

# Commentary

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The Centers for Disease Control and Prevention (CDC) collects, analyzes, and disseminates surveillance data on HIV infection and AIDS; these data are one of the nation's primary sources of information on the HIV epidemic. The annual surveillance report, published by the Division of HIV/AIDS Prevention (DHAP), summarizes information about diagnosed HIV infection and AIDS in the United States and dependent areas. HIV surveillance data are used by CDC's public health partners in other federal agencies, health departments, nonprofit organizations, academic institutions, and the general public to help focus prevention efforts, plan services, allocate resources, develop policy, and monitor the HIV epidemic.

The presentation of 2009 data emphasizes the date of diagnosis of HIV infection or AIDS (diagnosis as of December 31, 2009; reported to CDC as of June 30, 2010), not the date of report to CDC. The term *diagnosis of HIV infection* refers to a diagnosis of HIV infection regardless of the person's AIDS status at the time of diagnosis. Until recently, data were presented by date of report, reflecting reporting practices; that is, the information may have been reported months or years after the date of diagnosis. HIV data by year of diagnosis more closely approximate the date of infection and are thus one of the best markers of trends in the epidemic. However, HIV diagnoses do not necessarily represent new infections (incidence): some persons were infected recently, and others were infected at some time in the past. Because of reporting delays, the actual numbers of cases diagnosed in a given year may be higher than the numbers of diagnoses of HIV infection (unadjusted) presented for recent years; however, the numbers of diagnoses for a calendar year typically stabilize after 2 to 3 years of reporting.

Where indicated, counts of diagnoses and deaths have been statistically adjusted (estimated) to correct for delays in reporting. Because states implemented confidential name-based reporting at different times, the areas included in estimates of numbers and rates of diagnoses of HIV infection are based on the date of implementation of confidential name-based HIV infection reporting. Although all states had successfully implemented confidential name-based HIV

infection reporting by April 2008, a national comparison of HIV diagnosis rates will not be possible until the 2012 surveillance report, when all states will have mature HIV reporting systems.

This report includes estimated numbers and rates of diagnoses of HIV infection based on data from the 45 areas (40 states and 5 U.S. dependent areas) that have had confidential name-based HIV infection reporting for a sufficient length of time (i.e., since at least January 2006) to allow for stabilization of data collection and for adjustment of the data in order to monitor trends. This report marks the first time that HIV diagnosis data from Illinois, Maine, and Pennsylvania have been included in the estimates of diagnoses of HIV infection. According to the cumulative estimated number of AIDS diagnoses through 2009, these 40 states represent approximately 75% of AIDS diagnoses in the 50 states and the District of Columbia.

From 2006 through 2009, the annual estimated number and rate of diagnoses of HIV infection remained stable in the 40 states. Estimated numbers and rates of diagnoses of HIV infection increased in some subgroups and decreased in others. Variations in trends between groups may be due to changes in testing behaviors, reporting differences over time, or possibly, changes in the numbers of new HIV infections in certain subgroups. HIV incidence surveillance data can provide a good indication of changes in trends in the numbers of new HIV infections.

The map on the cover depicts the estimated rates (per 100,000 population) of adults and adolescents living with a diagnosis of HIV infection at the end of 2008, by area of residence, for persons residing in the 40 states and 5 U.S. dependent areas with confidential name-based HIV infection reporting since at least January 2006 (data for the most recent year were excluded in order to allow at least 18 months for deaths to be reported and factored into calculations of persons living with HIV infection—see Technical Notes). As shown on the map, the highest rates of persons living with a diagnosis of HIV infection were in Florida, Georgia, Louisiana, New Jersey, New York, Puerto Rico, and the U.S. Virgin Islands.

The analyses of AIDS diagnoses were based on data from the 50 states, the District of Columbia, and

5 U.S. dependent areas. For trends in AIDS diagnoses, tables of data for the most recent 4-year period include the cumulative totals through 2009 for all 50 states, the District of Columbia, and 5 U.S. dependent areas.

