HIV/AIDS Prevalence & Mortality Report, 2002

Minnesota Department of Health
HIV/AIDS Surveillance System

MINNESOTA MDH DEPARTMENT OF HEALTH

Introduction (I)

- These three introduction slides provide a general context for the data used to create this slide set. If you have questions about any of the slides please refer to the ***Companion Text*** *to the Minnesota HIV/AIDS Prevalence & Mortality Report, 2002 or HIV/AIDS Prevalence & Mortality* ***Technical Notes****.*

- This slide set displays estimates of the number of persons living with HIV/AIDS (**prevalence**) and mortality in Minnesota by person, place, and time.

- The slides rely on data from HIV/AIDS cases diagnosed through 2002 and reported to the Minnesota Department of Health (MDH) HIV/AIDS Surveillance System.

Introduction (II)

- Data analyses exclude persons diagnosed in federal or private correctional facilities, but include state prisoners (n=99).

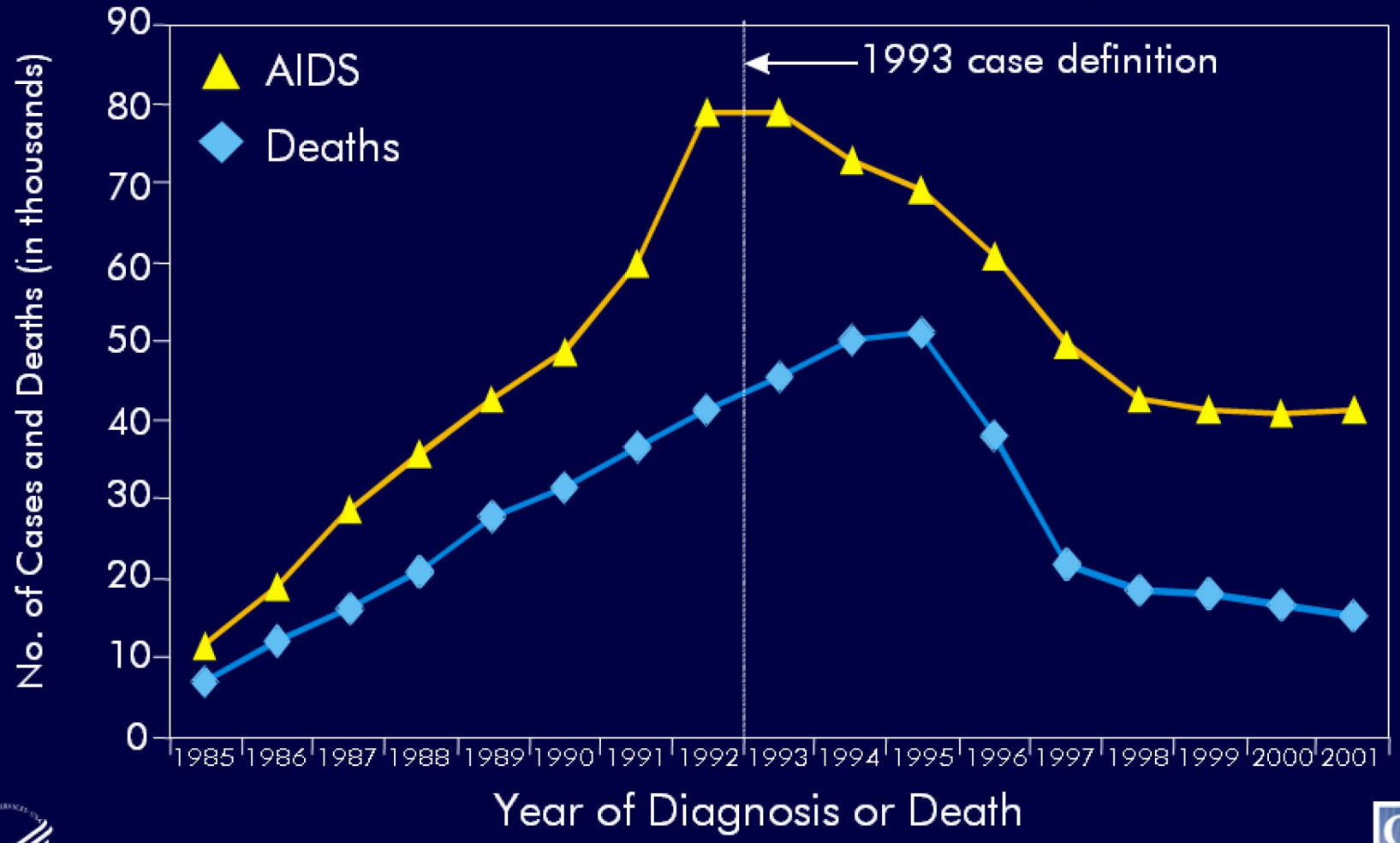
- Some limitations of surveillance data:
  - Data do not include HIV-infected persons who have not been tested for HIV
  - Data do not include persons whose positive test results have not been reported to the MDH
  - Case numbers for the most recent years may be undercounted due to delays in reporting

Introduction (III)

- Persons are assumed to be alive unless the MDH has knowledge of their death.
- Persons whose most recently reported state of residence was Minnesota are assumed to be currently residing in Minnesota unless the MDH has knowledge of their relocation. Our ability to track changes of residence, including within the state, is limited.
- Vital status and current residence are updated through one or more of the following methods:
  - Standard case reporting
  - Correspondence with other health departments
  - Obituary reviews (daily)
  - Active surveillance (monthly)
  - Death certificate reviews (annually)
  - National Death Index match

National Context

Estimated Incidence of AIDS and Deaths of Adults and Adolescents with AIDS*, 1985 - 2001, United States

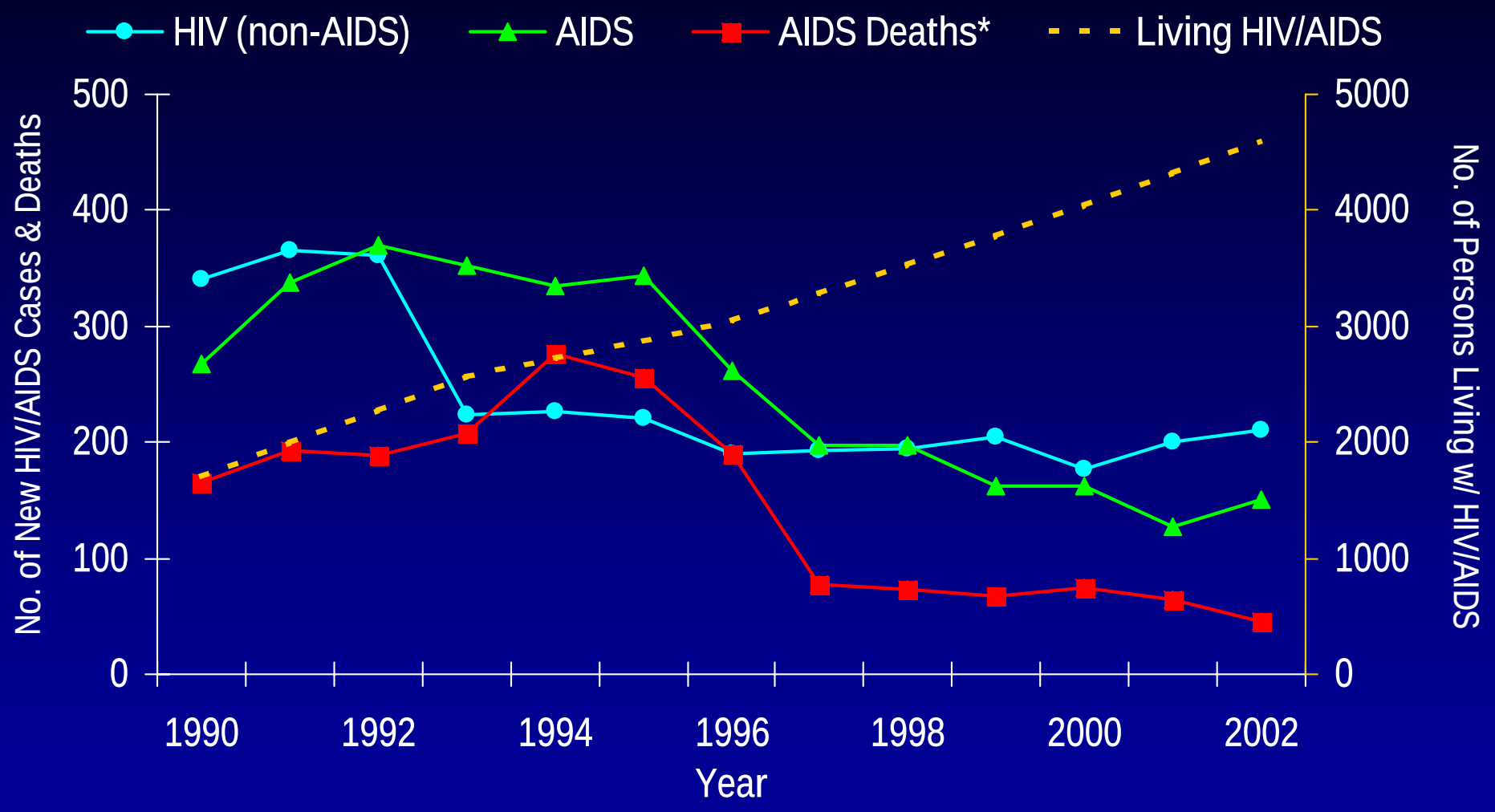


*Adjusted for reporting delays

Overview of HIV/AIDS in Minnesota

HIV/AIDS in Minnesota:

