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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 B

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

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# Commentary

In June 2012, the Division of HIV/AIDS Prevention (DHAP) of the Centers for Disease Control and Prevention (CDC) released part A of an *HIV Surveillance Supplemental Report* presenting the results of focused analyses of data from the National HIV Surveillance System to measure progress toward achieving selected objectives of the *National HIV/AIDS Strategy for the United States* (NHAS) and the DHAP Strategic Plan. The current report, part B, presents the results of analyses measuring progress toward achieving additional objectives of the NHAS and the DHAP Strategic Plan.

The NHAS, released by the White House in July 2010, outlines 3 goals for a coordinated national response to HIV in the United States: (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. The DHAP Strategic Plan, which is aligned with the NHAS, 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, including 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. Some data essential for monitoring progress toward achieving the NHAS and DHAP Strategic Plan objectives have been, and will be, reported in other publications.

This report illustrates how data from the National HIV Surveillance System can be used to assess progress on selected key objectives. Specific objectives measured in this report 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) (DHAP Strategic Plan)
- Increase to 85% the percentage of persons linked to HIV medical care within 3 months after diagnosis of HIV infection (NHAS and DHAP Strategic Plan)
- Increase to 75% or more the percentage of persons of all races/ethnicities who have a CD4+ T-lymphocyte (CD4) or viral load test result within 3 months after HIV diagnosis (DHAP Strategic Plan)
- Increase the percentage of persons with HIV who receive regular HIV medical care (NHAS and DHAP Strategic Plan)
- Increase by 10% the percentage of persons in HIV care whose most recent viral load test result was undetectable (DHAP Strategic Plan)
- 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 (NHAS and DHAP Strategic Plan)
- Reduce the number of deaths among persons with HIV infection (any stage) (DHAP Strategic Plan)
- Reduce by 30% the rate of HIV transmission (NHAS and DHAP Strategic Plan)

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. Although most jurisdictions have regulations that require laboratories and providers to report at least a subset of CD4 and viral load test results to health departments, not all areas have mandatory reporting of all levels of CD4 and viral load (i.e., detectable and undetectable) results. As of December 2011, 14 jurisdictions (12 states and 2 cities) required reporting of all CD4 and viral load test results and had reported to CDC all the test results they had received since at least January 2009.

This surveillance supplemental report (part B) complements the 2010 *HIV Surveillance Report* and part A of the surveillance supplemental report by presenting the results of additional focused analyses to measure progress toward achieving selected objectives of the NHAS and the DHAP Strategic Plan. In this report, data from the 14 jurisdictions that reported complete CD4 and viral load laboratory results were used for the analyses that require complete laboratory data. 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 or have not been tested at a time when the infection could be detected and diagnosed.

In addition to laboratory data, deaths per 1,000 persons living with HIV infection are presented. For these analyses, **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 by 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. Unadjusted numbers are presented for all 50 states, the District of Columbia, and 6 U.S. dependent areas.

Finally, this report updates the U.S. rates of HIV transmission published in part A. Annual rates of HIV transmission in the United States were calculated by using the prevalence estimates published in part A, as well as updated HIV incidence estimates (new infections).

## Report Format

The data tables are organized as follows:

1. Stage of disease at diagnosis of HIV infection (Tables 1a/b)
2. Linkage to, and retention in, HIV medical care (Tables 2a/b–3a/b)
3. Viral suppression among persons with a diagnosis of HIV infection (Tables 4a/b)
4. Deaths per 1,000 persons with a diagnosis of HIV infection (Table 5)
5. Annual rates of HIV transmission (Table 6)

This report also includes a table summarizing the status of HIV-related CD4 and viral load reporting regulations or laws as of September 2012 (Table 7).

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

## Highlights of Analyses

### Stage of Disease at Diagnosis of HIV Infection

Stage of disease at diagnosis (i.e., HIV infection, stage 1, 2, 3 [AIDS], or unknown at the time of HIV diagnosis [i.e., within 3 months after HIV diagnosis]) was based on data for persons with HIV infection diagnosed during 2010 in the 14 jurisdictions that reported all CD4 and viral load test results to CDC. Of the 6,674 persons whose infection was diagnosed during 2010, 19.4% had a stage 1 classification, 27.7% had a stage 2 classification, and 25.5% had a stage 3 (AIDS) classification at the time of diagnosis (Table 1a). For 27.3% of persons whose infection was diagnosed during 2010, the stage of disease was classified as unknown (CD4 information was unavailable).

- **Age group**: The highest percentage of persons whose infection was diagnosed at an earlier stage (stage 1 or 2) of HIV disease was for persons aged 13–24 years at diagnosis (22.6%, stage 1; 32.7%, stage 2), followed by that for persons aged 25–34 years at diagnosis (19.6%, stage 1; 29.3%, stage 2). In general, the percentages decreased as age increased. However, for persons without CD4 information, the higher percentages were for persons in younger age groups.
- **Race/ethnicity**: Generally, the stages of disease at diagnosis were evenly distributed for whites (23.0%, stage 1; 25.3%, stage 2; 25.3%, stage 3 [AIDS]; and 26.3%, stage unknown) and for persons of multiple races (23.7%, stage 1; 29.5%, stage 2; 22.4%, stage 3 [AIDS]; and 24.4%, stage unknown). More variation occurred among the percentages of persons of other races/ethnicities. For example, lower percentages of blacks/African Americans (17.5%) and Hispanics/Latinos (16.6%) had stage 1 disease at diagnosis. The highest percentage of persons whose infection was classified as stage unknown was for blacks/African Americans (29.6%). Relatively high percentages of Hispanics/Latinos had stage 2 (29.0%) or stage 3 (31.3%) disease, and a moderate percentage (23.1%) had a classification of stage unknown.
- **Transmission category**: The highest percentages of persons whose infection was diagnosed at an earlier stage (stage 1 or 2) of HIV disease were for males with infection attributed to male-to-male

sexual contact *and* injection drug use (28.4%, stage 1; 22.8%, stage 2) and females with infection attributed to heterosexual contact (21.2%, stage 1; 29.5%, stage 2). The lowest percentages were for males with infection attributed to injection drug use (17.7%, stage 1; 20.6%, stage 2) and males with infection attributed to heterosexual contact (14.8%, stage 1; 26.7%, stage 2).

## Linkage to HIV Medical Care within 3 Months after a Diagnosis of HIV Infection

Linkage to HIV medical care was based on data for persons with HIV infection diagnosed during 2010 in the 14 jurisdictions that reported all CD4 and viral load test results to CDC. Linkage to HIV medical care was measured by documentation of at least 1 CD4 or viral load test performed within 3 months after HIV diagnosis. Of the 6,674 persons whose infection was diagnosed during 2010, 80.3% were linked to HIV medical care within 3 months after HIV diagnosis (Table 2a).

The following percentages are for persons who were linked to HIV medical care within 3 months after HIV diagnosis.

