

Companion Text for the Slide Set: *Minnesota HIV Surveillance Report, 2010*

INTRODUCTION

Overview

The *Minnesota HIV Surveillance Report, 2010* describes the occurrence of reported HIV infections in Minnesota by person, place, and time through December 31, 2010. Such data provide information about where and among whom HIV transmission is likely occurring. This knowledge can in turn be used to help educate, target prevention efforts, plan for services, and develop policy.

Data Source

In Minnesota, laboratory-confirmed infections of human immunodeficiency virus (HIV) are monitored by the Minnesota Department of Health (MDH) through an active and passive surveillance system. State rules (Minnesota Rule 4605.7040) require both physicians and laboratories to report all cases of HIV infection (HIV or AIDS) directly to the MDH (passive surveillance). Additionally, regular contact is maintained with several clinical sites to ensure completeness of reporting (active surveillance).

Data in this report include cases diagnosed with HIV infection¹ as of December 31, 2010 and reported to the MDH as of April 4, 2010. All data are displayed by earliest date of HIV diagnosis. Refer to the *HIV Surveillance Technical Notes* for a more detailed description of data inclusions and exclusions.

Data Limitations

Factors that impact the completeness and accuracy of the available surveillance data on HIV/AIDS include the level of screening and compliance with case reporting. Thus, any changes in numbers of infections may be due to one of these factors, or due to actual changes in HIV/AIDS occurrence.

¹ HIV (non-AIDS) or AIDS at first report.

The data presented in this report are not adjusted for reporting delays. Thus, the case number presented for the most recent reporting year can be viewed as a minimum and will likely increase in the future as further case reports are received. However, the number of cases diagnosed within a calendar year changes relatively little after two years have passed.

HIV/AIDS in the UNITED STATES

Compared with the rest of the nation, Minnesota is considered to be a low to moderate HIV/AIDS incidence state. In 2008, state-specific AIDS rates ranged from 1.4 per 100,000 persons in South Dakota to 27.6 per 100,000 persons in New York. Minnesota had the 15th lowest AIDS rate (4.0 AIDS cases reported per 100,000 persons)². Compared with states in the Midwest region, Minnesota had a moderate AIDS rate. At this time all states have confidential name-based HIV case reporting. However, since some states have just implemented name-based reporting it is not possible to compare state-specific HIV rates. A national comparison of HIV infection rates will be possible in 2013, when all states will have mature HIV reporting systems.

HIV/AIDS IN MINNESOTA

MDH HIV/AIDS Surveillance: Cumulative cases

AIDS has been tracked in Minnesota since 1982. In 1985, AIDS officially became a reportable disease to state and territorial health departments nationwide. Also in 1985, when the Food and Drug Administration approved the first diagnostic test for HIV, Minnesota became the first state to make HIV infection a reportable condition. As of December 31, 2010, a cumulative total of 9,493 cases of HIV infection have been reported among Minnesota residents.³ This includes 5,824 AIDS cases and 3,669 HIV, non-AIDS cases. Of these 9,493 HIV/AIDS cases, 3,228 are known to be deceased

² Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report* 2008:19

³ This number includes persons who reported Minnesota as their state of residence at the time of their HIV and/or AIDS diagnosis. It also includes persons who may have been diagnosed in a state that does not have HIV reporting and who subsequently moved to Minnesota and were reported here. HIV-infected persons currently residing in Minnesota, but who resided in another HIV-reporting state at the time of diagnosis are excluded.

through correspondence with the reporting source, other health departments, review of death certificates, active surveillance, and matches with the National Death Index.