The 2009 *HIV Surveillance Report* is organized into 4 sections:

1. Diagnoses of HIV infection and AIDS
2. Deaths and survival of persons with a diagnosis of HIV infection or AIDS
3. Persons living with a diagnosis of HIV infection or AIDS
4. HIV infection and AIDS data, by state and metropolitan statistical area (MSA)

Sections 1–3 (Tables 1a/b–18a/b) present trends in numbers (statistically adjusted and unadjusted) and rates (adjusted) of diagnoses of HIV infection and AIDS, deaths of persons with a diagnosis of HIV infection or AIDS, and persons living with a diagnosis of HIV infection or AIDS. Section 4 (Tables 19–24) presents numbers (adjusted and unadjusted) and rates (adjusted) of diagnoses of HIV infection and AIDS and persons living with a diagnosis of HIV infection or AIDS, by state and MSA. Numerical rankings, based on rates of diagnoses of HIV infection and AIDS, are provided by MSA. All 50 states, the District of Columbia, and 5 U.S. dependent areas had implemented confidential name-based HIV infection reporting by April 2008. These 56 areas are represented in the columns of unadjusted numbers in Tables 19 and 21, presenting diagnoses of HIV infection and persons living with a diagnosis of HIV infection (respectively). Because these numbers have not been adjusted for reporting delays, they should be viewed as minimums.

The tables in the 2009 report present data in 2 formats. Tables in the first format—labeled “a”—exclude data from the dependent areas (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands). Tables in the second format—labeled “b”—include data from the dependent areas.

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

## HIGHLIGHTS OF ANALYSES

The statements in this section, unless otherwise indicated, are based on estimated data. All rates are per

100,000 population. Our standard for determining trends in numbers and rates is based on an increase or a decrease of 5% or more. Exceptions to this standard were made for populations with small numbers.

## Diagnoses of HIV Infection and AIDS

### Diagnoses of HIV infection

From 2006 through 2009, the estimated number and the estimated rate of annual diagnoses of HIV infection in the 40 states with confidential name-based HIV infection reporting remained stable (Table 1a). In 2009, the estimated rate of diagnoses of HIV infection in the 40 states was 17.4 per 100,000 population.

- **Age group:** From 2006 through 2009, the rates among persons aged 15–19, 20–24, and 55–59 increased. The rates among persons aged 13–14, 35–39, and 40–44 decreased. The rates remained stable among children (aged less than 13 years) and persons aged 25–29, 30–34, 45–49, 50–54, 60–64, and 65 years and older. In 2009, the largest percentage—15% of all diagnoses—and the highest rate—36.9 per 100,000 population—were those for persons aged 20–24 years.
- **Race/ethnicity:** From 2006 through 2009, rates among American Indians/Alaska Natives and Asians increased. The rates among Hispanics/Latinos, Native Hawaiians/other Pacific Islanders, and persons reporting multiple races decreased. The rates among blacks/African Americans and whites remained stable. In 2009, blacks/African Americans accounted for 52% of all diagnoses of HIV infection. The rates in 2009 were 66.6 in the black/African American population, 22.8 in the Hispanic/Latino population, 21.0 in the Native Hawaiian/other Pacific Islander population, 16.7 in the population of persons reporting multiple races, 9.8 in the American Indian/Alaska Native population, 7.2 in the white population, and 6.4 in the Asian population.
- **Sex:** From 2006 through 2009, the rate among males remained stable, but the rate among females decreased. In 2009, males accounted for 76% of all diagnoses of HIV infection among adults and adolescents. The rate among adult and adolescent males was 32.7, and the rate among females was 9.8.