- **Age group**: The highest percentage was for persons aged 45–54 years (84.1%). The lowest percentage was for persons aged 13–24 years (75.5%), followed by that for persons aged 25–34 years (78.5%).
- **Race/ethnicity**: The highest percentage was for Asians (91.8%). The percentages for persons of other races/ethnicities were 83.5%, whites; 83.1%, Hispanics/Latinos; 82.7%, persons of multiple races; 76.9%, blacks/African Americans; and 75.0%, American Indians/Alaska Natives. Of the 5 Native Hawaiians/other Pacific Islanders whose infection was diagnosed during 2010, all were linked to care within 3 months after diagnosis.
- **Transmission category**: The highest percentage was for males with infection attributed to male-to-male sexual contact *and* injection drug use (83.4%), followed by that for females with infection attributed to heterosexual contact (82.4%). The lowest percentages were for males with infection attributed to injection drug use (78.0%) and males with infection attributed to heterosexual contact (79.1%).

## Retention in HIV Medical Care

Retention in HIV medical care was based on data for persons with HIV infection diagnosed by year-end 2008 and alive at year-end 2009 in the 14 jurisdictions that reported all CD4 and viral load test results to CDC. Retention in care was measured by documentation of 2 or more CD4 or viral load tests performed at least 3 months apart during 2009. During 2009, 42.6% of 129,398 persons received ongoing HIV medical care (Table 3a).

The following percentages are for persons who received ongoing HIV medical care.

- **Age group**: The highest percentage was for persons aged 55 years and older (44.6%). In general, the percentage increased as age increased (e.g., 38.3%, persons aged 13–24 years; 44.6%, persons aged 55 years and older).
- **Race/ethnicity**: The highest percentage was for persons of multiple races (62.2%), followed by whites (47.6%), Asians (47.1%), Native Hawaiians/other Pacific Islanders (44.3%), Hispanics/Latinos (40.7%), American Indians/Alaska Natives (38.4%), and blacks/African Americans (37.7%).
- **Transmission category**: The highest percentage was for males with infection attributed to male-to-male sexual contact *and* injection drug use (46.1%), followed by that for males with infection attributed to male-to-male sexual contact (43.6%). The lowest percentages were for males with infection attributed to injection drug use (36.1%), males with infection attributed to heterosexual contact (41.0%), and females with infection attributed to injection drug use (41.0%).

## Viral Suppression among Persons with a Diagnosis of HIV Infection

Viral suppression was based on data for persons with HIV infection diagnosed by year-end 2008 and alive at year-end 2009 in the 14 jurisdictions that reported all CD4 and viral load test results to CDC. Viral suppression was measured by a viral load result of ≤200 copies/mL at the most recent viral load test during 2009. During 2009, 66,667 of 129,398 (51.5%) had at least 1 viral load test. At the most recent viral load test during 2009, viral load was suppressed in 46,817 of 66,667 (70.2%). However, these 46,817 persons with suppressed viral load represented only 36.2% of the

total number of persons with an HIV diagnosis by year-end 2008 and alive at year-end 2009 in the 14 jurisdictions (Table 4a).

The following percentages are for persons whose most recent viral load test indicated viral suppression (of the subsets of persons who had at least 1 viral load test during 2009).

- **Age group**: The percentage of persons with suppressed viral load increased as age increased (45.5%, persons aged 13–24 years; 81.5%, persons aged 55 years and older).
- **Race/ethnicity**: The percentage was highest for Asians (82.0%), followed by whites (78.3%), Native Hawaiians/other Pacific Islanders (77.5%), Hispanics/Latinos (71.4%), persons of multiple races (67.6%), American Indians/Alaska Natives (65.2%) and blacks/African Americans (61.3%).
- **Transmission category**: The percentage was highest for males with infection attributed to male-to-male sexual contact (74.8%), followed by males with infection attributed to heterosexual contact (67.1%). The lowest percentages were for females with infection attributed to injection drug use (62.2%) and females with infection attributed to heterosexual contact (64.7%).

### Viral suppression among gay, bisexual, and other men who have sex with men

Of the 66,015 males with infection attributed to male-to-male sexual contact, 35,251 (53.4%) had at least 1 viral load test during 2009 (Table 4a). Of those, 26,363 (74.8%) had suppressed viral load (≤200 copies/mL) at their most recent test. However, these 26,363 males with suppressed viral load represented only 39.9% of the total number of males whose infection was attributed to male-to-male sexual contact, whose infection had been diagnosed by year-end 2008, and who were alive at year-end 2009 in the 14 jurisdictions.

### Viral suppression among blacks/African Americans

Of 57,948 blacks/African Americans, 27,006 (46.6%) had at least 1 viral load test during 2009 (Table 4a). Of those, 16,554 (61.3%) had suppressed viral load (≤200 copies/mL) at their most recent test. However, these 16,554 blacks/African Americans with suppressed viral load represented only 28.6% of the total number of blacks/African Americans whose infection had been diagnosed by year-end 2008 and who were alive at year-end 2009 in the 14 jurisdictions.

### Viral suppression among Hispanics/Latinos

Of 17,068 Hispanics/Latinos, 7,974 (46.7%) had at least 1 viral load test during 2009 (Table 4a). Of those, 5,691 (71.4%) had suppressed viral load (≤200 copies/mL) at their most recent test. However, these 5,691 Hispanics/Latinos with suppressed viral load represented only 33.3% of the total number of Hispanics/Latinos whose infection had been diagnosed by year-end 2008 and who were alive at year-end 2009 in the 14 jurisdictions.

## Deaths

The annual rate of death (per 1,000 persons living with a diagnosis of HIV infection) decreased 6% from 2007 through 2009 in the 46 states and 5 U.S. dependent areas; however, trends in rates varied by area of residence. In 2009, the overall estimated rate of death in the 46 states and 5 dependent areas was 24.7 per 1,000 persons living with a diagnosis of HIV infection (Table 5).

## Annual HIV Transmission Rate

In 2009, the rate of HIV transmission (per 100 persons living with HIV) was 3.92 (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 October 27, 2012.

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# Technical Notes

## Surveillance of HIV Infection

This report includes data reported to CDC through December 31, 2011, from all 50 states, the District of Columbia, and 6 U.S. dependent areas (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 or have not been tested at a time when the infection could be detected and diagnosed. 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.

Laboratory data for persons with HIV infection should also be interpreted with caution. Laboratory data presented in this report are from 14 jurisdictions (12 states and 2 cities) with complete CD4 and viral load reporting as of December 2011. The reports from these 14 jurisdictions represent 16% of data on diagnoses of HIV infection among persons aged 13 years and older during 2010 in the United States. Therefore, these data are not representative of all diagnoses in the United States.

### 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]. 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) in Table 5 (deaths of persons with HIV infection).

The data used to estimate the number of deaths of persons living with a diagnosis of HIV infection (Table 5) 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).

### Areas with Complete Laboratory Reporting

As of December 2011, 14 jurisdictions (12 states and 2 separately funded cities) had met the following criteria for the collection and reporting of CD4 and viral load test results:

- The jurisdiction's laws/regulations required the reporting of all CD4 and viral load results to the state/city health department.
- A minimum of 95% of laboratories that perform HIV-related testing in each jurisdiction sent laboratory reports to the state/city health department.
- By December 2011, the jurisdiction had reported all CD4 and viral load test results to CDC for laboratory reports received since at least January 2009.