Overview of HIV/AIDS in Minnesota, 1990-2010

The annual number of new AIDS cases increased steadily from the beginning of the epidemic to the early 1990s, reaching a peak of 361 cases in 1992. Beginning in 1996, both the number of newly diagnosed AIDS cases and the number of deaths among AIDS cases declined sharply, primarily due to the success of new antiretroviral therapies including protease inhibitors. These treatments do not cure, but can delay progression to AIDS among persons with HIV (non-AIDS) infection and improve survival among those with AIDS. Thus between 2001 and 2004 the number of AIDS cases diagnosed increased from 145 in 2001 to 247 in 2004, a 70 percent increase. Since 2004 the number of AIDS cases diagnosed has once again steadily declined, with 173 AIDS cases diagnosed in 2010. The number of HIV (non-AIDS) diagnoses remained fairly constant from the mid 1990s to 2004 at approximately 200 cases per year. However, over the past 6 years there has been a 25 percent increase from 199 cases in 2004 to 248 cases in 2010, with a peak of 280 cases in 2009. By the end of 2010, an estimated 6,841 persons with HIV/AIDS were assumed to be living in Minnesota.⁴

NEW HIV INFECTIONS IN MINNESOTA

In this report, the term “new HIV infections” refers to HIV-infected Minnesota residents who were diagnosed in a particular calendar year and reported to the MDH. This includes persons whose first diagnosis of HIV infection is AIDS (AIDS at first diagnosis). HIV infection data are displayed by earliest known date of HIV diagnosis.

New HIV Infections by Geography

Historically, about 90% of new HIV infections diagnosed in Minnesota have occurred in Minneapolis, St. Paul and the surrounding seven-county metropolitan area. This has changed slightly over time, and currently about 85 percent of new infections

⁴ This number includes persons whose most recently reported state of residence was Minnesota, regardless of residence at time of diagnosis. This estimate does not include persons with undiagnosed HIV infection.

occur in the metropolitan area surrounding Minneapolis/St. Paul. Additionally, although HIV infection is more common in communities with higher population densities and greater poverty, HIV or AIDS has been diagnosed in over 90% of counties in Minnesota.

New HIV Infections by Gender

Since the beginning of the epidemic, males have accounted for a majority of new HIV infections diagnosed per year. However, the number and the proportion of cases among females have increased over time. In 1990, males accounted for 89% of new HIV infections. In 2010, 79% of new infections occurred among males and 21% among females.

New HIV Infections by Race/Ethnicity⁵

Trends in the annual number of new HIV infections diagnosed among males differ by racial/ethnic group. New cases among White males drove the epidemic in the 1980s and early 1990s. Although Whites still account for the largest number of new infections among males, this number decreased steadily between 1991 and 2000 when it reached a low of 101. Since 2000, numbers among White males have increased steadily, from 101 to 142 in 2010, a 41 percent increase.

The annual number of cases for African American males peaked in 1992 at 78 and gradually decreased to 33 in 2003. Since 2004 the number of cases among African American males has been stable at around 40 cases per year. However, over the past four years the number of cases in this group has trended upwards, with 58 cases diagnosed in 2010 and a peak of 64 in 2009. This is the largest number seen since 1994.

Overall, the numbers of new cases in all other racial/ethnic groups during this same time remained stable or increased. Increases in the annual number of HIV infections diagnosed among Hispanic and African-born males, in particular, have been recorded since the late 1990s. In 2006, the number of cases diagnosed among Hispanic males (37 cases) was the highest ever recorded in Minnesota, doubling the number seen in 2005. This number has remained high since, with 29 cases diagnosed in 2010.

⁵ Black race was broken down into African-born and African American (Black, not African-born). The numbers exclude persons arriving through the HIV-Positive Refugee Resettlement Program and other refugee/immigrants with an HIV diagnosis prior to arrival.

Similarly, trends in the annual number of HIV infections diagnosed among females differ by racial/ethnic group. In the beginning of the epidemic, White women accounted for a majority of newly diagnosed cases among females. Since 1991, the number of new infections among women of color has exceeded the number among White women. Since 2001, the annual number of new infections diagnosed among African American females has increased slightly overall, although without a clear pattern from year to year. In 2010 there were 16 cases diagnosed among African American women, compared to 19 in 2009 and 23 in 2008. Between 1999 and 2002 the number of cases among African-born females increased significantly, from 13 to 39 cases. However, starting in 2003 the number decreased, and 17 new cases were diagnosed in 2006. Since 2007, the number of cases among African-born women has remained fairly stable around 22 cases per year. The annual number of new infections diagnosed among Hispanic, American Indian, and Asian females continues to be quite small (10 cases or fewer per year for each of these groups).