Number of New Cases, Prevalent Cases, and Deaths by Year, 1990-2002



* *Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota

Estimated Number of Persons Living with HIV/AIDS in Minnesota

- As of December 31, 2002, 4,598* persons are assumed alive and living in Minnesota with HIV/AIDS
  - 2,736 living with HIV infection (non-AIDS)
  - 1,862 living with AIDS

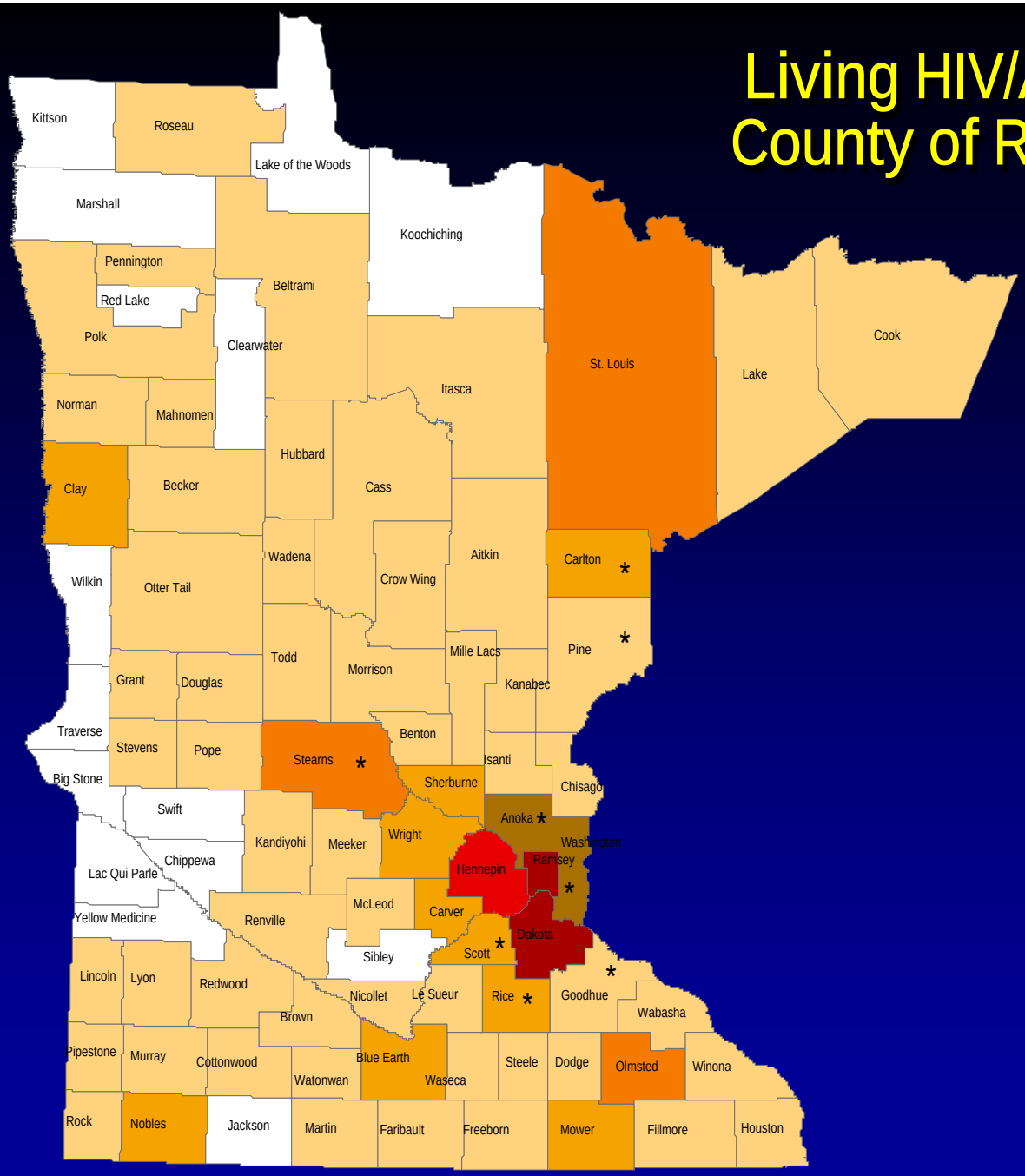
- This number includes 439 persons who were first reported with HIV or AIDS elsewhere and subsequently moved to Minnesota

- This number excludes 439 persons who were first reported with HIV or AIDS in Minnesota and subsequently moved out of the state

** This number includes persons who reported Minnesota as their current state of residence, regardless of residence at time of diagnosis.*

Place

Living HIV/AIDS Cases by County of Residence, 2002



Number Living with HIV/AIDS

- None
- 1 - 10
- 11 - 30
- 31 - 90
- 91 - 150
- 151 – 1,000
- 1,001 – 2,770

City of Minneapolis – 2,159
City of St. Paul – 681
Suburban[#] – 1,198
Greater Minnesota - 560

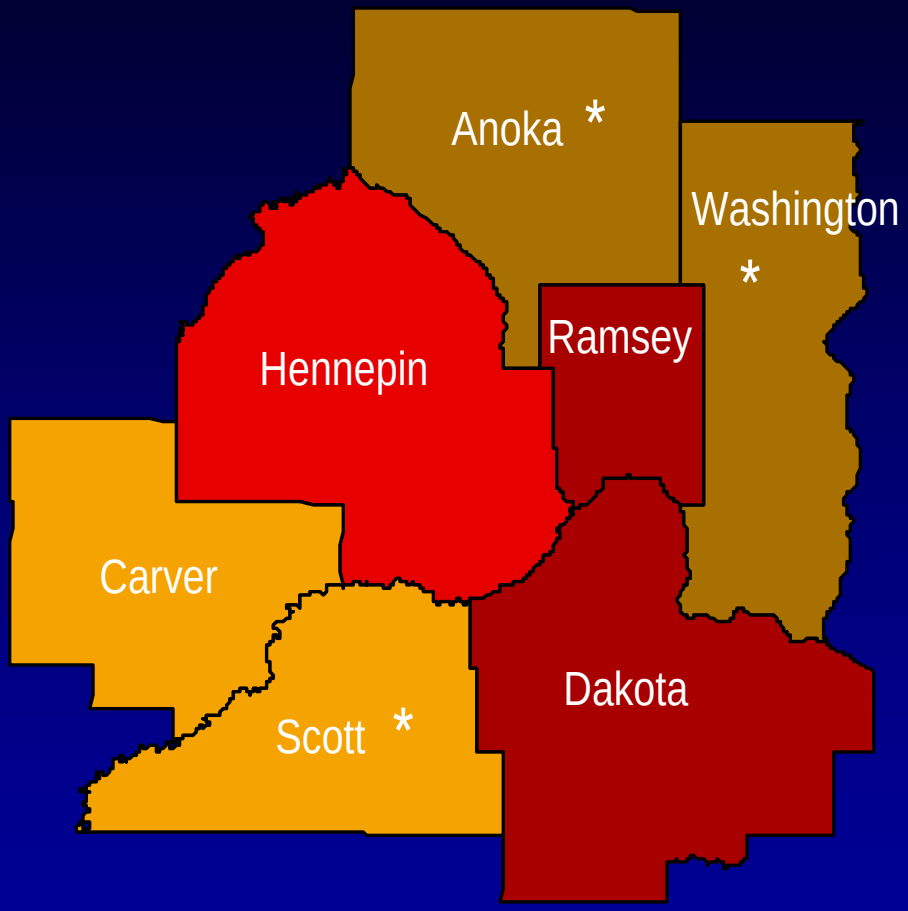
Total number = 4,598
(27 people missing residence information)

* Counties in which a state correctional facility is located

[#] 7-county metro area, excluding the cities of Minneapolis and St. Paul

Data Source: *Minnesota HIV/AIDS Surveillance System*

Map of Metro Area:
Living HIV/AIDS Cases by County of Residence, 2002



Number Living with HIV/AIDS

- None
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- 11 - 30
- 31 - 90
- 91 - 150
- 151 – 1,000
- 1,001 – 2,770

City of Minneapolis – 2,159
City of St. Paul – 681
Suburban# – 1,198

Total number (Metro only) = 4,038

* Counties in which a state correctional facility is located

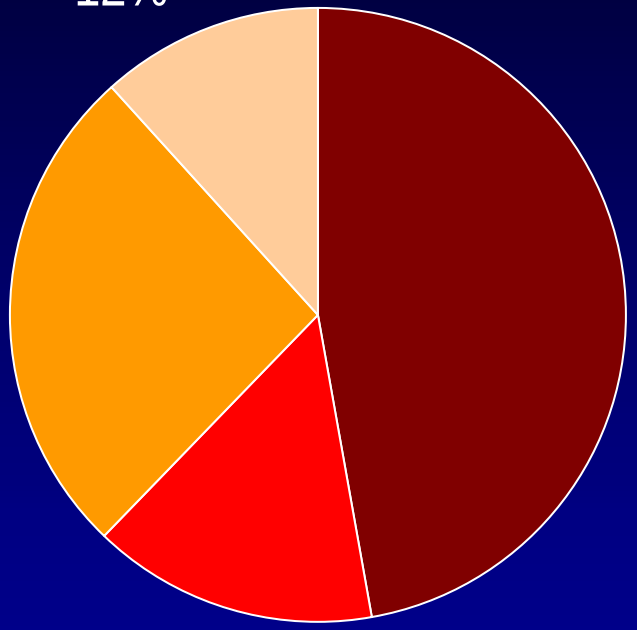
7-county metro area, excluding the cities of Minneapolis and St. Paul

Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Current Residence, 2002

Total Number = 4,598

(27 persons missing residence information)

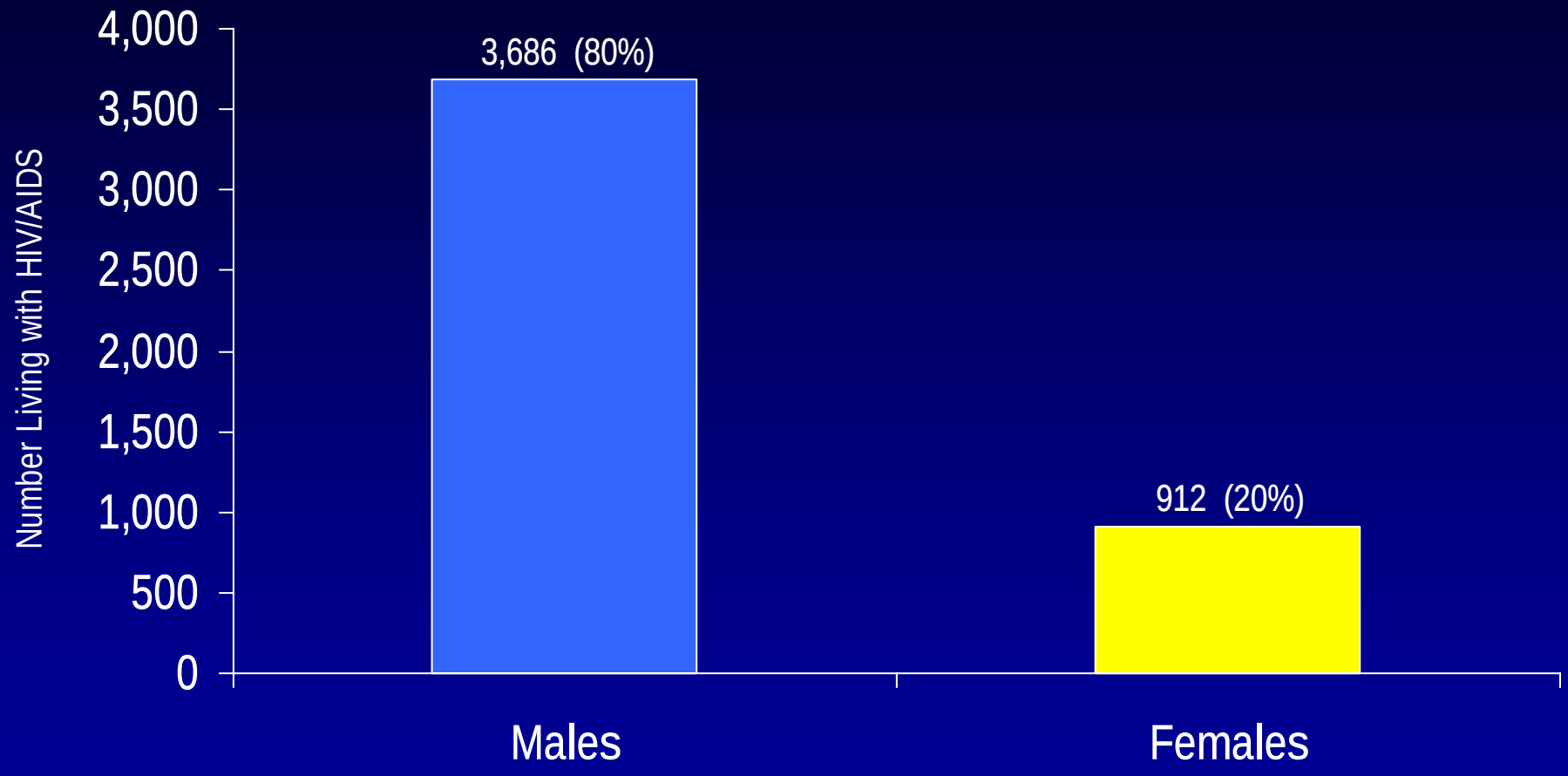


Suburban = Seven-county metro area including Anoka, Carver, Dakota, Hennepin (except Minneapolis), Ramsey (except St. Paul), Scott, and Washington counties. Greater MN = All other Minnesota counties, outside the seven-county metro area.

Data Source: *Minnesota HIV/AIDS Surveillance System*

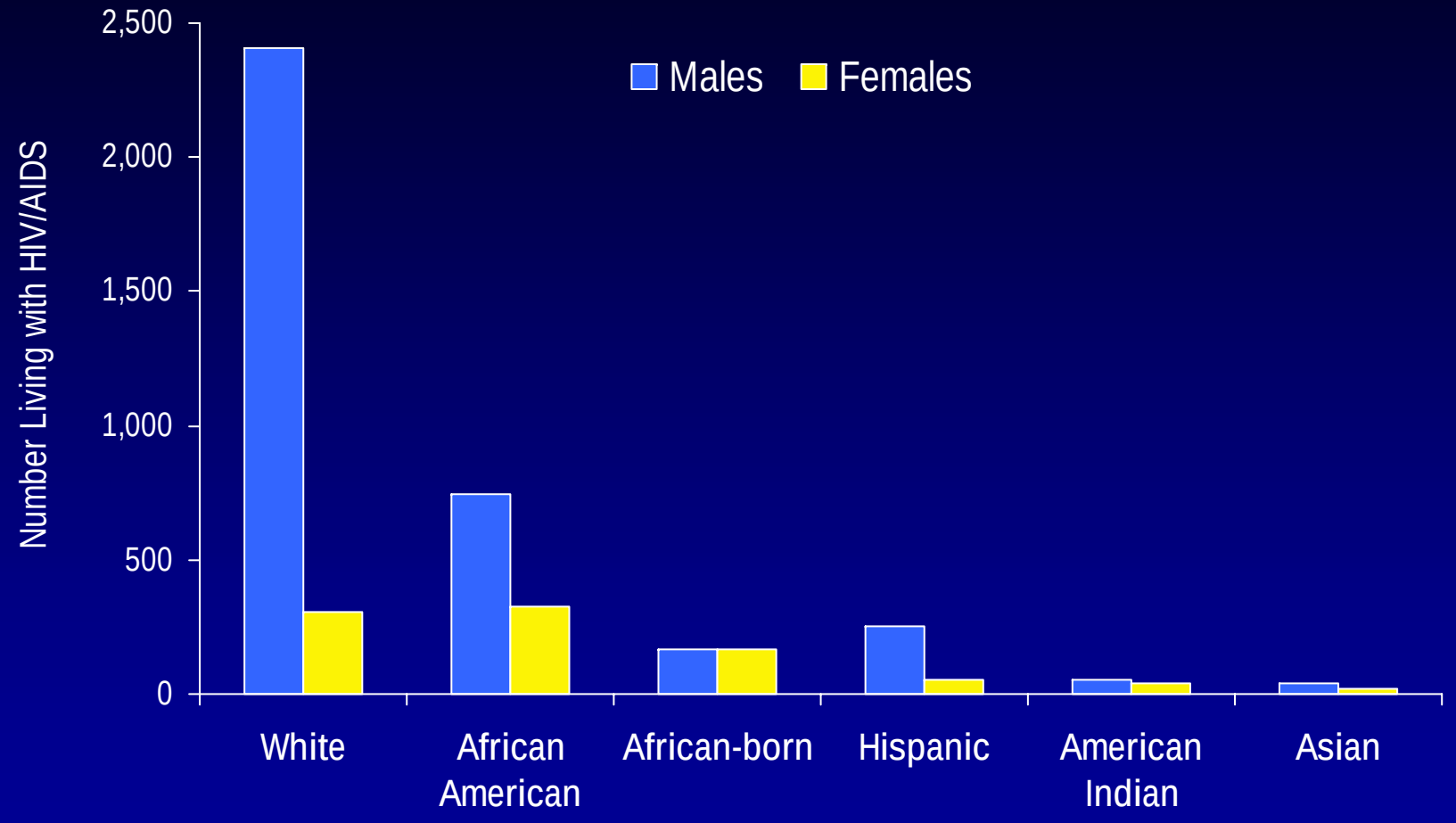
Gender and Race/Ethnicity

Persons Living with HIV/AIDS in Minnesota by Gender, 2002



Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Gender and Race/Ethnicity*, 2002