- **Transmission category:** From 2006 through 2009, among adult and adolescent males, the annual number of diagnosed HIV infections attributed to male-to-male sexual contact increased. The numbers of infections attributed to injection drug use and those attributed to male-to-male sexual contact *and* injection drug use decreased. The number of infections attributed to heterosexual contact remained stable. Among adult and adolescent females, the number of infections attributed to injection drug use decreased, and those attributed to heterosexual contact remained stable. In 2009, the diagnosed infections attributed to male-to-male sexual contact (57%) and the infections attributed to heterosexual contact (31%) accounted for approximately 87% of diagnosed HIV infections in the 40 states.
- **Sex:** From 2006 through 2009, the rates among adult and adolescent males and females decreased. Adult and adolescent males accounted for 75% of all AIDS diagnoses made during 2009. The rates among adults and adolescents in 2009 were 20.6 among males and 6.7 among females.
- **Transmission category:** From 2006 through 2009, among adult and adolescent males, the annual numbers of AIDS diagnoses with infection attributed to injection drug use or to male-to-male sexual contact *and* injection drug use decreased. The numbers of AIDS diagnoses with infection attributed to male-to-male sexual contact or to heterosexual contact remained stable. Among adult and adolescent females, the numbers of AIDS diagnoses with infection attributed to injection drug use or to heterosexual contact decreased.
- **Region:** From 2006 through 2009, the rates decreased in the Northeast, the South, and the West. The rates remained stable in the Midwest.

### AIDS diagnoses

From 2006 through 2009, the estimated number and the estimated rate of annual AIDS diagnoses in the United States decreased (Table 2a). In 2009, the estimated rate of AIDS diagnoses in the United States was 11.2 per 100,000 population.

- **Age group:** From 2006 through 2009, the rates among persons aged 15–19 and 20–24 increased. The rates among persons aged 30–34, 35–39, 40–44, and 60–64 decreased. The rates remained stable for children (aged less than 13 years) and persons aged 13–14, 25–29, 45–49, 50–54, 55–59, and 65 and older. In 2009, the highest rate was that for persons aged 40–44 years: 27.1 per 100,000 population.
- **Race/ethnicity:** From 2006 through 2009, the rates among Asians, blacks/African Americans, Hispanics/Latinos, whites, and persons reporting multiple races decreased. The rates remained stable among American Indians/Alaska Natives and Native Hawaiians/other Pacific Islanders. In 2009, the rates were 44.4 in the black/African American population, 15.1 in the population of persons reporting multiple races, 13.9 in the Hispanic/Latino population, 11.2 in the Native Hawaiian/other Pacific Islander population, 6.6 in the American Indian/Alaska Native population, 4.7 in the white population, and 3.1 in the Asian population.

### Deaths

#### Deaths of persons with a diagnosis of HIV infection

From 2006 through 2008, the annual estimated number and rate of deaths of persons with a diagnosis of HIV infection in the 40 states with confidential name-based HIV infection reporting remained stable (Table 11a). Readers should use caution when interpreting trend data on the estimated number of deaths because the estimates for the most recent year are most subject to uncertainty. In 2008, the estimated rate of deaths of persons with a diagnosis of HIV infection was 7.0 per 100,000 population. Deaths of persons with a diagnosis of HIV infection may be due to any cause (i.e., may or may not be related to HIV infection).

- **Age group:** From 2006 through 2008, the rates of deaths among persons aged 55–59, 60–64, and 65 and older increased. The rates of deaths among persons aged 35–39, 40–44, and 45–49 decreased. The rates remained stable among children (aged less than 13 years) and persons aged 13–14, 15–19, 20–24, 25–29, 30–34, and 50–54.
- **Race/ethnicity:** From 2006 through 2008, the rates of deaths among American Indians/Alaska

Natives and whites increased. The rates of deaths among Asians, blacks/African Americans, Hispanics/Latinos, Native Hawaiians/other Pacific Islanders, and persons reporting multiple races remained stable. In 2008, the highest rate of deaths was that for blacks/African Americans: 27.5 per 100,000 population.

- **Sex and transmission category:** From 2006 through 2008, among adult and adolescent males, the rate of deaths remained stable. Among males with diagnosed HIV infection attributed to male-to-male sexual contact and those with infection attributed to heterosexual contact, deaths increased. Deaths of males with diagnosed HIV infection attributed to injection drug use and those with infection attributed to male-to-male sexual contact *and* injection drug use decreased. Among females, the rate of deaths remained stable. The number of deaths of females with infection attributed to heterosexual contact increased; the number of those with infection attributed to injection drug use remained stable.

