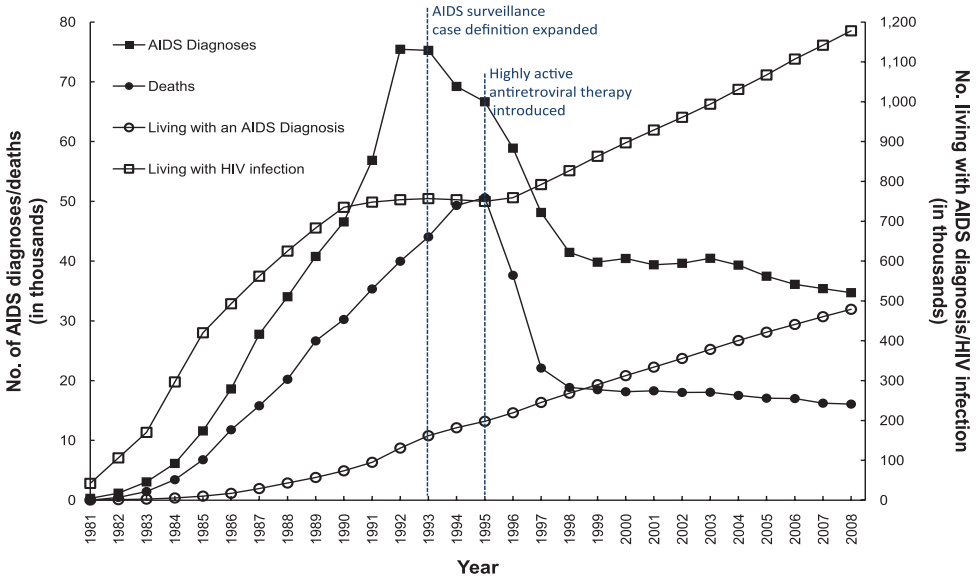
HIV in the United States: An Overview

August 2011

Creating an overview of the HIV epidemic in the United States requires combining different indicators of the epidemic, such as prevalence, incidence, transmission rates, and deaths. Therefore, this document uses multiple measures to provide a comprehensive picture of HIV in this country.

- **The number of people living with HIV infection in the United States (HIV prevalence) is higher than ever before.** CDC has estimated that more than 1 million (1,178,350) adults and adolescents were living with HIV infection in the United States at the end of 2008, the most recent year for which national prevalence estimates are available. This represents an increase of approximately 7% from the previous estimate in 2006 [1]. The increase is due to a higher number of people becoming infected with HIV than the number of people who die each year with HIV or AIDS.
- **Despite increases in the total number of people living with HIV infection, the annual number of new HIV infections (HIV incidence) has remained relatively stable in recent years.** According to the most recent incidence estimates, approximately 48,100 persons were infected with HIV in 2009. [2]. The estimated HIV incidence has been relatively stable since the late 1990s despite more people living with HIV infection every year and, thus, increased opportunities for transmission to occur.
- **The great majority of persons with HIV infection do not transmit HIV to others.** CDC estimates that there were 5 transmissions per 100 persons living with HIV infection in the United States in 2006 [3]. This means that at least 95% of those living with HIV infection did not transmit the virus to others that year – an 89% decline in the estimated rate of HIV transmission since the peak level of new infections in the mid-1980s. The decline in transmission is likely due to effective prevention efforts and the availability of improved testing and treatments for HIV. The lower transmission rate is what has enabled HIV incidence to remain stable despite increasing prevalence.

AIDS diagnoses and deaths and estimated number of persons living with AIDS diagnosis and living with diagnosed or undiagnosed HIV infection, among persons aged ≥13 years — United States, 1981–2008 [1].



Despite continued increases in the number of people living with HIV infection over time, better treatment options have resulted in fewer people receiving a diagnosis of AIDS or dying from AIDS. Prevention efforts have helped keep the overall number of new HIV infections stable.