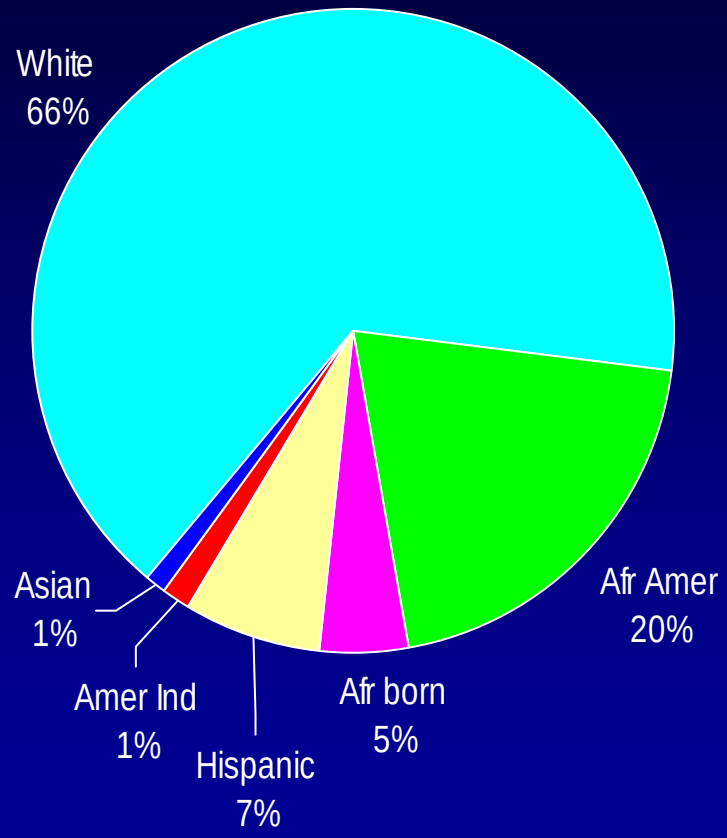


* *"African-born" refers to Blacks who reported an African country of birth; "African American" refers to all other Blacks.*
Persons with unknown race were omitted (n=32).

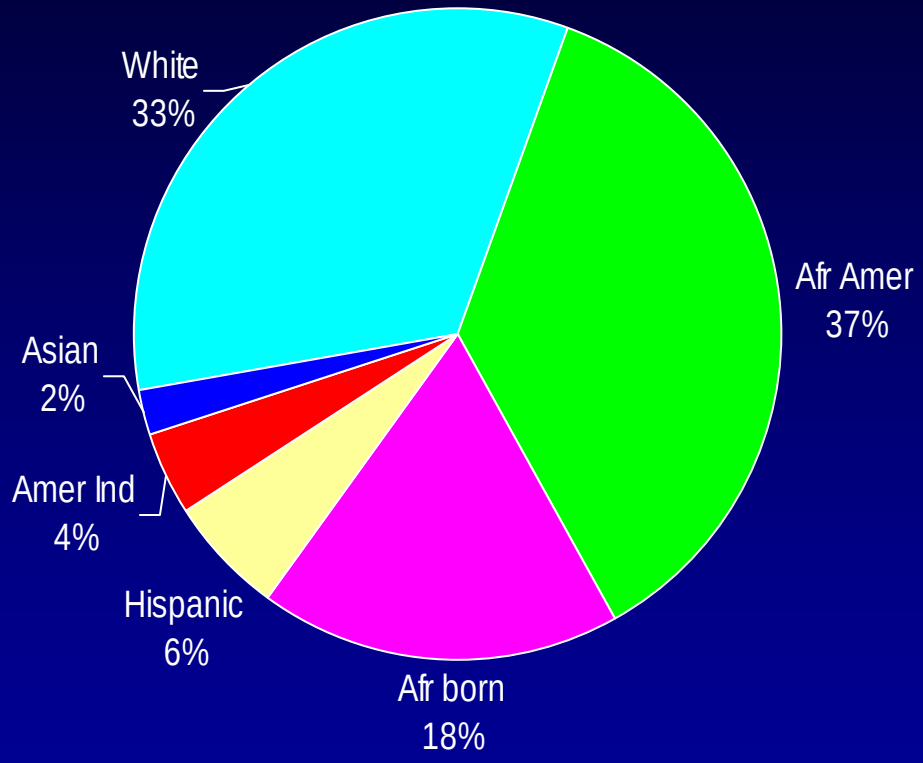
Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Gender and Race/Ethnicity, 2002

Males* (n = 3,686)



Females* (n = 912)



n = Number of persons Amer Ind = American Indian

Afr Amer = African American (Black, not African-born persons)

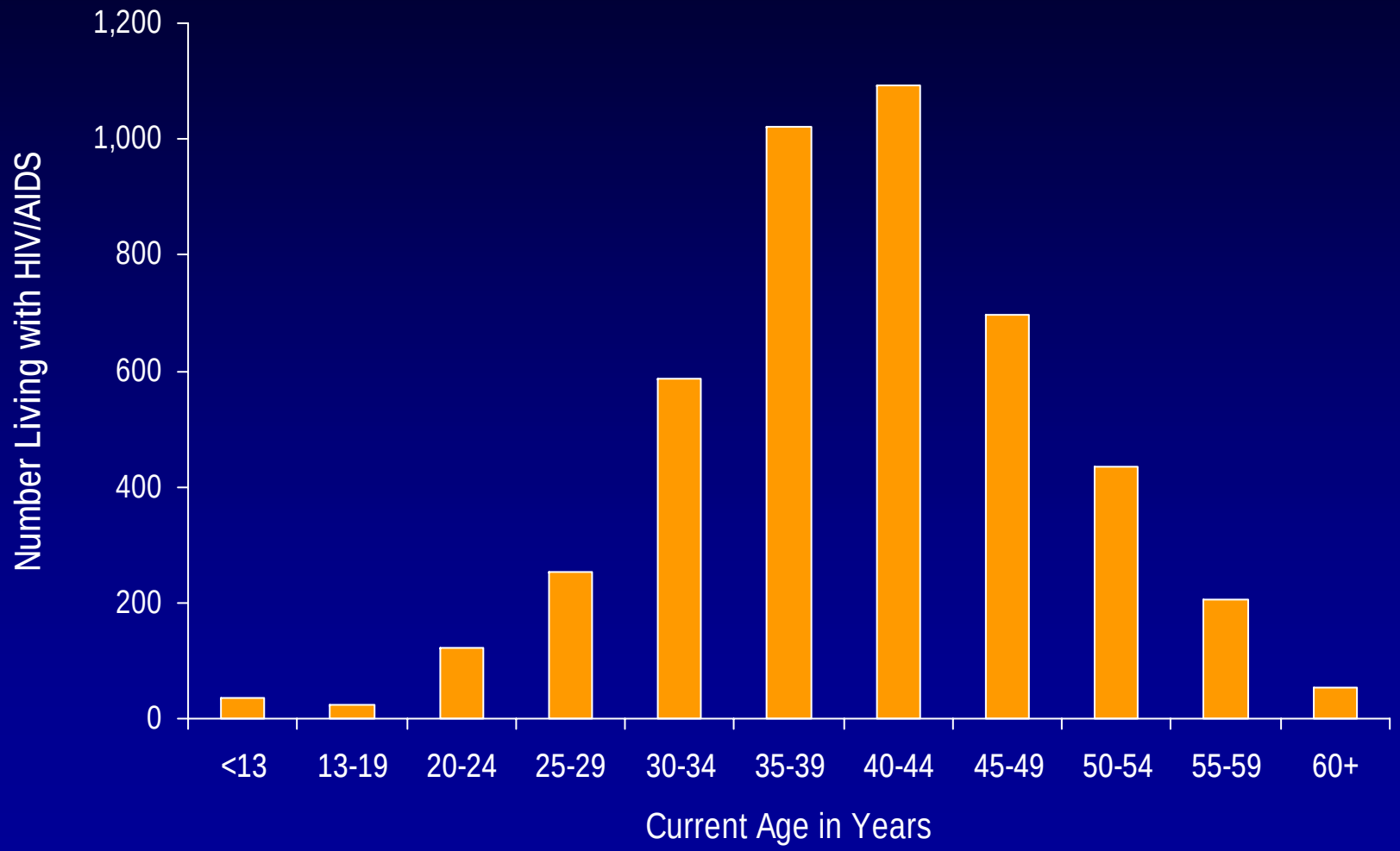
Afr born = African-born (Black, African-born persons)

** 28 males and 4 females had missing race and were excluded.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Age

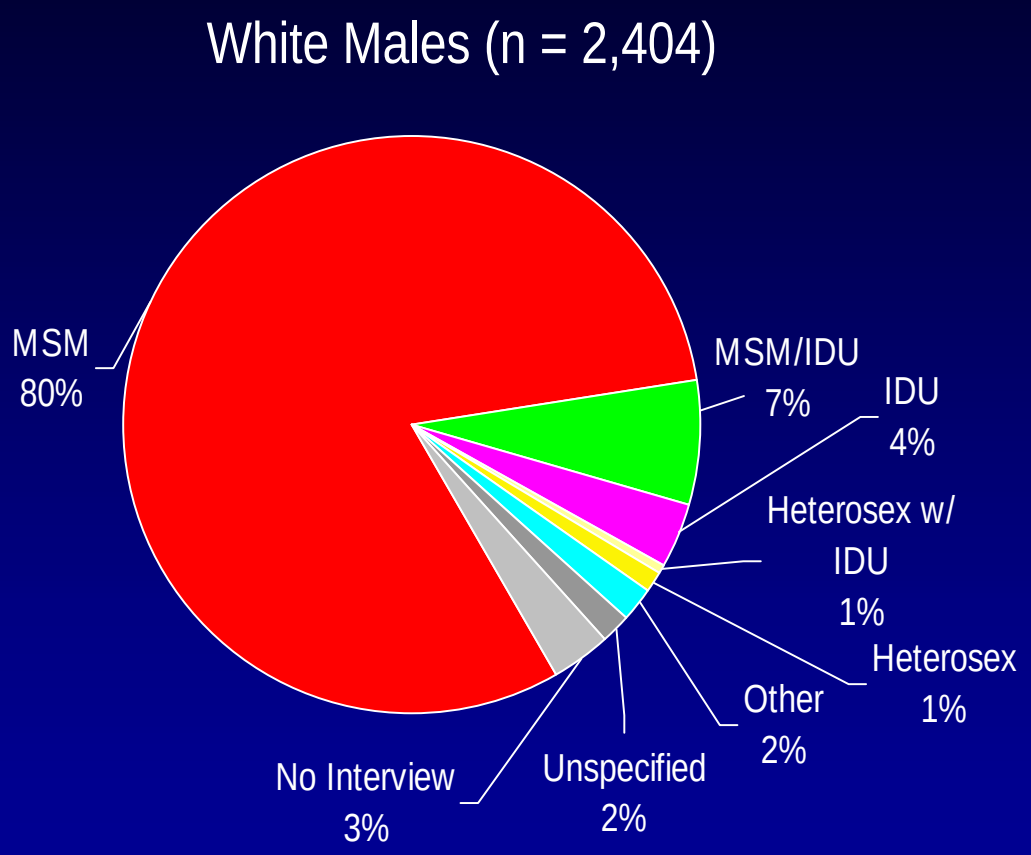
Persons Living with HIV/AIDS in Minnesota by Age Group, 2002