### Deaths of persons with an AIDS diagnosis

During 2006–2008 in the United States, the annual estimated number of deaths among persons with an AIDS diagnosis decreased 5%. The annual estimated rate of deaths per 100,000 population decreased 7% (Table 12a). Readers should use caution when interpreting trend data on the estimated number of deaths because the estimates for the most recent year are most subject to uncertainty. In 2008, the estimated rate of deaths of persons with an AIDS diagnosis was 5.3 per 100,000 population. Deaths of persons with an AIDS diagnosis may be due to any cause.

- **Age group:** From 2006 through 2008, the rates of deaths among persons aged 55–59, 60–64, and 65 and older increased. Rates among persons aged 30–34, 35–39, 40–44, 45–49, and 50–54 decreased. Rates remained stable among children (aged less than 13 years) and among persons aged 13–14, 15–19, 20–24, and 25–29.
- **Race/ethnicity:** From 2006 through 2008, the annual rates of deaths among Native Hawaiians/other Pacific Islanders increased. The rates among Asians, blacks/African Americans, and Hispanics/Latinos decreased. Rates remained

stable among American Indians/Alaska Natives, whites, and persons reporting multiple races.

- **Sex and transmission category:** From 2006 through 2008, among adult and adolescent males, the overall rate of deaths decreased. The numbers of deaths of males with an AIDS diagnosis with infection attributed to injection drug use or to male-to-male sexual contact *and* injection drug use also decreased. The numbers of deaths of males with infection attributed to male-to-male sexual contact or to heterosexual contact remained stable. Among females, the overall rate of deaths decreased. The numbers of deaths of females with infection attributed to injection drug use decreased; the numbers of deaths of females with infection attributed to heterosexual contact remained stable.
- **Region:** The rates of deaths decreased in the Northeast and the West and remained stable in the Midwest and the South.

### Survival

#### Survival after a diagnosis of HIV infection

Unadjusted data on diagnoses of HIV infection made during 2001–2005 in the 40 states with confidential name-based HIV infection reporting were used to describe the proportions of persons surviving 12, 24, and 36 months after a diagnosis of HIV infection (Table 13a).

- **Year of diagnosis:** Survival increased with the year of diagnosis for diagnoses made during 2001–2005, although year-to-year differences were small.
- **Age group:** Survival decreased as age at diagnosis increased, particularly among persons aged 35 and older at time of diagnosis.
- **Race/ethnicity:** Survival was greater among Asians, Hispanics/Latinos, and whites than among American Indians/Alaska Natives, blacks/African Americans, and persons reporting multiple races. Data for Native Hawaiians/other Pacific Islanders should be interpreted with caution because the number of persons in this category is small and the data are therefore unstable.
- **Transmission category:** Survival was greatest among adult and adolescent males with diagnosed HIV infection attributed to male-to-

male sexual contact, adult and adolescent females with infection attributed to heterosexual contact, and children regardless of transmission category. Survival was intermediate among adult and adolescent males with infection attributed to heterosexual contact and those with infection attributed to male-to-male sexual contact *and* injection drug use. Survival was lowest among adult and adolescent males and females with infection attributed to injection drug use.

### Survival after AIDS diagnosis

Unadjusted data from AIDS diagnoses made during 2001–2005 in the United States were used to describe persons surviving 12, 24, and 36 months after an AIDS diagnosis (Table 14a).

- **Year of diagnosis:** Survival increased with the year of diagnosis for diagnoses made during 2001–2005, although year-to-year differences were small.
- **Age group:** Survival decreased as age at diagnosis increased, particularly among persons aged 40 and older. Survival was greatest for persons aged 13–14 and 15–19 at time of diagnosis.
- **Race/ethnicity:** Survival was greater among Asians, Hispanics/Latinos, whites, and persons reporting multiple races than among American Indians/Alaska Natives and blacks/African Americans. Data for Native Hawaiians/other Pacific Islanders should be interpreted with caution because the number of persons in this category is small and the data are therefore unstable.
- **Transmission category:** Survival was greatest among adult and adolescent males with an AIDS diagnosis with infection attributed to male-to-male sexual contact and among children with infection attributed to perinatal transmission. Survival was intermediate among adult and adolescent males with infection attributed to male-to-male sexual contact *and* injection drug use, as well as adult and adolescent males and females with infection attributed to heterosexual contact. Survival was lowest among males and females with infection attributed to injection drug use.