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

CS224101-A

- **More people in the United States with HIV know of their HIV infection.** The estimated proportion of persons in the United States with HIV who know they are infected increased from 75% in 2003 to 80% in 2008 [1]. This is a sign of progress for HIV prevention because research shows that most individuals reduce behaviors that could transmit HIV when they know they are infected [4].
- **Diagnoses of HIV infection reported to CDC have remained stable in recent years.** In 2009, an estimated 42,011 persons were diagnosed with HIV infection[a] in the 40 states with long term, confidential, name-based HIV infection reporting. [5]. Diagnoses of HIV infection remained stable in the 40 states from 2006–2009.
- **The HIV diagnosis rate has also remained stable in recent years.** From 2006–2009, the annual estimated rate of diagnoses of HIV infection (the number of HIV diagnoses per 100,000 persons) remained relatively stable in the 40 states with long term, confidential, name-based HIV reporting. In 2009, the estimated rate of HIV diagnoses was 17.4 per 100,000 persons. [5] 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 (HIV incidence) in certain subgroups.
- **HIV disproportionately affects certain populations.** Men who have sex with men (MSM), blacks/African Americans, and Hispanic/Latinos are the groups most affected by HIV infection.
  - » **MSM** represent approximately 2% of the US population, but accounted for more than 50% of all new HIV infections annually during 2006–2009 [6, [b], 2]. In 2009, MSM accounted for 57% of HIV diagnoses. [5].
  - » From 2006–2009, over 25,000 MSM were newly infected with HIV each year. [2].
  - » Among MSM aged 13-29, HIV incidence among black/African American MSM increased significantly (48%) from 2006 through 2009 with a statistically significant 12.2% estimated annual percentage increase [2].
  - » From 2006–2009, estimated diagnoses of HIV increased approximately 14% among MSM [5]. This increase may be due to a combination of factors: increased incidence among certain subgroups, increased testing, and diagnosis earlier in the course of infection [7, [c]]. These increases may also be affected by the degree of uncertainty inherent in statistical estimates.
  - » **Blacks/African Americans** are the racial/ethnic group most affected by HIV. Blacks/African Americans represented approximately 14% of the US population, but accounted for an estimated 44% of new HIV infections in 2009 [2].
  - » At some point in their life, 1 in 16 black/African American men will receive a diagnosis of HIV, as will one in 30 black women [8].
  - » In 2009 the estimated rate of new HIV infection for black/African American men was more than six times as high as that of white men, nearly two and a half times that of Hispanic/Latino men, and more than twice that of black/African American women [2].
  - » In 2009 the estimated rate of new HIV infection for black/African American women was 15 times the rate for white women, and over three times that of Hispanic women [2].
  - » From 2006–2009, the estimated number and rate of HIV diagnoses among blacks/African Americans remained stable. In 2009, blacks/African Americans had an HIV diagnoses rate of 66.6 per 100,000 persons [5].

Currently, only 40 states have collected HIV diagnosis data from name-based HIV reporting systems for a sufficient length of time (defined as being submitted to CDC since at least January 2006) to be included in CDC's estimates of diagnoses of HIV infection. However, CDC's AIDS data represent all 50 states and the District of Columbia. The 2009 HIV Surveillance report contains tables with diagnoses of HIV infection and AIDS that include 50 states, Washington DC, and 5 US territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and the US Virgin Islands). National prevalence estimates (number of persons living with HIV infection) are also for the 50 states and DC, as are estimates for incidence (the number of new HIV infections) and transmission rate (the number of HIV transmissions per 100 people).

  - » **Hispanics/Latinos** represented 16% of the population, but accounted for an estimated 20% of new infections in 2009 [2].
  - » In 2009 the estimated rate of new HIV infection among Hispanic/Latino men was two and a half times that of white men [2].
  - » In 2009 the estimated rate of new HIV infection among Hispanic/Latina women was four and a half times that of white women [2].
  - » From 2006–2009, estimated number of HIV diagnoses remained stable among Hispanics/Latinos [5].
  - » The rate of HIV diagnoses among Hispanic/Latinos decreased, possibly reflecting the growing population of Hispanics/Latinos in the United States [5].
- **Despite many prevention and treatment successes, people are still dying from AIDS.** HIV remains a significant cause of death for some populations. For example, in 2007, HIV was the third leading cause of death for black males and black females aged 35–44 and the fourth leading cause of death for Hispanic/Latina females in the same age range [9,[d]]. Further, MSM are strongly affected by HIV and represent the majority of persons with an HIV diagnosis who have die in the United States.

  Overall, nearly 594,500 persons with an AIDS diagnosis in the United States have died since the beginning of the epidemic through 2008 (the most recent year that death data are available) [5]. From 2006 through 2008, the annual estimated rate (per 100,000) of deaths of persons with an AIDS diagnosis decreased 7%. Interpreting data regarding deaths of persons with a diagnosis of HIV or AIDS can be difficult because many factors can affect the data. For example:

  - » changes may be influenced by significant efforts that have been made to improve death reporting by state and local HIV surveillance programs in recent years;
  - » the changes may be related to the availability of more effective treatments for persons with HIV infection or AIDS;
  - » the group of persons living with HIV infection is aging, which may result in an increased number of deaths from any cause, including those unrelated to HIV infection;
  - » there are uncertainties inherent in statistical estimates.
- **Too many people are diagnosed with HIV late in the course of infection.** Despite an increase in persons getting diagnosed with HIV earlier in the course of their infection [7], far too many continue to be diagnosed late. Among persons initially diagnosed with HIV infection during 2008, one-third (33%) received an AIDS diagnosis within 12 months [5]. These late diagnoses represent missed opportunities for treatment and prevention.
- **AIDS disproportionately affects different parts of the country.** HIV and AIDS have had a severe impact on all regions of the country. It remains mostly an urban disease, with the majority of individuals diagnosed with AIDS in 2009 residing in areas with more than 500,000 people. Areas hardest hit (by ranking of AIDS cases per 100,000 people) include Miami and Jacksonville, Florida; Baton Rouge, Louisiana; New York City, New York; and Washington DC. [5].