The most recent data illustrate that men and women of color continue to be disproportionately affected by HIV/AIDS. Men of color make up approximately 12% of the male population and 46% of the infections diagnosed among men in 2010. Whites make up approximately 88% of the male population in Minnesota and 54% of the new HIV infections diagnosed among men in 2010. Similarly for females, women of color make up approximately 11% of the female population and 68% of the new infections among women. Whites make up approximately 89% of the female population and 32% of new infections among women in 2010.⁶

Note that race is not considered a biological reason for disparities in the occurrence of HIV experienced by persons of color. Race, however, can be considered a marker for other personal and social characteristics that put a person at greater risk for HIV exposure. These characteristics may include, but are not limited to, lower socioeconomic status, less education, and greater prevalence of drug use.

⁶ Population estimates based on U.S. Census 2000 data.

New HIV Infections among Adolescents and Young Adults⁷, 1990-2010

Many people are infected with HIV for years before they actually seek testing and become aware of their HIV status as seen in the number of new cases diagnosed as AIDS at first report. This phenomenon especially affects the observed case counts for younger age groups. As a result, the reported number of HIV infections among youth⁵ (with few or no reports of AIDS at first diagnosis) is likely to underestimate the *true* number of new infections occurring in the population more than the reported number of cases in older age groups does.

In 1990, 10% (45/436) of new HIV infections reported to the MDH were among youth. In 2010 this percentage was 23% (78/331). Just like overall trends, trends among youth differ by gender and race. Among young men, the number of new HIV diagnoses peaked in 1991 at 39 cases and then declined through the mid 1990s to a low of 14 cases in 1997. Since 1997 the annual number of cases diagnosed among young men increased steadily to 32 in 2000, but then dropped to 18 cases in 2001. Since then the number of new cases among young males has been increasing steadily, a few cases per year. However, in 2009 the number of cases increased dramatically by 83 percent compared to 2008, to 78 cases, the highest seen since 1986. In 2010, the number of cases dropped to 67, but still remained above the 2008 count of 44 cases. Since 2001, the number of cases among young males has increased by over 300 percent.

Unlike young men, the annual number of new HIV infections diagnosed among young women has remained relatively consistent over time. For example, 18 cases of HIV infection were diagnosed among young women in 1992 and 11 cases in 2010. Females accounted for 14% (11/78) of new HIV infections diagnosed among adolescents and young adults in 2010. Overall, young women accounted for 16% (11/68) of new infections among females and young males accounted for 25% (67/263) of new infections among males.

Similar to the adult HIV/AIDS epidemic, persons of color account for a disproportionate number of new HIV infections among adolescents and young adults. Among young men, Whites accounted for 43% of new HIV infections diagnosed between

⁷ In this report, adolescents are defined as 13-19 year-olds and young adults as 20-24 year-olds; these two groups are jointly referred to as "youth." Analyses are performed for adolescents and young adults combined because case numbers are too small to present meaningful data separately for each.

2008 and 2010, African Americans accounted for 37%, Hispanics 10%, and African-born 1% of the cases. American Indians, Asians and other racial groups made up 2%, 3% and 5% of the remaining cases, respectively. Among young women, Whites accounted for 35%, African Americans 28%, African-born 12%, and Hispanics 9% of the new infections diagnosed during the same time period. American Indians and other racial groups made up 7% and 9% of the remaining cases.

Starting in 2004, MDH has used a risk re-distribution method to estimate mode of exposure among those cases with unknown risk. For additional details on how this was done please read the *HIV Surveillance Technical Notes*. All mode of exposure numbers referred to in the text are based on the risk re-distribution.

Men having sex with men (MSM) was the predominant mode of HIV exposure among adolescent and young adult males, accounting for an estimated 96% of the new HIV infections diagnosed between 2008 and 2010, while the joint risk of MSM and injecting drug use (IDU) accounted for an estimated 3% of the cases in the same time period. Heterosexual sex accounted for an estimated 1% of cases.