### Persons Living with a Diagnosis of HIV Infection or AIDS (Prevalence)

#### Persons living with a diagnosis of HIV infection

From 2006 through 2008, the estimated number of persons living with a diagnosis of HIV infection (HIV prevalence) increased steadily in the 40 states with confidential name-based HIV infection reporting (Table 15a). At the end of 2008, an estimated 663,084 persons in these states were living with a diagnosis of HIV infection.

- **Age group:** At the end of 2008, the largest percentage of persons living with a diagnosis of HIV infection were persons aged 45–49 (19%), followed by those aged 40–44 (18%). From 2006 through 2008, the largest percentage increase in the number of persons living with HIV infection was among persons aged 60–64 years.
- **Race/ethnicity:** At the end of 2008, the largest percentage of persons living with a diagnosis of HIV infection—48%—were blacks/African Americans. Among the remaining racial/ethnic groups, the percentages were 33%, whites; 17%, Hispanics/Latinos; 1%, persons reporting multiple races; and less than 1% each, American Indians/Alaska Natives, Asians, and Native Hawaiians/other Pacific Islanders.
- **Sex:** At the end of 2008, 72% of adults and adolescents living with a diagnosis of HIV infection were male, and 28% were female.
- **Transmission category:** Among adult and adolescent males living with a diagnosis of HIV infection, 64% of infections were attributed to male-to-male sexual contact, 16% to injection drug use, 12% to heterosexual contact, and 7% to male-to-male sexual contact *and* injection drug use. Among adult and adolescent females living with a diagnosis of HIV infection, 73% of infections were attributed to heterosexual contact and 26% to injection drug use. Among children living with a diagnosis of HIV infection, 88% of infections were attributed to perinatal transmission.

#### Prevalence rates of diagnoses of HIV infection

At the end of 2008, in the 40 states with confidential name-based HIV infection reporting, the estimated

prevalence rate of diagnoses of HIV infection was 276.5 per 100,000 population (Table 15a). The estimated rates per 100,000 population were 496.3 among adult and adolescent males, 171.9 among adult and adolescent females, and 23.6 among children (aged less than 13 years at the time of diagnosis). Among all racial/ethnic groups, the highest estimated prevalence rate was that for blacks/African Americans: 979.9 per 100,000 population.

### Persons living with an AIDS diagnosis

From 2006 through 2008, the estimated number of persons living with an AIDS diagnosis increased steadily (Table 16a). At the end of 2008, an estimated 479,868 persons in the United States were living with an AIDS diagnosis.

- **Age group:** At the end of 2008, the largest percentage of persons living with an AIDS diagnosis were persons aged 45–49 (22%), followed by persons aged 40–44 (19%). From 2006 through 2008, the largest percentage increase in the number of persons living with an AIDS diagnosis was among persons aged 60–64 years.
- **Race/ethnicity:** At the end of 2008, the largest percentage of all persons living with an AIDS diagnosis—44%—were blacks/African Americans. Among the remaining racial/ethnic groups, the percentages were 34%, whites; 20%, Hispanics/Latinos; 1%, Asians and persons reporting multiple races; and less than 1% each, American Indians/Alaska Natives and Native Hawaiians/other Pacific Islanders.
- **Sex:** At the end of 2008, 76% of persons living with an AIDS diagnosis were male, and 24% were female.
- **Transmission category:** Among the 365,107 adult and adolescent males living with an AIDS diagnosis at the end of 2008, 62% of infections were attributed to male-to-male sexual contact, 18% to injection drug use, 11% to heterosexual contact, and 9% to male-to-male sexual contact *and* injection drug use. Among the 110,864 adult and adolescent females living with an AIDS diagnosis at the end of 2008, 66% of infections were attributed to heterosexual contact, and 32% were attributed to injection drug use. Among the 3,894 children living with an AIDS diagnosis,

95% of infections were attributed to perinatal transmission.

