
Transmission category				
Male-to-male sexual contact	522,400	500,500–544,200	78.2	76.6–79.7
Injection drug use				
Males	120,100	108,800–131,400	87.7	84.9–90.0
Females	73,500	64,200–82,800	89.0	85.5–91.7
Male-to-male sexual contact and injection drug use	61,500	53,400–69,600	89.3	85.5–92.2
Heterosexual contact ^c				
Males	91,100	82,400–99,800	73.1	69.0–76.9
Females	187,300	174,000–200,600	79.9	77.3–82.3
Other ^d	5,300	4,200–6,400	90.3	83.5–94.4
Total	1,061,100	1,030,800–1,091,500	80.6	79.6–81.5

Table 5b. Estimated numbers of persons aged 13 years and older living with HIV infection (prevalence), and percentages whose HIV infection was diagnosed, 2006–2009—United States (cont)

	Persons living with HIV		Persons with diagnosed HIV	
	No.	95% CI	%	95% CI
2007				
Sex				
Male	822,500	796,400–848,500	80.4	79.3–81.5
Female	268,300	252,700–284,000	83.6	81.7–85.4
Age group (yr)				
13–24	63,000	56,500–69,500	40.7	35.6–46.0
25–34	169,600	158,700–180,400	71.3	68.5–74.0
35–44	357,200	340,100–374,400	83.9	82.3–85.4
45–54	343,400	325,700–361,100	87.7	86.2–89.0
55–64	125,500	114,500–136,400	88.2	85.7–90.3
≥65	32,100	26,400–37,800	87.2	81.5–91.2
Race/ethnicity				
American Indian/Alaska Native	3,900	3,200–4,700	76.3	65.5–84.5
Asian ^a	13,500	10,400–16,700	72.0	62.7–80.0
Black/African American	482,500	461,800–503,200	80.0	78.4–81.5
Hispanic/Latino ^b	207,500	192,800–222,300	79.3	76.7–81.7
Native Hawaiian/Other Pacific Islander	1,300	700–1,800	68.1	47.8–83.2
White	366,600	348,300–384,900	84.5	82.9–86.1
Multiple races	15,500	13,400–17,600	78.9	72.5–84.1
Transmission category				
Male-to-male sexual contact	546,000	524,100–567,900	78.5	77.0–80.0
Injection drug use				
Males	117,800	106,800–128,800	88.8	86.1–91.0
Females	72,400	63,300–81,600	90.1	86.6–92.6
Male-to-male sexual contact and injection drug use	61,100	53,100–69,000	90.2	86.5–92.9
Heterosexual contact ^c				
Males	94,400	85,600–103,200	74.4	70.5–78.1
Females	194,000	180,500–207,500	81.2	78.7–83.5
Other ^d	5,100	4,100–6,100	92.0	85.4–95.7
Total	1,090,800	1,060,500–1,121,200	81.2	80.3–82.2

Table 5b. Estimated numbers of persons aged 13 years and older living with HIV infection (prevalence), and percentages whose HIV infection was diagnosed, 2006–2009—United States (cont)

	Persons living with HIV		Persons with diagnosed HIV	
	No.	95% CI	%	95% CI
2008				
Sex				
Male	846,200	820,200–872,300	80.9	79.8–81.9
Female	273,900	258,300–289,600	84.6	82.7–86.2
Age group (yr)				
13–24	71,000	63,600–78,300	40.6	35.5–46.0
25–34	171,200	160,300–182,000	72.0	69.2–74.7
35–44	339,300	322,700–355,900	84.5	82.9–86.0
45–54	363,100	345,300–380,900	88.4	87.0–89.7
55–64	139,500	128,300–150,700	89.2	86.9–91.1
≥65	36,200	30,300–42,000	88.2	83.2–91.9
Race/ethnicity				
American Indian/Alaska Native	4,100	3,300–4,900	76.2	65.7–84.3
Asian ^a	14,500	11,200–17,700	72.8	64.0–80.1
Black/African American	496,900	476,100–517,600	80.6	79.0–82.0
Hispanic/Latino ^b	213,900	199,200–228,700	79.9	77.4–82.1
Native Hawaiian/Other Pacific Islander	1,400	800–1,900	71.2	51.4–85.3
White	373,700	355,500–392,000	85.0	83.4–86.5
Multiple races	15,700	13,600–17,700	79.9	73.7–85.0
Transmission category				
Male-to-male sexual contact	569,500	547,400–591,500	78.9	77.4–80.3
Injection drug use				
Males	115,500	104,800–126,200	89.6	87.0–91.8
Females	71,300	62,300–80,300	90.9	87.5–93.3
Male-to-male sexual contact and injection drug use	60,700	52,900–68,600	90.8	87.1–93.4
Heterosexual contact ^c				
Males	97,500	88,600–106,400	75.5	71.7–79.0
Females	200,800	187,100–214,500	82.3	79.8–84.4
Other ^d	4,900	3,900–5,900	93.6	87.2–96.8
Total	1,120,200	1,089,800–1,150,500	81.8	80.8–82.7