The 12 states are Delaware, Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, New York (exclud-

ing New York City), North Dakota, South Carolina, West Virginia, and Wyoming. The 2 cities are the District of Columbia and San Francisco, California. Data from these jurisdictions were used to populate Tables 1a/b, 2a/b, 3a/b, and 4a/b.

## Tabulation and Presentation of Data

Data in this report are organized as follows:

- **Stage of disease at diagnosis**: Tables 1a/b present numbers and percentages of persons by stage of disease (stage 1, 2, 3 [AIDS], or unknown) at the time of HIV diagnosis (i.e., within 3 months after HIV diagnosis) in 14 jurisdictions with complete laboratory reporting.
- **Linkage to, and retention in, HIV medical care**: Tables 2a/b present numbers and percentages of persons with CD4 or viral load tests performed within 3 months after a diagnosis of HIV infection. Tables 3a/b present numbers and percentages of persons with multiple care visits during the year.
- **Viral suppression**: Tables 4a/b present numbers and percentages of persons whose most recent viral load test in 2009 indicated viral suppression (≤200 copies/mL).
- **Deaths**: Table 5 presents numbers (unadjusted) and statistically adjusted (estimated) numbers and rates (based on estimated numbers) of deaths of persons with a diagnosis of HIV infection. Rates are per 1,000 persons living with HIV infection.
- **Annual rates of HIV transmission**: Table 6 presents the annual rates of HIV transmission per 100 persons living with HIV infection.
- **Laboratory reporting by HIV surveillance programs**: Table 7 displays the status of CD4 and viral load reporting in HIV surveillance reporting areas as of September 2012.

### 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 ≥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 or CD4 percentage of total lymphocytes of <14 or documentation of an AIDS-defining condition. Documentation of an AIDS-defining condition supersedes a CD4 count or percentage that would not, by itself, be the basis for a stage 3 (AIDS) classification.
- **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).

In this report, stage of disease at HIV diagnosis (Tables 1a/b) was determined by using the first CD4 test result or the presence of an AIDS-defining condition within (≤) 3 months after the HIV diagnosis date. If 2 or more events occurred during the same month and could thus qualify as "first," the following conditions were applied:

- If an AIDS-defining condition was present, the AIDS-defining condition was used; if a CD4 count or a CD4 percentage had been reported and an AIDS-defining condition was present, the AIDS-defining condition was used.
- If an AIDS-defining condition was not present, but a CD4 count and a CD4 percentage had been reported, the CD4 count was used.
- If an AIDS-defining condition was not present, but more than 1 CD4 count had been reported, the most severe (smallest) CD4 count was used.
- If an AIDS-defining condition was not present and a CD4 count had not been reported, but a CD4 percentage had been reported, the CD4 percentage was used.

Infections were classified as "stage unknown" if the month of HIV diagnosis was missing, or if, within 3 months after HIV diagnosis, neither a CD4 count nor

a CD4 percentage had been determined and no AIDS-defining condition was present.

### Linkage to, and Retention in, HIV Medical Care

National guidelines for the clinical care and treatment of adults and adolescents with HIV [3] recommend CD4 and viral load testing during the first care visit after HIV diagnosis to direct the course of treatment. For persons on a stable antiretroviral therapy regimen, viral load testing is recommended every 3 to 6 months after HIV diagnosis, and CD4 testing is recommended every 6 to 12 months, at a minimum, in order to monitor the progression of disease and the response to treatment.

The data on linkage to HIV medical care were based on persons whose infection was diagnosed during 2010 and who resided in any of the 14 jurisdictions at the time of diagnosis (Tables 2a/b). Linkage to care was measured by documentation of at least 1 CD4 (count or percentage) or viral load test performed within 3 months after HIV diagnosis, including tests performed during the month of diagnosis.

Retention in HIV medical care was based on persons whose infection was diagnosed by year-end 2008, who resided in any of the 14 jurisdictions at the time of diagnosis, and who were alive at year-end 2009 (Tables 3a/b). Retention in care was measured by documentation of 2 or more CD4 or viral load tests performed at least 3 months apart during 2009. This definition is used by the Health Resources and Services Administration (HRSA) as a clinic performance measure for Ryan White programs [4] and as an indicator of care in the NHAS [5].

For analyses of linkage to, and retention in, care, the month and the year of the earliest HIV-positive test reported to the surveillance system were used to determine the diagnosis date. Data were excluded if the month of the diagnosis or the date of death was missing. Test results were excluded if the month of the sample collection was missing.

### Viral Suppression

Viral suppression was measured among persons whose infection was diagnosed by year-end 2008, who resided in any of the 14 jurisdictions at the time of diagnosis, and who were alive at year-end 2009. Viral suppression was measured by a viral load result of ≤200 copies/mL at the most recent viral load test during 2009. The cut-off value of ≤200 copies/mL was based on the DHHS-recommended definition of virologic failure (i.e., >200 copies/mL) [3]. If multiple viral load tests were performed during the same month and could thus qualify as "most recent," the highest viral load (most severe) was selected. If the numerical result was missing or the result was a LOG value, the interpretation of the result (e.g., below limit) was used to determine viral suppression.

### Deaths

Persons whose cases are reported to the National HIV Surveillance System are assumed to be alive unless their deaths have been reported to CDC. Death data were based on deaths of persons with a diagnosis of HIV infection, 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 for the most recent year are subject to uncertainty.

### 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 [6–10], or

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

### Age

All tables in this report reflect data for persons aged 13 years and older.

- Tables 3a/b and 4a/b (persons living with a diagnosis of HIV infection): age was based on the person's age at year-end 2009.
- Table 5 (deaths of persons with HIV infection): age was based on the person's age at the time of death.
- All other tables: age was based on the person's age at the time of HIV diagnosis.

### Race and Ethnicity

In the *Federal Register* for October 30, 1997 [11], 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 [11].

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.

## 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 1 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 1 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 have ever had sexual contact with other men (i.e., homosexual contact) and men who have 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 have ever had heterosexual contact with a person known to have, or to be at high risk for, HIV infection (e.g., an injection drug user).

Cases of HIV infection reported without a risk factor listed in the hierarchy of transmission categories are classified as "no risk factor reported or identified" [12]. Cases with no identified risk factor include cases that are being followed up by local health department staff; cases in persons whose risk-factor information is missing because they died, declined to be interviewed, or were lost to follow-up; and cases in 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 cases in persons with diagnosed HIV infection are reported to CDC without an identified risk factor, multiple imputation is used to assign a transmission category [13]. Multiple imputation is a statistical approach in which each missing transmission category is replaced with a set of plausible values that represent the uncertainty about the true, but missing, value [14]. The plausible values are analyzed by using standard procedures, and the results of 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; for some, delays in reporting have been as long as several years. The statistical adjustment of the data on

deaths 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, HIV transmission categories, geographic area (reporting city, state, or territory; region of residence; 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 of deaths per 1,000 persons living with a diagnosis of HIV infection were calculated by dividing the estimated total number of deaths of persons with a diagnosis of HIV infection during the calendar year by the sum of the estimated number of persons living with a diagnosis of HIV infection at the end of the previous calendar year plus the number of diagnoses of HIV infection during the current calendar year; the result was then multiplied by 1,000.