### Prevalence rates of AIDS diagnoses

At the end of 2008, the prevalence rate of AIDS diagnoses was estimated at 157.7 per 100,000 population (Table 16a). The estimated rates per 100,000 population were 297.3 among adult and adolescent males, 86.5 among adult and adolescent females, and 7.3 among children (aged less than 13 years at the time of diagnosis). Among all racial/ethnic groups, the highest estimated prevalence rate was that for blacks/African Americans: 560.0 per 100,000 population.

### ADDITIONAL RESOURCES

The following were prepared by using HIV surveillance data:

- *MMWR* articles (selected): <http://www.cdc.gov/hiv/resources/reports/mmwr/>
- Other surveillance reports: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/>
- Public-use slides updated annually: <http://www.cdc.gov/hiv/topics/surveillance/resources/slides/index.htm>

### SUGGESTED READINGS

- CDC. Advancing HIV Prevention: New Strategies for a Changing Epidemic—United States, 2003. *MMWR* 2003;52(15):329–332.
- CDC. Dear colleague letter: CDC recommends that all states and territories adopt confidential name-based surveillance systems to report HIV infections. [http://www.cdc.gov/hiv/pubs/070505\\_dearcolleague\\_gerberding.pdf](http://www.cdc.gov/hiv/pubs/070505_dearcolleague_gerberding.pdf). Published July 5, 2005. Accessed November 1, 2010.
- CDC. Epidemiology of HIV/AIDS—United States, 1981–2005. *MMWR* 2006;55(21):589–592.
- CDC. Establishing a holistic framework to reduce inequities in HIV, viral hepatitis, STDs, and tuberculosis in the United States. <http://www.cdc.gov/socialdeterminants>. Published October 2010. Accessed February 3, 2011.
- CDC. Guidelines for national HIV case surveillance, including monitoring for HIV infection and AIDS. *MMWR* 1999;48(RR-13):1–31.

- CDC. A heightened national response to the HIV/AIDS crisis among African Americans. <http://www.cdc.gov/hiv/topics/aa/resources/reports/heightendresponse.htm>. Revised June 2007. Accessed November 1, 2010.
- CDC. HIV infection—United States, 2005 and 2008. *MMWR* 2011;60(01)(suppl):87–89.
- CDC. HIV prevalence estimates—United States, 2006. *MMWR* 2008;57(39):1073–1076.
- CDC. HIV prevention strategic plan: extended through 2010. <http://www.cdc.gov/hiv/resources/reports/psp/>. Published October 2007. Accessed February 3, 2011.
- CDC. Questions and answers: general surveillance report questions. <http://www.cdc.gov/hiv/topics/surveillance/resources/qa/generalqa.htm>. Published November 2009. Accessed November 1, 2010.
- CDC. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR* 2006;55(RR-14):1–17.
- CDC. Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged <18 months and for HIV infection and AIDS among children aged 18 months to <13 years—United States, 2008. *MMWR* 2008;57(RR-10):1–12.
- CDC. Subpopulation estimates from the HIV incidence surveillance system—United States, 2006. *MMWR* 2008;57(36):985–989.
- CDC. Summary of changes to the national *HIV Surveillance Report*. [http://www.cdc.gov/hiv/topics/surveillance/resources/qa/summary\\_changes.htm](http://www.cdc.gov/hiv/topics/surveillance/resources/qa/summary_changes.htm). Published May 2010. Accessed November 1, 2010.
- CDC. Twenty-five years of HIV/AIDS—United States, 1981–2006. *MMWR* 2006;55(21):585–589.
- CDC. Vital Signs: HIV testing and diagnosis among adults—United States, 2001–2009. *MMWR* 2011;59(47):1550–1555.
- Glynn MK, Lee LM, McKenna MT. The status of national HIV case surveillance, United States 2006. *Public Health Rep* 2007;122(suppl 1):63–71.
- Hall HI, Song R, Rhodes P, et al. Estimation of HIV incidence in the United States. *JAMA* 2008;300(5):520–529.
- National HIV/AIDS strategy for the United States. <http://www.WhiteHouse.gov/ONAP>. Published July 2010. Accessed February 3, 2011.