Key References that Explain the HIV Epidemic in the United States

Following are some of the key indicators of HIV disease in the United States and the references that best explain them.

- **HIV incidence in the United States (including subpopulation estimates)**: Prejean J, Song R, Hernandez A, Ziebell R, Green T, et al. (2011) Estimated HIV Incidence in the United States, 2006-2009. PLoS ONE 6(8): e17502. doi:10.1371/journal.pone.0017502
- **HIV incidence estimation method**: Karon JM, Song R, Brookmeyer R, et al. Estimating HIV incidence in the United States from HIV/AIDS surveillance data and biomarker HIV test results. *Statistics in Medicine*. 2008;27(23): 4617–4633.
- **HIV prevalence in the United States**: CDC. HIV surveillance -- United States, 1981-2008. MMWR 2011;60:689-693.
- **Estimate of undiagnosed persons with HIV in the United States**: CDC. HIV surveillance -- United States, 1981-2008. MMWR 2011;60:689-693.
- **HIV transmission rates**: Holtgrave DR, Hall HI, Rhodes PH, et al. Updated annual HIV transmission rates in the United States, 1977-2006. *J Acquir Immune Defic Syndr* 2009;50(2):236-238.
- **Lifetime risk of HIV infection**: CDC. Estimated Lifetime Risk for Diagnosis of HIV Infection Among Hispanics/Latinos — 37 States and Puerto Rico, 2007. *MMWR*. 2010;59(40):1297-1301.
- **Deaths from HIV**:
  - » CDC. WISQARS Leading Causes of Death Reports, 1999 – 2007.
  - » NCHS. Deaths: Final data for 2006. Statistics Reports 2009;57(14).
- **Estimate of number of MSM in the United States and MSM's rates of HIV and syphilis**: Purcell DW, Johnson C, Lansky A, et al. Presented at 2010 National STD Prevention Conference; Atlanta, GA. abstract #22896.

The following indicators can be found in the CDC's HIV Surveillance Report (CDC. HIV Surveillance Report, 2009; vol 21.)

- **Diagnoses of HIV infection in the United States (40 states and 5 US dependent areas)**
- **Persons living with a diagnosis of HIV infection (40 states and 5 US dependent areas)**
- **AIDS diagnoses in the United States and 5 US dependent areas**
- **Persons living with an AIDS diagnosis in the United States and 5 US dependent areas**
- **Deaths of persons with a diagnosis of HIV infection or AIDS**
- **Time to AIDS diagnosis after a diagnosis of HIV infection (late HIV diagnoses)**
- **Survival time after diagnosis of HIV infection or AIDS**
- **Geographic (United States) distribution of diagnoses of HIV infection or AIDS**

References

1. CDC. HIV surveillance—United States, 1981-2008. *MMWR* 2011;60: 689-693.
2. Prejean J, Song R, Hernandez A, Ziebell R, Green T, et al. (2011) Estimated HIV Incidence in the United States, 2006-2009. PLoS ONE 6(8): e17502. doi:10.1371/journal.pone.0017502
3. Holtgrave DR, Hall HI, Rhodes PH, et al. Updated annual HIV transmission rates in the United States, 1977-2006. *J Acquir Immune Defic Syndr* 2009;50(2):236-238.
4. Marks G, Crepaz N, Senterfitt JW, Janssen RS. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. *J Acquir Immune Defic Syndr* 2005;39:446-453.

a. New diagnoses are not the same as new infections (incidence). A person can be infected with HIV for years before being diagnosed.

5. CDC. HIV Surveillance Report, 2009. Vol 21. Available at http://www.cdc.gov/hiv/surveillance/resources/reports/2009report/ Accessed July 29, 2011.
6. Purcell DW, Johnson C, Lansky A, et al. Presented at 2010 National STD Prevention Conference; Atlanta, GA. abstract #22896. Available at http://www.cdc.gov/hiv/topics/msm/resources/research/msm.htm Accessed July 29, 2011.

b. The MSM rates were calculated using the methodology described in reference #7, which is different than the methodology used to calculate the other rates in this fact sheet, which are based on population estimates from the US Census Bureau.

7. CDC. Late HIV testing—34 states, 1996–2005. *MMWR* 2009;58:661-665.

c. MSM accounts for a higher proportion of testing for acute (newly acquired) infection relative to other risk groups.

8. Hall, HI, An Q, Hutchinson A, et al. Estimating the Lifetime Risk of a Diagnosis of the HIV Infection in 33 States, 2004–2005. *J Acquir Immune Defic Syndr* 2008;49(3): 294-297.
9. CDC. WISQARS Leading Causes of Death Reports, 1999–2007. Accessed July 29, 2011.

d. Deaths of persons with a diagnosis of HIV or AIDS may be due to any cause, not necessarily HIV disease.