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 [15]. 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 [16].

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**Table 1a. Stage of disease at diagnosis of HIV infection during 2010, among persons aged 13 years and older, by selected characteristics—14 U.S. jurisdictions**

| | Total | Stage 1 (CD4 ≥500 cells/μL or >29%) | | Stage 2 (CD4 200–499 cells/μL or 14%–28%) | | Stage 3 (AIDS) (OI or CD4 <200 cells/μL or <14%) | | Stage unknown (No CD4 information) | |
|---|---|---|---|---|---|---|---|---|---|
| | No. | No. | % | No. | % | No. | % | No. | % |
| **Sex** | | | | | | | | | |
| Male | 5,267 | 996 | 18.9 | 1,455 | 27.6 | 1,344 | 25.5 | 1,472 | 27.9 |
| Female | 1,407 | 301 | 21.4 | 395 | 28.1 | 358 | 25.4 | 353 | 25.1 |
| **Age at diagnosis (yr)** | | | | | | | | | |
| 13–24 | 1,493 | 338 | 22.6 | 488 | 32.7 | 163 | 10.9 | 504 | 33.8 |
| 25–34 | 1,818 | 357 | 19.6 | 533 | 29.3 | 394 | 21.7 | 534 | 29.4 |
| 35–44 | 1,536 | 280 | 18.2 | 376 | 24.5 | 495 | 32.2 | 385 | 25.1 |
| 45–54 | 1,280 | 225 | 17.6 | 328 | 25.6 | 447 | 34.9 | 280 | 21.9 |
| ≥55 | 547 | 97 | 17.7 | 125 | 22.9 | 203 | 37.1 | 122 | 22.3 |
| **Race/ethnicity** | | | | | | | | | |
| American Indian/Alaska Native | 28 | 7 | 25.0 | 6 | 21.4 | 7 | 25.0 | 8 | 28.6 |
| Asian | 122 | 24 | 19.7 | 41 | 33.6 | 37 | 30.3 | 20 | 16.4 |
| Black/African American | 3,378 | 591 | 17.5 | 972 | 28.8 | 816 | 24.2 | 999 | 29.6 |
| Hispanic/Latino[a] | 793 | 132 | 16.6 | 230 | 29.0 | 248 | 31.3 | 183 | 23.1 |
| Native Hawaiian/Other Pacific Islander | 5 | 1 | 20.0 | 0 | 0.0 | 4 | 80.0 | 0 | 0.0 |
| White | 2,192 | 505 | 23.0 | 555 | 25.3 | 555 | 25.3 | 577 | 26.3 |
| Multiple races | 156 | 37 | 23.7 | 46 | 29.5 | 35 | 22.4 | 38 | 24.4 |
| **Transmission category** | | | | | | | | | |
| Male-to-male sexual contact | 4,109 | 783 | 19.1 | 1,176 | 28.6 | 968 | 23.6 | 1,182 | 28.8 |
| Injection drug use | | | | | | | | | |
| Male | 332 | 59 | 17.7 | 68 | 20.6 | 125 | 37.5 | 80 | 24.2 |
| Female | 195 | 44 | 22.7 | 37 | 19.2 | 67 | 34.1 | 47 | 24.1 |
| Male-to-male sexual contact and injection drug use | 238 | 68 | 28.4 | 54 | 22.8 | 62 | 25.9 | 55 | 22.9 |
| Heterosexual contact[b] | | | | | | | | | |
| Male | 584 | 87 | 14.8 | 156 | 26.7 | 187 | 32.0 | 155 | 26.5 |
| Female | 1,208 | 257 | 21.2 | 356 | 29.5 | 289 | 23.9 | 306 | 25.3 |
| **Total[c]** | **6,674** | **1,297** | **19.4** | **1,850** | **27.7** | **1,702** | **25.5** | **1,825** | **27.3** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/μL) or percentage; OI, opportunistic infection (i.e., AIDS-defining condition).

*Note*. Stage of disease at diagnosis of HIV infection based on first CD4 test performed or OI present within 3 months after a diagnosis of HIV infection. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

Data by transmission category have been statistically adjusted to account for missing transmission category. Data not shown for diagnosed infections attributed to hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified because the numbers were too small to be meaningful.

[a] Hispanics/Latinos can be of any race.

[b] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[c] Includes 8 persons with diagnosed infection attributed to hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or identified.

**Table 1b. Stage of disease at diagnosis of HIV infection during 2010, among persons aged 13 years and older, by area of residence—14 U.S. jurisdictions**

| | | Stage 1 | | Stage 2 | | Stage 3 (AIDS) | | Stage unknown | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | (CD4 ≥500 cells/µL or >29%) | | (CD4 200–499 cells/µL or 14%–28%) | | (OI or CD4 <200 cells/µL or <14%) | | (No CD4 information) | |
| Area of residence | No. | No. | % | No. | % | No. | % | No. | % |
| Delaware | 137 | 27 | 19.7 | 41 | 29.9 | 44 | 32.1 | 25 | 18.2 |
| District of Columbia | 842 | 208 | 24.7 | 252 | 29.9 | 158 | 18.8 | 224 | 26.6 |
| Illinois | 1,625 | 216 | 13.3 | 362 | 22.3 | 453 | 27.9 | 594 | 36.6 |
| Indiana | 490 | 96 | 19.6 | 135 | 27.6 | 123 | 25.1 | 136 | 27.8 |
| Iowa | 116 | 26 | 22.4 | 29 | 25.0 | 48 | 41.4 | 13 | 11.2 |
| Minnesota | 345 | 52 | 15.1 | 88 | 25.5 | 80 | 23.2 | 125 | 36.2 |
| Missouri | 582 | 84 | 14.4 | 118 | 20.3 | 122 | 21.0 | 258 | 44.3 |
| Nebraska | 114 | 25 | 21.9 | 36 | 31.6 | 35 | 30.7 | 18 | 15.8 |
| New York[a] | 1,056 | 240 | 22.7 | 340 | 32.2 | 277 | 26.2 | 199 | 18.8 |
| North Dakota | 13 | 2 | 15.4 | 3 | 23.1 | 3 | 23.1 | 5 | 38.5 |
| San Francisco, California | 462 | 139 | 30.1 | 139 | 30.1 | 94 | 20.3 | 90 | 19.5 |
| South Carolina | 794 | 169 | 21.3 | 278 | 35.0 | 234 | 29.5 | 113 | 14.2 |
| West Virginia | 79 | 10 | 12.7 | 24 | 30.4 | 24 | 30.4 | 21 | 26.6 |
| Wyoming | 19 | 3 | 15.8 | 5 | 26.3 | 7 | 36.8 | 4 | 21.1 |
| **Total** | **6,674** | **1,297** | **19.4** | **1,850** | **27.7** | **1,702** | **25.5** | **1,825** | **27.3** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/µL) or percentage; OI, opportunistic infection (i.e., AIDS-defining condition).

*Note*. Stage of disease at diagnosis of HIV infection based on first CD4 test performed or OI present within 3 months after a diagnosis of HIV infection. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

[a] Excludes data from New York City.