Heterosexual contact accounted for an estimated 95% of new HIV infections diagnosed among adolescent and young adult females between 2008 and 2010, while IDU accounted for an estimated 5% of the cases.

New HIV Infections by Mode of Exposure

Since the beginning, men have driven the HIV/AIDS epidemic in Minnesota and male-to-male sex has been the predominant mode of exposure reported. The number and proportion of new HIV infections attributed to MSM have been decreasing since 1991 reaching an apparent plateau in 2000 at just under 130 cases per year. Since 2000, the number of new cases diagnosed among MSM has increased steadily and in 2010, MSM accounted for 54% of all new infections (68% among males) in 2010, with 178 cases diagnosed. On a much smaller scale, the numbers of male cases attributed to IDU and MSM/IDU also have been decreasing over the past decade, while the number of cases attributed to heterosexual contact has remained somewhat stable. The number of cases without a specified risk has increased overall for the past decade.

Throughout the epidemic, heterosexual contact has been the predominant mode of HIV exposure reported among females. IDU is the second most common mode of transmission making up 4% of cases among women in 2010. Unspecified risk has been designated for a growing percentage of cases for the past several years. In 1996, 13% of women diagnosed with HIV infection did not have a specified mode of transmission. This percentage grew to 24% in 2010. Most of these cases would not agree to or could not be interviewed by a Disease Intervention Specialist⁸ from the MDH. Some cases may yet be interviewed, thus, a portion of these women will later have an identified mode of transmission. This explains *part* of the higher percentage of cases in recent years with an unspecified mode of exposure. According to a study conducted by the Centers for Disease Control and Prevention (CDC)⁹, it is likely that at least 80% of women with unspecified risk acquired HIV through heterosexual contact. Heterosexual contact as a mode of HIV transmission is currently only assigned to a female case if she knows that a male sexual partner of hers was HIV-infected or at increased risk for HIV. As mentioned above, in starting in 2004 MDH has used a risk re-distribution method to estimate mode of exposure among those with no risk and the numbers below reflect the risk re-distribution (see *HIV Surveillance Technical Notes* for further details).

The proportion of cases attributable to a certain mode of exposure differs not only by gender, but also by race. Of the new HIV infections diagnosed among males between 2008 and 2010, MSM or MSM/IDU accounted for an estimated 96% of cases among White males, 93% of cases among Hispanic males, 86% of cases among African American males, and 17% of cases among African-born males. The latter three also had the highest proportions of cases with unspecified risk (33%, 22%, and 77%, respectively – this includes cases for whom no interview has been obtained; see *HIV Surveillance Technical Notes* for further information about re-distribution of mode of exposure categories). It is hypothesized that due, in part, to social stigma many of the cases with unspecified risk were unclassified MSM cases and is reflected in the risk re-distribution. This may not hold as true for African-born cases given that heterosexual contact and contaminated medical equipment have been established modes of HIV exposure in their

⁸ Disease Intervention Specialists attempt to contact all persons recently diagnosed with HIV in order to provide HIV education, partner notification, and connect the person with medical care or other resources.

⁹ MMWR 2001; 50(RR-6):31-40.

countries of origin. IDU was estimated as a risk in 5% of male African American cases, 2% of Hispanic cases and 3% of male White cases diagnosed during 2008-2010. The number of cases among Asian and American Indian men during the years 2008-2010 was insufficient to make generalizations regarding risk (less than 20 cases in each group), but male-to-male sex appears to be the most prominent mode of exposure among Asian males, while IDU related transmission appears to be more prominent among American Indian males.

Heterosexual contact with a partner who has or is at increased risk for HIV infection accounted for an estimated 92% of cases among African American females, 88% of White females, and 99% of cases among African-born females between 2008 and 2010. The percent of cases with unspecified risk among African-born and African American females, 20% and 22% respectively, was higher than for White females (10%) (see *HIV Surveillance Technical Notes* for further information about re-distribution of mode of exposure categories). IDU was estimated as a risk for 12% of cases among Whites, and 4% among African Americans. The small number of cases in 2008-2010 among Hispanic, Asian, and American Indian women (less than 20 cases in each group) is insufficient to make generalizations regarding risk.