Table 5b. Estimated numbers of persons aged 13 years and older living with HIV infection (prevalence), and percentages whose HIV infection was diagnosed, 2006–2009—United States (cont)

	Persons living with HIV		Persons with diagnosed HIV	
	No.	95% CI	%	95% CI
2009				
Sex				
Male	869,000	843,000–895,000	81.0	80.0–82.1
Female	279,100	263,500–294,800	84.7	82.9–86.3
Age group (yr)				
13–24	76,400	68,900–83,900	40.5	35.6–45.6
25–34	175,000	164,000–185,900	71.9	69.1–74.5
35–44	319,900	304,000–335,800	84.6	83.0–86.2
45–54	380,900	362,700–399,000	88.8	87.5–90.0
55–64	155,700	144,300–167,200	89.4	87.3–91.2
≥65	40,300	34,700–45,800	88.7	84.2–92.1
Race/ethnicity				
American Indian/Alaska Native	4,300	3,500–5,100	75.3	65.2–83.2
Asian ^a	15,400	12,100–18,800	72.6	64.1–79.7
Black/African American	510,600	490,000–531,300	80.6	79.1–82.0
Hispanic/Latino ^b	220,400	205,400–235,300	80.3	77.9–82.5
Native Hawaiian/Other Pacific Islander	1,400	800–2,000	73.5	54.6–86.5
White	380,300	362,100–398,500	85.2	83.6–86.7
Multiple races	15,700	13,800–17,700	79.9	73.7–84.9
Transmission category				
Male-to-male sexual contact	592,100	569,800–614,500	79.1	77.7–80.5
Injection drug use				
Males	113,200	102,800–123,500	90.0	87.4–92.1
Females	70,200	61,400–79,000	91.2	87.9–93.6
Male-to-male sexual contact and injection drug use	60,200	52,500–67,900	90.9	87.4–93.6
Heterosexual contact ^c				
Males	100,600	91,700–109,400	75.6	71.9–79.0
Females	207,100	193,300–220,900	82.4	80.1–84.5
Other ^d	4,800	3,800–5,700	94.5	88.3–97.5
Total	1,148,200	1,117,800–1,178,500	81.9	81.0–82.8

Abbreviation: CI, confidence interval.

Note. Estimates were derived by using extended back-calculation on HIV and AIDS data for persons aged 13 years and older at diagnosis from 46 states that have had confidential name-based HIV infection reporting since at least January 2007 and on AIDS data from 5 areas (Hawaii, Maryland, Massachusetts, Vermont, and the District of Columbia).

^a Includes Asian/Pacific Islander legacy cases (see Technical Notes).

^b Hispanics/Latinos can be of any race.

^c Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^d Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Table 6. Annual HIV transmission rates [T(x)] per 100 persons living with HIV, 2006–2009—United States

	HIV incidence ^a I(x)		HIV prevalence ^b P(x)		HIV transmission rate ^c T(x)
	No.	95% CI	No.	95% CI	
2006	48,600	42,400–54,700	1,061,100	1,030,800–1,091,500	4.58
2007	56,000	49,100–62,900	1,090,800	1,060,500–1,121,200	5.13
2008	47,800	41,800–53,800	1,120,200	1,089,800–1,150,500	4.27
2009	48,100	42,200–54,000	1,148,200	1,117,800–1,178,500	4.19

Abbreviation: CI, confidence interval.

^a Prejean J, Song R, Hernandez A, et al. Estimated HIV incidence in the United States, 2006–2009. *PLoS One* 2011;6(8):e17502.

^b Estimated number of persons aged 13 years and older living with HIV infection (diagnosed and undiagnosed).

^c $T(x) = [I(x)/P(x)] * 100$.