**Table 2a. Linkage to HIV medical care within 3 months after HIV diagnosis during 2010, among persons aged 13 years and older, by selected characteristics—14 U.S. jurisdictions**

| | Total diagnoses | | ≥1 CD4 or VL test | | No CD4 or VL | |
|---|---|---|---|---|---|---|
| | No. | %[a] | No. | % | No. | % |
| **Sex** | | | | | | |
| Male | 5,267 | 78.9 | 4,201 | 79.8 | 1,066 | 20.2 |
| Female | 1,407 | 21.1 | 1,155 | 82.1 | 252 | 17.9 |
| **Age at diagnosis (yr)** | | | | | | |
| 13–24 | 1,493 | 22.4 | 1,127 | 75.5 | 366 | 24.5 |
| 25–34 | 1,818 | 27.2 | 1,428 | 78.5 | 390 | 21.5 |
| 35–44 | 1,536 | 23.0 | 1,272 | 82.8 | 264 | 17.2 |
| 45–54 | 1,280 | 19.2 | 1,077 | 84.1 | 203 | 15.9 |
| ≥55 | 547 | 8.2 | 452 | 82.6 | 95 | 17.4 |
| **Race/ethnicity** | | | | | | |
| American Indian/Alaska Native | 28 | 0.4 | 21 | 75.0 | 7 | 25.0 |
| Asian | 122 | 1.8 | 112 | 91.8 | 10 | 8.2 |
| Black/African American | 3,378 | 50.6 | 2,599 | 76.9 | 779 | 23.1 |
| Hispanic/Latino[b] | 793 | 11.9 | 659 | 83.1 | 134 | 16.9 |
| Native Hawaiian/Other Pacific Islander | 5 | 0.1 | 5 | 100.0 | 0 | 0.0 |
| White | 2,192 | 32.8 | 1,831 | 83.5 | 361 | 16.5 |
| Multiple races | 156 | 2.3 | 129 | 82.7 | 27 | 17.3 |
| **Transmission category** | | | | | | |
| Male-to-male sexual contact | 4,109 | 61.6 | 3,278 | 79.8 | 831 | 20.2 |
| Injection drug use | | | | | | |
| Male | 332 | 5.0 | 259 | 78.0 | 73 | 22.0 |
| Female | 195 | 2.9 | 156 | 79.8 | 39 | 20.2 |
| Male-to-male sexual contact and injection drug use | 238 | 3.6 | 199 | 83.4 | 40 | 16.6 |
| Heterosexual contact[c] | | | | | | |
| Male | 584 | 8.7 | 462 | 79.1 | 122 | 20.9 |
| Female | 1,208 | 18.1 | 996 | 82.4 | 213 | 17.6 |
| **Total[d]** | **6,674** | **100.0** | **5,356** | **80.3** | **1,318** | **19.7** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/μL) or percentage; VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

Data by transmission category have been statistically adjusted to account for missing transmission category. Data not shown for diagnosed infections attributed to hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified because the numbers were too small to be meaningful.

[a] The total percentage represents the column percentage.

[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 8 persons with diagnosed infection attributed to hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or identified.

**Table 2b. Linkage to HIV medical care within 3 months after HIV diagnosis during 2010, among persons aged 13 years and older, by area of residence—14 U.S. jurisdictions**

| | Total diagnoses | | ≥1 CD4 or VL test | | No CD4 or VL | |
|---|---|---|---|---|---|---|
| **Area of residence** | **No.** | **%[a]** | **No.** | **%** | **No.** | **%** |
| Delaware | 137 | 2.1 | 121 | 88.3 | 16 | 11.7 |
| District of Columbia | 842 | 12.6 | 649 | 77.1 | 193 | 22.9 |
| Illinois | 1,625 | 24.3 | 1,212 | 74.6 | 413 | 25.4 |
| Indiana | 490 | 7.3 | 362 | 73.9 | 128 | 26.1 |
| Iowa | 116 | 1.7 | 108 | 93.1 | 8 | 6.9 |
| Minnesota | 345 | 5.2 | 263 | 76.2 | 82 | 23.8 |
| Missouri | 582 | 8.7 | 445 | 76.5 | 137 | 23.5 |
| Nebraska | 114 | 1.7 | 102 | 89.5 | 12 | 10.5 |
| New York[b] | 1,056 | 15.8 | 898 | 85.0 | 158 | 15.0 |
| North Dakota | 13 | 0.2 | 13 | 100.0 | 0 | 0.0 |
| San Francisco, California | 462 | 6.9 | 389 | 84.2 | 73 | 15.8 |
| South Carolina | 794 | 11.9 | 714 | 89.9 | 80 | 10.1 |
| West Virginia | 79 | 1.2 | 64 | 81.0 | 15 | 19.0 |
| Wyoming | 19 | 0.3 | 16 | 84.2 | 3 | 15.8 |
| **Total** | **6,674** | **100.0** | **5,356** | **80.3** | **1,318** | **19.7** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/μL) or percentage; VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

[a] The total percentage represents the column percentage.

[b] Excludes data from New York City.

**Table 3a. Retention in HIV medical care among persons aged 13 years and older with HIV infection diagnosed by year-end 2008 and alive at year-end 2009, by selected characteristics—14 U.S. jurisdictions**

| | Persons alive at year-end 2009 | ≥2 CD4 or VL tests[a] | |
|---|---|---|---|
| | Total No. | No. | % |
| **Sex** | | | |
| Male | 99,378 | 42,209 | 42.5 |
| Female | 30,020 | 12,859 | 42.8 |
| **Age at diagnosis (yr)** | | | |
| 13–24 | 5,188 | 1,986 | 38.3 |
| 25–34 | 17,291 | 6,597 | 38.2 |
| 35–44 | 40,099 | 16,841 | 42.0 |
| 45–54 | 45,188 | 20,006 | 44.3 |
| ≥55 | 21,632 | 9,638 | 44.6 |
| **Race/ethnicity** | | | |
| American Indian/Alaska Native | 365 | 140 | 38.4 |
| Asian[b] | 1,372 | 646 | 47.1 |
| Black/African American | 57,948 | 21,844 | 37.7 |
| Hispanic/Latino[c] | 17,068 | 6,942 | 40.7 |
| Native Hawaiian/Other Pacific Islander | 70 | 31 | 44.3 |
| White | 49,230 | 23,413 | 47.6 |
| Multiple races | 3,297 | 2,050 | 62.2 |
| **Transmission category** | | | |
| Male-to-male sexual contact | 66,015 | 28,766 | 43.6 |
| Injection drug use | | | |
| Male | 14,588 | 5,264 | 36.1 |
| Female | 8,283 | 3,400 | 41.0 |
| Male-to-male sexual contact and injection drug use | 8,881 | 4,090 | 46.1 |
| Heterosexual contact[d] | | | |
| Male | 8,844 | 3,629 | 41.0 |
| Female | 21,003 | 9,117 | 43.4 |
| Other[e] | | | |
| Male | 1,051 | 460 | 43.8 |
| Female | 734 | 342 | 46.6 |
| **Total[f]** | **129,398** | **55,068** | **42.6** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/μL) or percentage; VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

Data by transmission category have been statistically adjusted to account for missing transmission category.