Data Source: *Minnesota HIV/AIDS Surveillance System*

Mode of Exposure

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

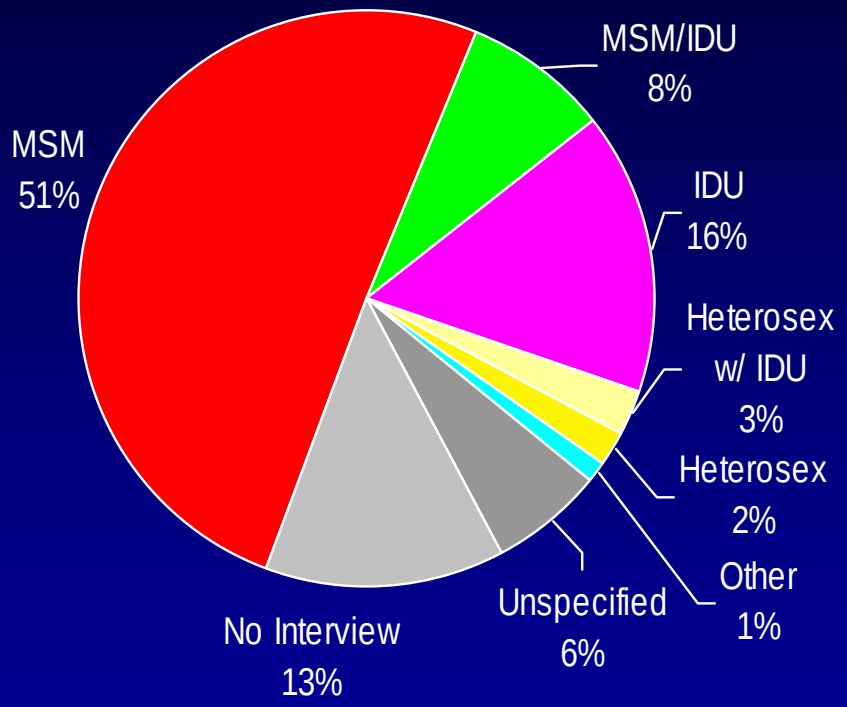


n = Number of persons
IDU = Injecting drug use
MSM = Men who have sex with men
Heterosex = Heterosexual contact
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African American Males† (n = 746)



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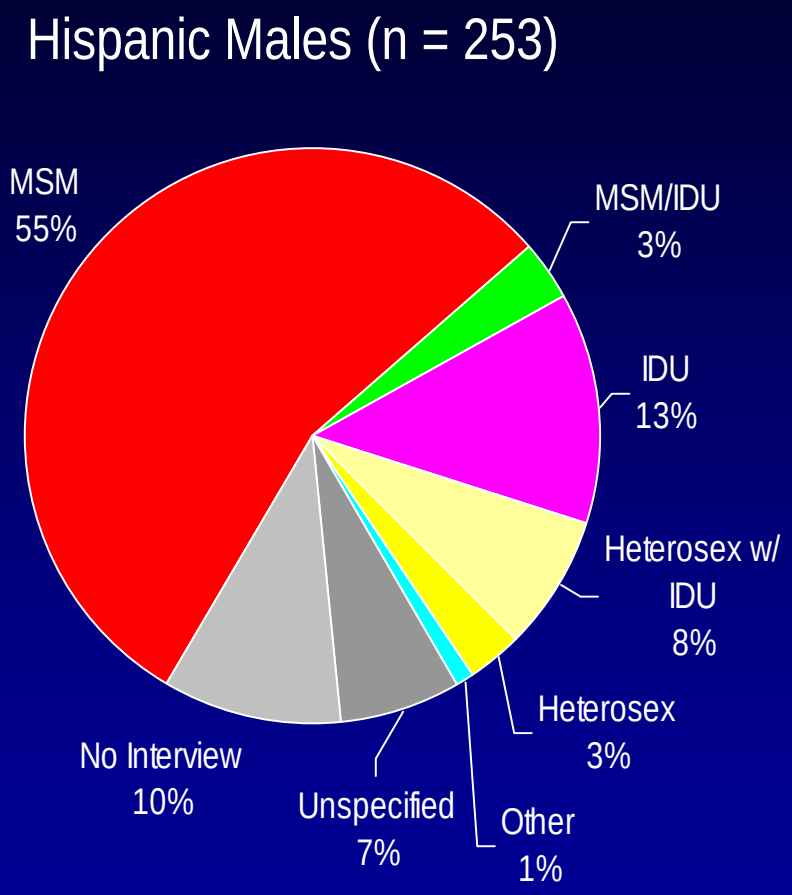
† *Refers to Black, African American (not African-born) males.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002



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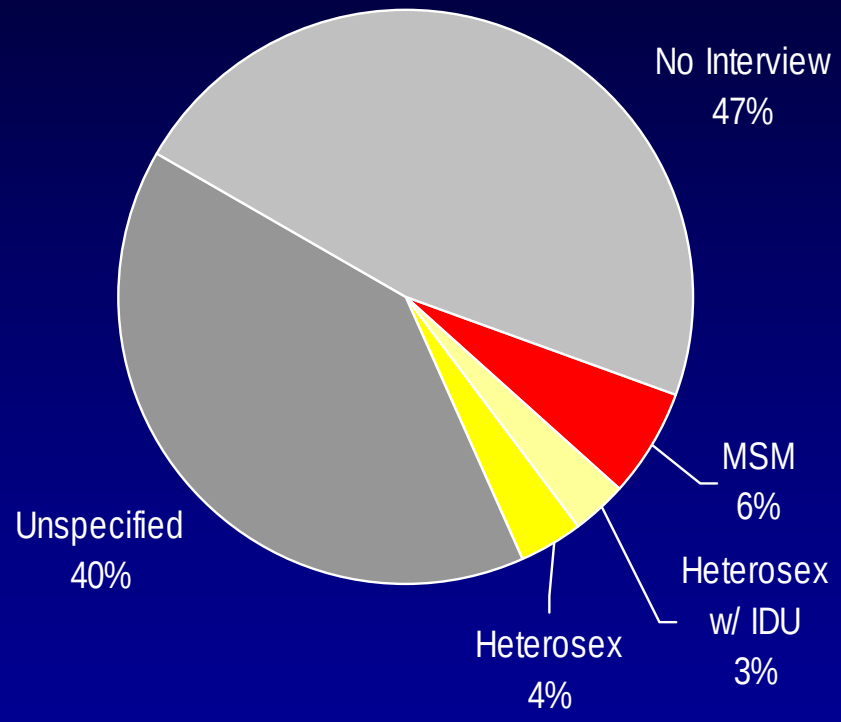
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African-born Males† (n = 165)



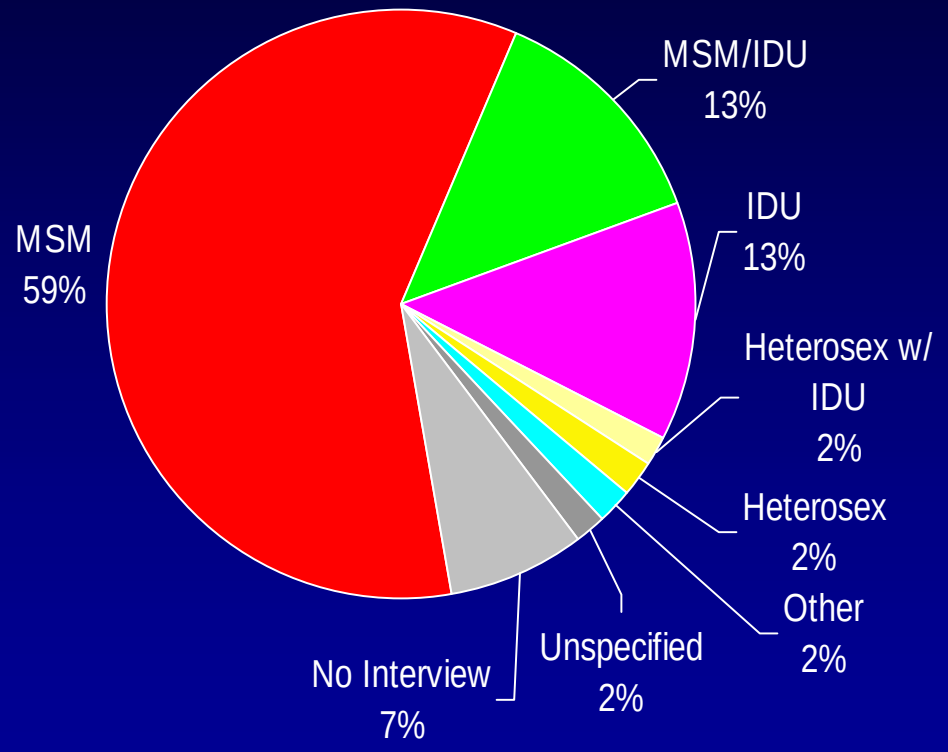
n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact

† *Refers to Black, African-born males.* No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

American Indian Males (n = 53)

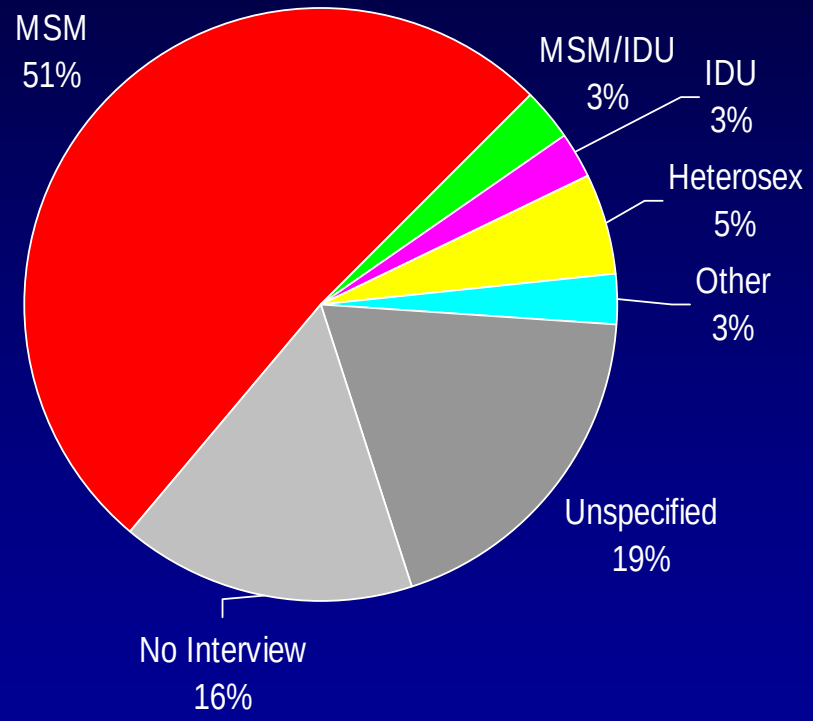


n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Asian Males (n = 37)

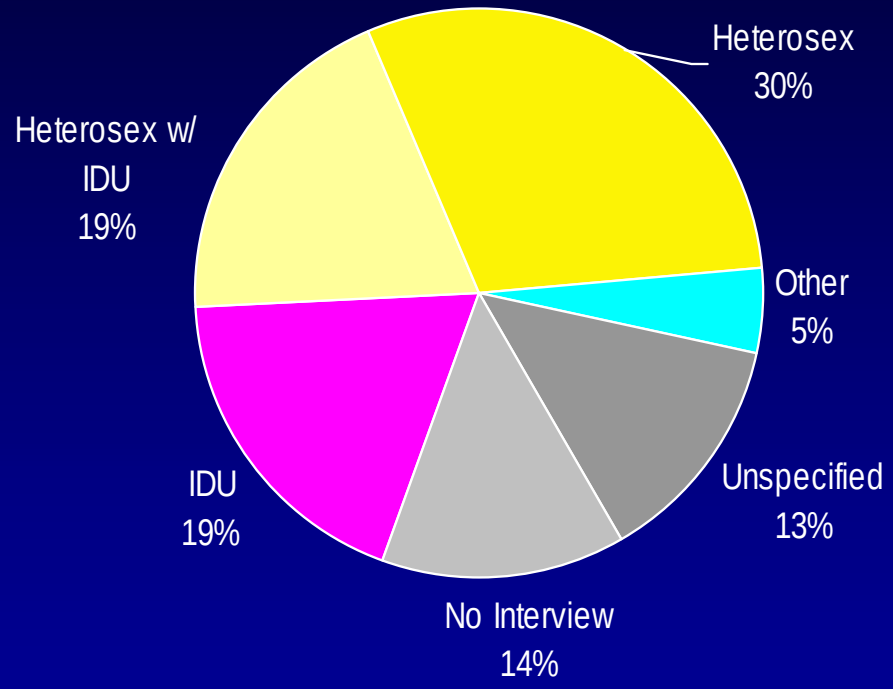


n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African American Females† (n = 329)



n = Number of persons Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

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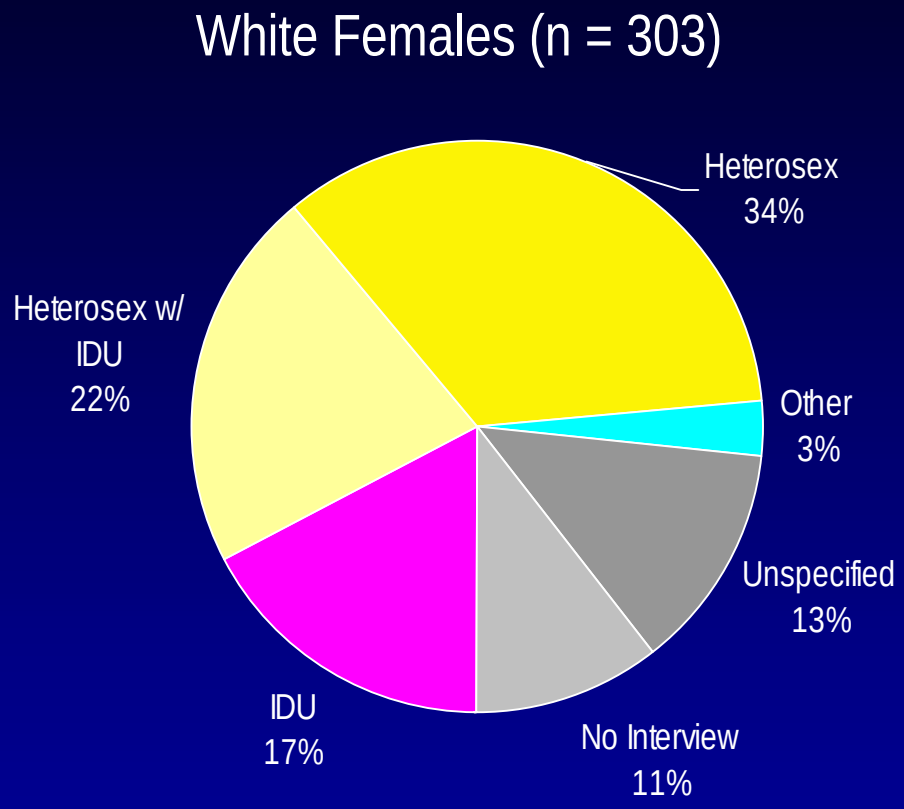
† *Refers to Black, African American (not African-born) females.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002



n = Number of persons
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Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
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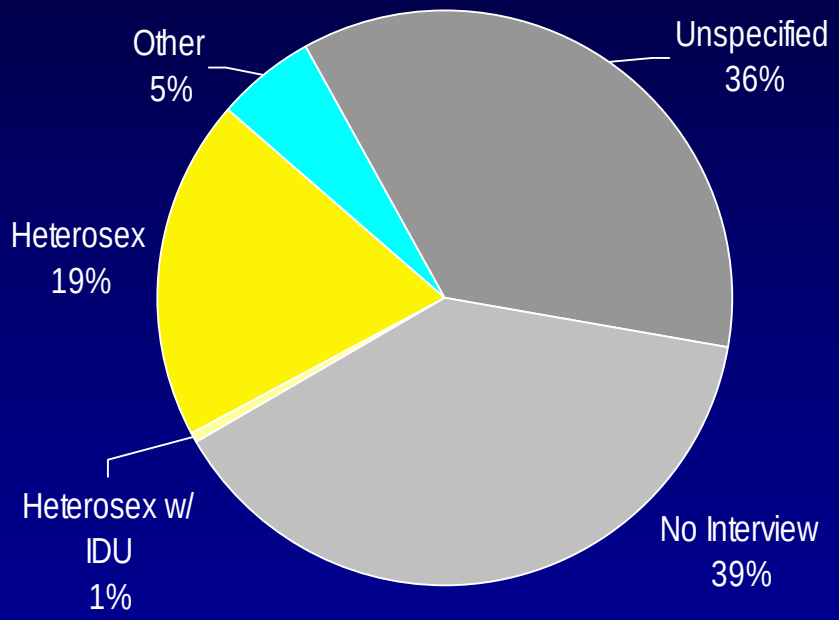
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African-born Females† (n = 166)