Mother-to-Child HIV Transmission

The ability to interrupt the transmission of HIV from mother to child via antiretroviral therapy and appropriate perinatal care is an important accomplishment in the history of the HIV/AIDS epidemic. Newborn HIV infection rates range from 25-30% without antiretroviral therapy, but decrease to 1-2% with appropriate medical intervention. Unfortunately, these benefits have largely only been realized in the developed world where antiretroviral therapies are more accessible than in undeveloped countries.

For 15 years the number of births to HIV-infected women increased steadily from 14 in 1996 to 71 in 2009. However, the number of births decreased to 46 in 2010. During the same time period the rate of transmission has decreased from 15% between 1994 and 1996 to 1.0% in the past three years.

The rate of transmission in Minnesota between 1982 and 1994 (before widespread use of zidovudine¹⁰ to prevent mother-to-child HIV transmission) was 25%. Proper prenatal care, including HIV screening for all pregnant women and appropriate medical intervention for those infected, is a vital element in preventing the spread of HIV.

Special Populations:

New HIV Infections among Foreign-born Persons

The number of new HIV infections diagnosed among foreign-born persons in Minnesota has steadily increased from 20 cases in 1990 to 58 cases in 2010. This increase has been largely driven by the increase of cases among African-born persons from 8 cases in 1990 to 33 cases in 2010, as well as, persons from Mexico, Central and South America from 6 cases in 1990 to 19 cases in 2010. Among new HIV infections diagnosed in 2010, 18% were among foreign-born persons. Based on U.S. Census 2000 data, foreign-born persons make up 5% of the total Minnesota population and are, therefore, disproportionately affected by HIV¹¹. Among African-born this disparity is even more evident, while African-born persons make up less than 1% of the Minnesota population they accounted for 10% of new HIV infections in 2010.

Females account for a greater percentage of foreign-born cases (41%) than of overall cases (21%), and on average foreign-born cases are slightly older (median age at diagnosis: 37) than US-born cases (median age at diagnosis: 35).

Six countries (Somalia, Mexico, Guatemala, Liberia, Nigeria, and Burundi) accounted for a majority (57%) of new infections among foreign-born persons, however there are over twenty-five countries represented among the 58 new infections in 2010.

Late Testers: Progression to AIDS within one year of HIV diagnosis

Since 2000, approximately one third of all new HIV infection cases diagnosed in Minnesota have either been AIDS at first diagnosis, or have progressed to an AIDS diagnosis within one year of initial diagnosis with HIV (non-AIDS) infection. As with

¹⁰ A common antiretroviral drug.

¹¹ Based on U.S. Census 2000 data, 260,463 foreign-born persons, including 35,188 African-born persons are living in Minnesota out of a total population of 4,919,479. Because there are many reasons foreign-born persons may not be included in the census count (e.g. difficulties with verbal or written English), these numbers are likely an underestimate of the actual size of the foreign-born population living in Minnesota.

other characteristics of the HIV epidemic in Minnesota, the proportion of late testers varies by demographic characteristics. The most significant differences occur by race/ethnicity, with the proportion of late testers between 2000 and 2010 among Hispanics (47%) and African-born (35%) being higher than that among American Indians (32%), Asian/Pacific-Islanders (33%), Whites (29%) and African Americans (30%). Differences by age are as expected with the percentage of late testers increasing with age at time of diagnosis. In 2010¹², 10% of those diagnosed between the ages of 13 and 24 were late testers compared to 44% of those 40 years and older. Finally, the percentage of late testers is also significantly higher among foreign-born cases compared to other cases. In 2010, 48% of foreign-born cases were late testers compared to 26% of US-born cases.

¹² Percentage of late testers for 2010 includes only those progressing to AIDS through January 2010. As such, this percentage is likely to increase as additional reports are made to the MDH.