[a] Two or more CD4 or VL tests performed at least 3 months apart during 2009.

[b] Includes Asian/Pacific Islander legacy cases (see Technical Notes).

[c] Hispanics/Latinos can be of any race.

[d] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[e] Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or identified.

[f] Includes 48 persons of unknown race/ethnicity.

**Table 3b. Retention in HIV medical care among persons aged 13 years and older with HIV infection diagnosed by year-end 2008 and alive at year-end 2009, by area of residence—14 U.S. jurisdictions**

| | Persons alive at year-end 2009 | ≥2 CD4 or VL tests[a] | |
|---|---|---|---|
| **Area of residence** | **Total No.** | **No.** | **%** |
| Delaware | 2,835 | 752 | 26.5 |
| District of Columbia | 13,339 | 3,921 | 29.4 |
| Illinois | 29,074 | 7,683 | 26.4 |
| Indiana | 7,913 | 3,838 | 48.5 |
| Iowa | 1,523 | 902 | 59.2 |
| Minnesota | 5,951 | 1,299 | 21.8 |
| Missouri | 10,266 | 4,844 | 47.2 |
| Nebraska | 1,517 | 811 | 53.5 |
| New York[b] | 27,955 | 14,956 | 53.5 |
| North Dakota | 162 | 48 | 29.6 |
| San Francisco, California | 14,144 | 8,331 | 58.9 |
| South Carolina | 13,149 | 7,112 | 54.1 |
| West Virginia | 1,369 | 495 | 36.2 |
| Wyoming | 201 | 76 | 37.8 |
| **Total** | **129,398** | **55,068** | **42.6** |

Abbreviations: CD4, CD4+ T-lymphocyte count (cells/μL) or percentage; VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

[a] Two or more CD4 or VL tests performed at least 3 months apart during 2009.

[b] Excludes data from New York City.

**Table 4a. HIV viral suppression at most recent viral load test in 2009, among persons aged 13 years and older with HIV infection diagnosed by year-end 2008 and alive at year-end 2009, by selected characteristics—14 U.S. jurisdictions**

| | Total | | Persons with a VL test | | VL ≤ 200 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Total | Among overall population | Among persons with a VL test |
| | No. | %[a] | No. | % | No. | % | % |
| **Sex** | | | | | | | |
| Male | 99,378 | 76.8 | 50,970 | 51.3 | 36,806 | 37.0 | 72.2 |
| Female | 30,020 | 23.2 | 15,697 | 52.3 | 10,011 | 33.3 | 63.8 |
| **Age at diagnosis (yr)** | | | | | | | |
| 13–24 | 5,188 | 4.0 | 2,668 | 51.4 | 1,214 | 23.4 | 45.5 |
| 25–34 | 17,291 | 13.4 | 8,663 | 50.1 | 4,906 | 28.4 | 56.6 |
| 35–44 | 40,099 | 31.0 | 20,714 | 51.7 | 14,090 | 35.1 | 68.0 |
| 45–54 | 45,188 | 34.9 | 23,700 | 52.4 | 17,706 | 39.2 | 74.7 |
| ≥55 | 21,632 | 16.7 | 10,922 | 50.5 | 8,901 | 41.1 | 81.5 |
| **Race/ethnicity** | | | | | | | |
| American Indian/Alaska Native | 365 | 0.3 | 187 | 51.2 | 122 | 33.4 | 65.2 |
| Asian[b] | 1,372 | 1.1 | 804 | 58.6 | 659 | 48.0 | 82.0 |
| Black/African American | 57,948 | 44.8 | 27,006 | 46.6 | 16,554 | 28.6 | 61.3 |
| Hispanic/Latino[c] | 17,068 | 13.2 | 7,974 | 46.7 | 5,691 | 33.3 | 71.4 |
| Native Hawaiian/Other Pacific Islander | 70 | 0.1 | 40 | 57.1 | 31 | 44.3 | 77.5 |
| White | 49,230 | 38.0 | 28,276 | 57.4 | 22,151 | 45.0 | 78.3 |
| Multiple races | 3,297 | 2.5 | 2,376 | 72.1 | 1,606 | 48.7 | 67.6 |
| **Transmission category** | | | | | | | |
| Male-to-male sexual contact | 66,015 | 51.0 | 35,251 | 53.4 | 26,363 | 39.9 | 74.8 |
| Injection drug use | | | | | | | |
| Male | 14,588 | 11.3 | 6,001 | 41.1 | 3,962 | 27.2 | 66.0 |
| Female | 8,283 | 6.4 | 4,103 | 49.5 | 2,553 | 30.8 | 62.2 |
| Male-to-male sexual contact and injection drug use | 8,881 | 6.9 | 4,835 | 54.4 | 3,201 | 36.0 | 66.2 |
| Heterosexual contact[d] | | | | | | | |
| Male | 8,844 | 6.8 | 4,315 | 48.8 | 2,896 | 32.7 | 67.1 |
| Female | 21,003 | 16.2 | 11,197 | 53.3 | 7,245 | 34.5 | 64.7 |
| Other[e] | | | | | | | |
| Male | 1,051 | 0.8 | 569 | 54.1 | 383 | 36.5 | 67.4 |
| Female | 734 | 0.6 | 397 | 54.1 | 213 | 29.1 | 53.8 |
| **Total[f]** | **129,398** | **100.0** | **66,667** | **51.5** | **46,817** | **36.2** | **70.2** |

Abbreviations: VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

Data by transmission category have been statistically adjusted to account for missing transmission category.

[a] The total percentage represents the column percentage.

[b] Includes Asian/Pacific Islander legacy cases (see Technical Notes).

[c] Hispanics/Latinos can be of any race.

[d] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[e] Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or identified.

[f] Includes 48 persons of unknown race/ethnicity.

**Table 4b. HIV viral suppression at most recent viral load test in 2009, among persons aged 13 years and older with HIV infection diagnosed by year-end 2008 and alive at year-end 2009, by area of residence—14 U.S. jurisdictions**

| | | | | | VL ≤ 200 | | |
|---|---|---|---|---|---|---|---|
| | Total | | Persons with a VL test | | Total | Among overall population | Among persons with a VL test |
| Area of residence | No. | %[a] | No. | % | No. | % | % |
| Delaware | 2,835 | 2.2 | 708 | 25.0 | 293 | 10.3 | 41.4 |
| District of Columbia | 13,339 | 10.3 | 6,058 | 45.4 | 3,565 | 26.7 | 58.8 |
| Illinois | 29,074 | 22.5 | 10,276 | 35.3 | 7,135 | 24.5 | 69.4 |
| Indiana | 7,913 | 6.1 | 3,958 | 50.0 | 2,640 | 33.4 | 66.7 |
| Iowa | 1,523 | 1.2 | 1,055 | 69.3 | 805 | 52.9 | 76.3 |
| Minnesota | 5,951 | 4.6 | 2,837 | 47.7 | 2,146 | 36.1 | 75.6 |
| Missouri | 10,266 | 7.9 | 5,591 | 54.5 | 3,673 | 35.8 | 65.7 |
| Nebraska | 1,517 | 1.2 | 981 | 64.7 | 656 | 43.2 | 66.9 |
| New York[b] | 27,955 | 21.6 | 16,288 | 58.3 | 11,589 | 41.5 | 71.2 |
| North Dakota | 162 | 0.1 | 63 | 38.9 | 52 | 32.1 | 82.5 |
| San Francisco, California | 14,144 | 10.9 | 9,988 | 70.6 | 8,078 | 57.1 | 80.9 |
| South Carolina | 13,149 | 10.2 | 8,069 | 61.4 | 5,627 | 42.8 | 69.7 |
| West Virginia | 1,369 | 1.1 | 690 | 50.4 | 486 | 35.5 | 70.4 |
| Wyoming | 201 | 0.2 | 105 | 52.2 | 72 | 35.8 | 68.6 |
| **Total** | **129,398** | **100.0** | **66,667** | **51.5** | **46,817** | **36.2** | **70.2** |

Abbreviations: VL, viral load (copies/mL).