n = Number of persons

Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

Heterosex = Heterosexual contact

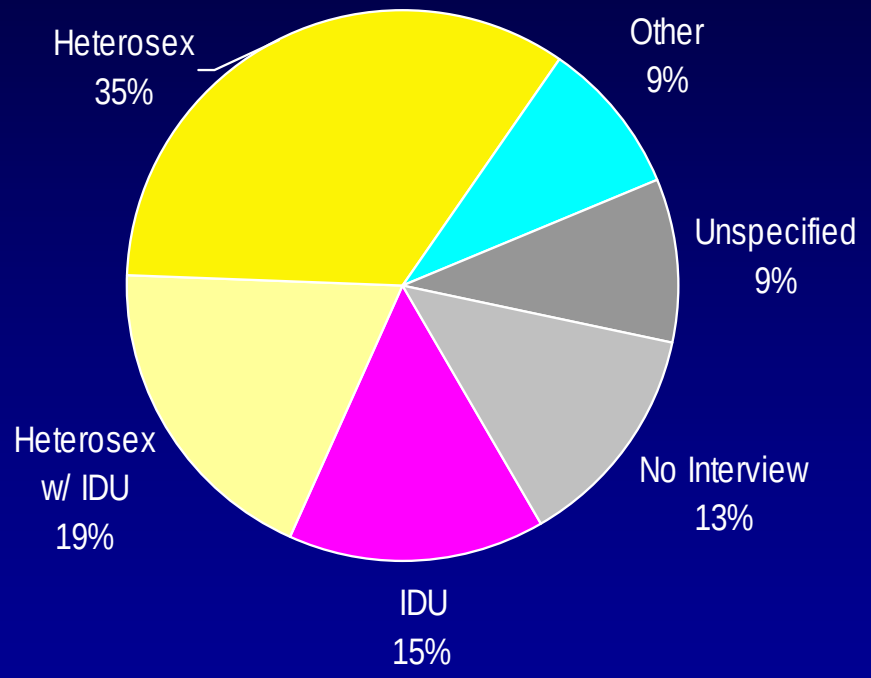
No Interview = Could not, would not or have yet to be interviewed

† *Refers to Black, African-born females.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Hispanic Females (n = 53)



n = Number of persons
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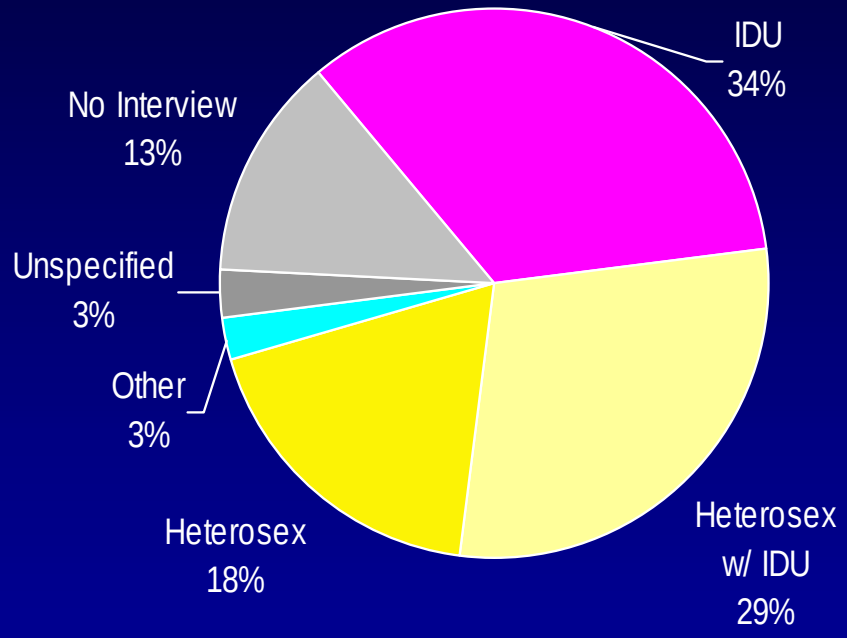
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

American Indian Females (n = 37)



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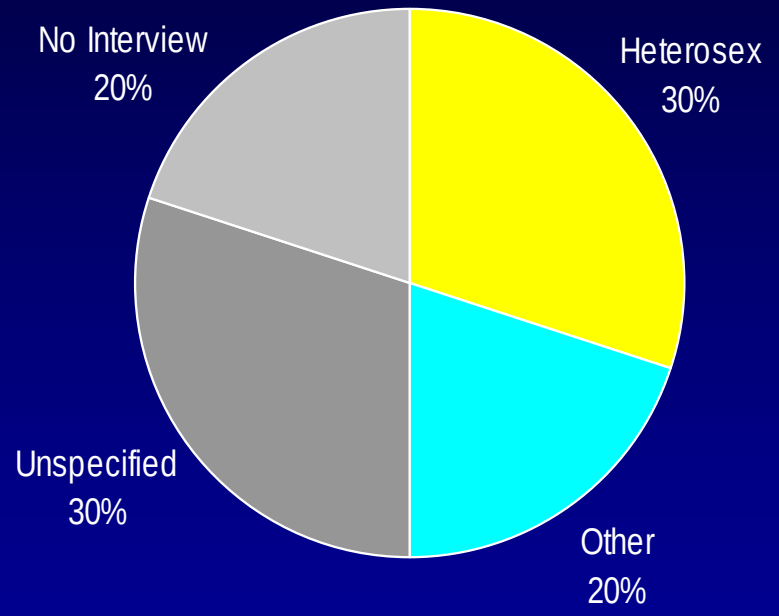
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Asian Females (n = 20)

CAUTION: Small number of cases – interpret carefully.



n = Number of persons

Heterosex = Heterosexual contact

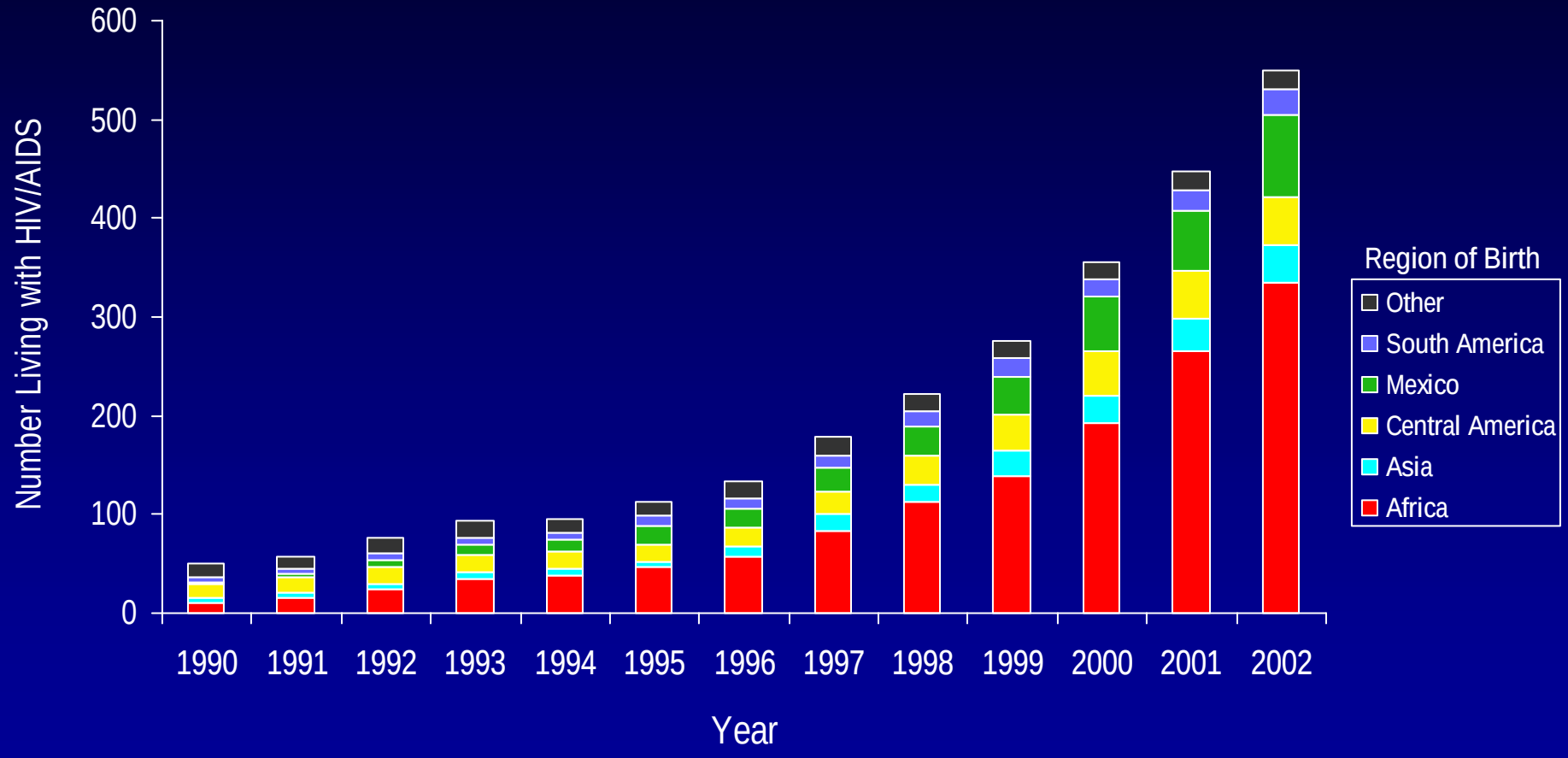
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Emerging Trend