*Note*. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. See Technical Notes for the list of areas that have laws or regulations requiring reporting of all laboratory test results and that report these values to CDC.

[a] The total percentage represents the column percentage.

[b] Excludes data from New York City.

**Table 5. 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 dependent areas**

| Area of residence | 2007 | | | 2008 | | | 2009 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Estimated[a] | | | Estimated[a] | | | Estimated[a] | |
| | No.[b] | No. | Rate[c] | No.[b] | No. | Rate[c] | No.[b] | No. | Rate[c] |
| Alabama | 290 | 323 | 32.0 | 241 | 282 | 26.8 | 249 | 318 | 29.1 |
| Alaska | 17 | 19 | 31.2 | 22 | 26 | 41.1 | 13 | 17 | 27.0 |
| Arizona | 209 | 229 | 20.5 | 241 | 283 | 24.1 | 204 | 273 | 22.5 |
| Arkansas | 134 | 149 | 33.0 | 99 | 115 | 25.1 | 114 | 145 | 30.9 |
| California | 1,893 | 2,087 | 20.9 | 1,865 | 2,188 | 21.1 | 1,647 | 2,242 | 20.9 |
| Colorado | 139 | 153 | 14.8 | 109 | 128 | 12.0 | 132 | 179 | 16.4 |
| Connecticut | 276 | 303 | 28.4 | 248 | 281 | 26.0 | 247 | 311 | 28.5 |
| Delaware | 91 | 101 | 35.0 | 96 | 113 | 37.9 | 86 | 110 | 36.5 |
| District of Columbia | 411 | — | — | 343 | — | — | 84 | — | — |
| Florida | 2,561 | 2,731 | 30.6 | 2,487 | 2,717 | 29.3 | 2,300 | 2,632 | 27.5 |
| Georgia | 728 | 792 | 24.2 | 582 | 656 | 18.9 | 614 | 742 | 20.3 |
| Hawaii | 40 | — | — | 50 | — | — | 27 | — | — |
| Idaho | 7 | 8 | 11.1 | 16 | 19 | 25.2 | 9 | 12 | 15.3 |
| Illinois | 697 | 795 | 28.0 | 611 | 752 | 25.4 | 268 | 388 | 12.6 |
| Indiana | 181 | 202 | 25.5 | 190 | 223 | 27.1 | 179 | 228 | 26.9 |
| Iowa | 31 | 34 | 22.8 | 24 | 28 | 18.0 | 28 | 37 | 22.4 |
| Kansas | 41 | 45 | 18.5 | 49 | 57 | 22.6 | 38 | 50 | 19.0 |
| Kentucky | 107 | 119 | 25.1 | 137 | 160 | 32.0 | 119 | 152 | 29.1 |
| Louisiana | 538 | 600 | 37.7 | 484 | 568 | 34.5 | 493 | 625 | 36.4 |
| Maine | 24 | 26 | 25.0 | 20 | 23 | 20.9 | 9 | 11 | 9.9 |
| Maryland | 435 | — | — | 484 | — | — | 450 | — | — |
| Massachusetts | 292 | — | — | 278 | — | — | 286 | — | — |
| Michigan | 293 | 326 | 24.9 | 287 | 335 | 24.7 | 231 | 293 | 20.8 |
| Minnesota | 90 | 102 | 17.6 | 78 | 95 | 15.6 | 90 | 129 | 20.2 |
| Mississippi | 246 | 274 | 35.3 | 252 | 295 | 36.7 | 231 | 296 | 35.7 |
| Missouri | 234 | 262 | 25.5 | 225 | 269 | 25.3 | 234 | 321 | 29.4 |
| Montana | 11 | 12 | 36.7 | 6 | 7 | 20.5 | 6 | 8 | 21.7 |
| Nebraska | 36 | 39 | 26.4 | 25 | 29 | 18.5 | 25 | 33 | 19.8 |
| Nevada | 162 | 180 | 28.3 | 129 | 151 | 22.9 | 131 | 173 | 25.3 |
| New Hampshire | 17 | 19 | 18.0 | 13 | 15 | 13.7 | 19 | 24 | 21.4 |
| New Jersey | 1,019 | 1,078 | 30.6 | 954 | 1,045 | 29.2 | 859 | 990 | 27.2 |
| New Mexico | 61 | 68 | 30.7 | 69 | 80 | 35.0 | 53 | 69 | 28.8 |
| New York | 2,772 | 3,029 | 23.6 | 2,749 | 3,173 | 24.2 | 2,508 | 3,181 | 23.8 |
| North Carolina | 550 | 612 | 27.8 | 544 | 636 | 27.3 | 582 | 739 | 30.3 |
| North Dakota | 5 | 6 | 34.6 | 3 | 4 | 21.9 | 3 | 4 | 21.5 |
| Ohio | 323 | 359 | 23.2 | 348 | 407 | 25.1 | 336 | 427 | 25.3 |
| Oklahoma | 123 | 137 | 31.5 | 132 | 154 | 34.2 | 109 | 139 | 29.9 |
| Oregon | 76 | 83 | 17.7 | 74 | 87 | 17.7 | 75 | 98 | 19.4 |
| Pennsylvania | 769 | 876 | 29.8 | 706 | 868 | 28.5 | 627 | 893 | 28.5 |
| Rhode Island | 31 | 34 | 19.4 | 48 | 56 | 29.7 | 41 | 52 | 26.5 |
| South Carolina | 431 | 481 | 35.8 | 379 | 445 | 32.4 | 361 | 462 | 32.8 |
| South Dakota | 10 | 11 | 28.4 | 7 | 8 | 20.7 | 6 | 8 | 17.9 |
| Tennessee | 256 | 285 | 20.5 | 196 | 228 | 15.6 | 149 | 191 | 12.4 |
| Texas | 1,573 | 1,753 | 30.5 | 1,394 | 1,618 | 27.0 | 1,504 | 1,845 | 29.4 |
| Utah | 32 | 35 | 16.3 | 26 | 30 | 13.5 | 29 | 39 | 16.5 |
| Vermont | 4 | — | — | 8 | — | — | 7 | — | — |
| Virginia | 397 | 446 | 22.9 | 388 | 461 | 22.7 | 376 | 487 | 23.1 |
| Washington | 161 | 177 | 18.0 | 160 | 186 | 18.2 | 178 | 238 | 22.6 |
| West Virginia | 43 | 48 | 34.4 | 40 | 47 | 32.9 | 34 | 44 | 30.0 |
| Wisconsin | 84 | 94 | 20.3 | 77 | 90 | 18.9 | 82 | 105 | 21.1 |
| Wyoming | 5 | 6 | 30.2 | 5 | 6 | 28.3 | 3 | 4 | 17.5 |
| **Subtotal** | 18,956 | 19,547 | 26.2 | 17,998 | 19,443 | 25.1 | 16,485 | 19,764 | 24.7 |
| **U.S. dependent areas** | | | | | | | | | |
| American Samoa | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 |
| Guam | 5 | 5 | 53.9 | 6 | 7 | 72.0 | 3 | 4 | 41.7 |
| Northern Mariana Islands | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 |
| Puerto Rico | 476 | 495 | 26.9 | 474 | 513 | 27.0 | 427 | 490 | 25.2 |
| Republic of Palau | 0 | — | — | 0 | — | — | 0 | — | — |
| U.S. Virgin Islands | 14 | 15 | 26.5 | 12 | 13 | 21.6 | 19 | 24 | 38.6 |
| **Subtotal** | 495 | 515 | 27.0 | 492 | 533 | 27.1 | 449 | 517 | 25.6 |
| **Total** | **19,451** | **20,062** | **26.2** | **18,490** | **19,976** | **25.1** | **16,934** | **20,281** | **24.7** |

*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.

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

[c] Rates are per 1,000 persons living with a diagnosis of HIV infection (PLWH); denominator was calculated as (No. PLWH at the end of [year X-1]) + (No. new diagnoses during year X).

**Table 6. Annual HIV transmission rates [T(x)] per 100 persons living with HIV, 2007–2009—United States**

| | HIV incidence[a] I(x) | | HIV prevalence[b] P(x) | | |
|---|---|---|---|---|---|
| | No. | 95% CI | No. | 95% CI | HIV transmission rate[c] T(x) |
| 2007 | 53,200 | 47,000–59,400 | 1,090,800 | 1,060,500–1,121,200 | 4.88 |
| 2008 | 47,500 | 42,000–53,000 | 1,120,200 | 1,089,800–1,150,500 | 4.25 |
| 2009 | 45,000 | 39,900–50,100 | 1,148,200 | 1,117,800–1,178,500 | 3.92 |

Abbreviation: CI, confidence interval.

[a] CDC. Estimated HIV incidence in the United States, 2007–2010. *HIV Surveillance Supplemental Report* 2012;17(No. 4). Published December 2012.

[b] CDC. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 U.S. dependent areas—2010. *HIV Surveillance Supplemental Report* 2012;17(No. 3, part A). Published June 2012.

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

**Table 7. Status of CD4 and viral load reporting by HIV surveillance reporting area, as of September 2012—50 states, District of Columbia, and U.S. dependent areas**

| State or area | CD4 count (cells/μL) or CD4 percentage | | Viral load | |
|---|---|---|---|---|
| | Lab reporting required[a] | Reportable level[b] | Lab reporting required[a] | Reportable level[b] |
| Alabama | Yes | All values | Yes | Any result |
| Alaska | Yes | All values | Yes | Any result |
| American Samoa | No | — | No | — |
| Arizona | Yes | <200 or <14% | Yes | Detectable |
| Arkansas | Yes | All values | Yes | Any result |
| California | Yes | All values | Yes | Any result |
| Colorado | Yes | <500 | Yes | Any result |
| Connecticut | Yes | <200 or <14% | Yes | Any result |
| Delaware | Yes | All values | Yes | Any result |
| District of Columbia | Yes | All values | Yes | Any result |
| Federated States of Micronesia | No | — | No | — |
| Florida | Yes | All values | Yes | Any result |
| Georgia | Yes | All values | Yes | Any result |
| Guam | Yes | All values | Yes | Any result |
| Hawaii | Yes | All values | Yes | Any result |
| Idaho | Yes | <200 or <14% | Yes | Detectable |
| Illinois | Yes | All values | Yes | Any result |
| Indiana | Yes | All values | Yes | Any result |
| Iowa | Yes | All values | Yes | Any result |
| Kansas | Yes | <500 or <29% | Yes | Detectable |
| Kentucky | Yes | All values | Yes | Detectable |
| Louisiana | Yes | All values | Yes | Any result |
| Maine | Yes | All values | Yes | Any result |
| Marshall Islands | No | — | No | — |
| Maryland | Yes | All values | Yes | Any result |
| Massachusetts | Yes | All values | Yes | Any result |
| Michigan | Yes | All values | Yes | Any result |
| Minnesota | Yes | All values | Yes | Any result |
| Mississippi | No | — | Yes | Detectable |
| Missouri | Yes | All values | Yes | Any result |
| Montana | No | — | Yes | Detectable |
| Nebraska | Yes | All values | Yes | Any result |

**Table 7. Status of CD4 and viral load reporting by HIV surveillance reporting area, as of September 2012—50 states, District of Columbia, and U.S. dependent areas *(cont)***

| State or area | CD4 count (cells/μL) or CD4 percentage | | Viral load | |
|---|---|---|---|---|
| | Lab reporting required[a] | Reportable level[b] | Lab reporting required[a] | Reportable level[b] |
| Nevada | Yes | <500 | Yes | Detectable |
| New Hampshire | Yes | All values | Yes | Any result |
| New Jersey | Yes | <200 or <14% | Yes | Any result |
| New Mexico | Yes | All values | Yes | Any result |
| New York | Yes | All values | Yes | Any result |
| North Carolina | Yes | <200 | Yes | Detectable |
| North Dakota | Yes | All values | Yes | Any result |
| Northern Mariana Islands | No | — | No | — |
| Ohio | Yes | <200 | Yes | Detectable |
| Oklahoma | Yes | <500 | Yes | Any result |
| Oregon | Yes | All values | Yes | Any result |
| Pennsylvania | Yes | <200 or <14% | Yes | Detectable |
| Puerto Rico | Yes | All values | Yes | Any result |
| Republic of Palau | No | — | No | — |
| Rhode Island | Yes | <200 or <14% | Yes | Detectable |
| South Carolina | Yes | All values | Yes | Any result |
| South Dakota | Yes | All values | Yes | Any result |
| Tennessee | Yes | All values | Yes | Any result |
| Texas | Yes | All values | Yes | Any result |
| U.S. Virgin Islands | Yes | <200 or <14% | Yes | Detectable |
| Utah | Yes | All values | Yes | Any result |
| Vermont | Yes | <200 or <14% | Yes | Any result |
| Virginia | Yes | All values | Yes | Any result |
| Washington | Yes | All values | Yes | Any result |
| West Virginia | Yes | All values | Yes | Any result |
| Wisconsin | Yes | All values | Yes | Any result |
| Wyoming | Yes | All values | Yes | Any result |

[a] Most areas' laws, regulations, or statutes require laboratories to report, but in some instances the language is not specific.
[b] Level at which CD4 or viral load reporting is required by laws, regulations, or statutes.