Foreign-Born Persons Living with HIV/AIDS in Minnesota, 1990-2002

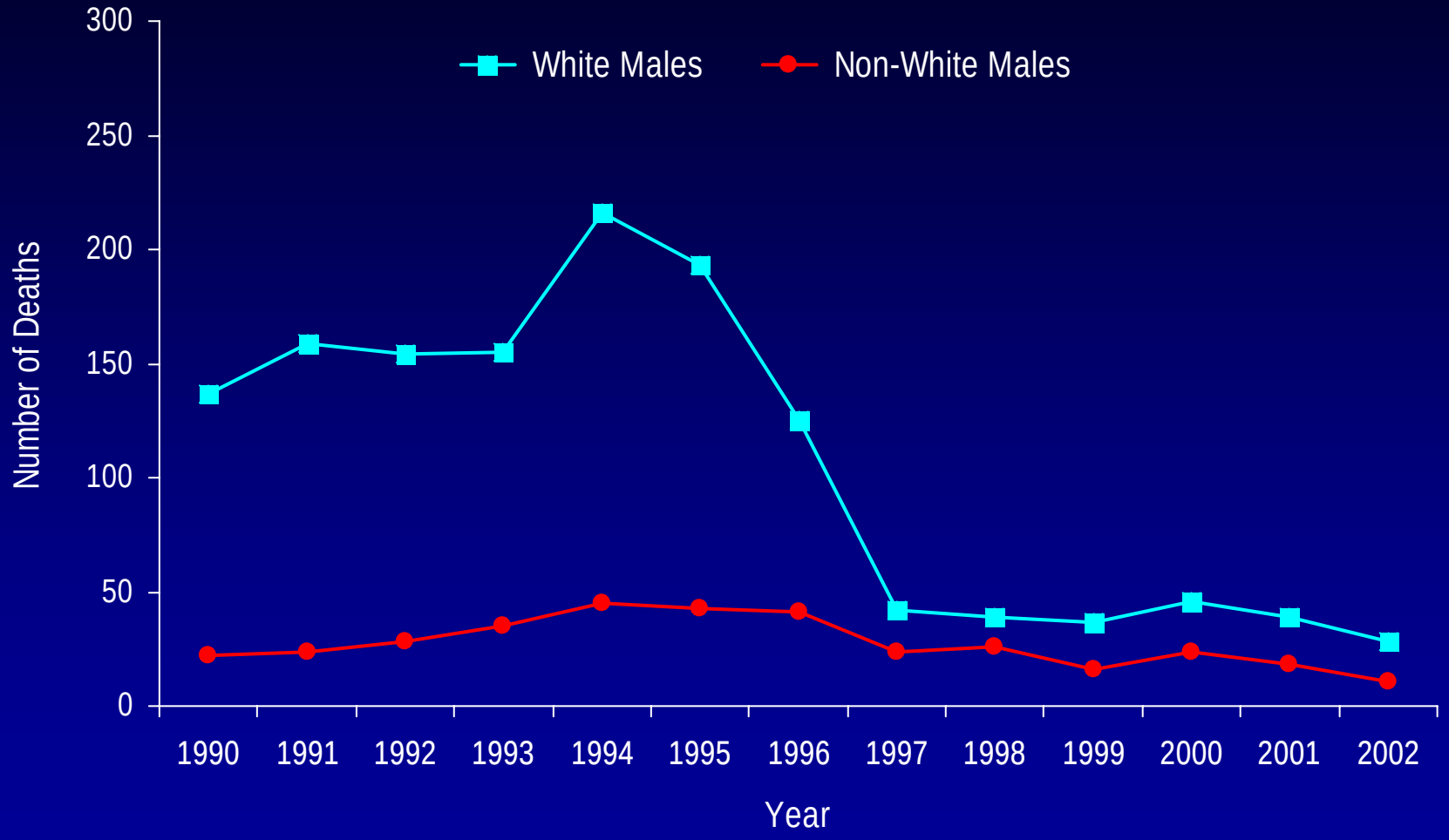


Data Source: *Minnesota HIV/AIDS Surveillance System*

HIV/AIDS in Minnesota: Annual Review

Mortality

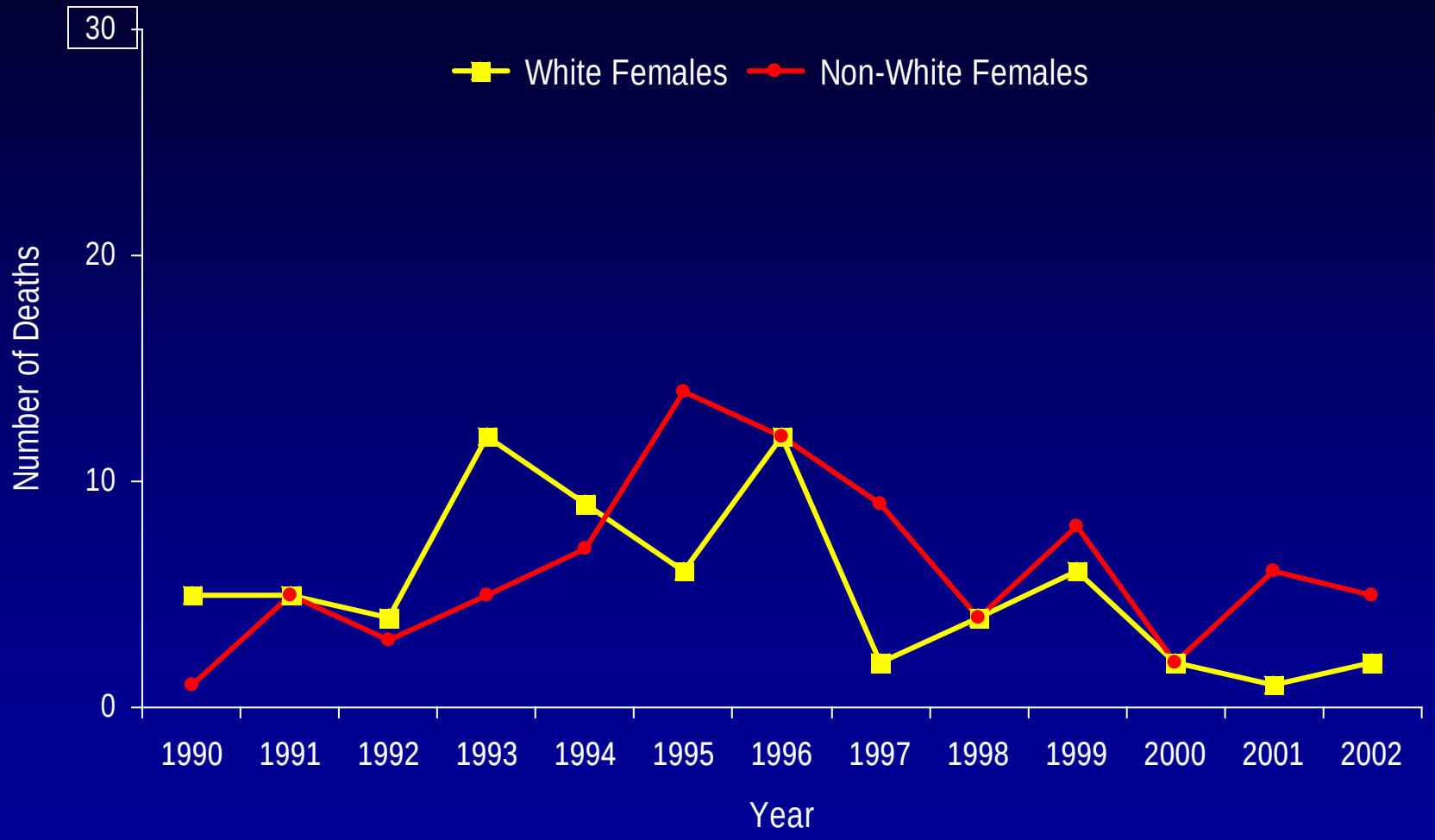
Reported Deaths* among Male AIDS Cases in Minnesota, 1990-2002



** Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Reported Deaths* among Female AIDS Cases in Minnesota, 1990-2002



** Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Companion Text for the Slide Set: *Minnesota HIV Surveillance Report, 2002*

INTRODUCTION

Overview

The *Minnesota HIV Surveillance Report, 2002* describes the occurrence of reported HIV infections in Minnesota by person, place, and time through December 31, 2002. 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

The data in this report are based on confidential case reports collected through the Minnesota Department of Health (MDH) HIV/AIDS Surveillance System. In Minnesota, laboratory-confirmed infections of human immunodeficiency virus (HIV) are monitored by the MDH through this active and passive surveillance system. State law (Minnesota Rule 4605.7040) requires 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 help ensure completeness of reporting (active surveillance).

Data in this report include cases diagnosed with HIV as of December 31, 2002 and reported to the MDH as of April 2003. 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.

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. Changes in past years' totals are updated in every new annual surveillance report.

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 2001, state-specific AIDS rates ranged from 0.5 per 100,000 persons in North Dakota to 39.3 per 100,000 persons in New York. Minnesota had the 8th lowest AIDS rate (3.2 AIDS cases reported per 100,000 persons). Compared with states in the Midwest region, Minnesota had a moderate AIDS rate. State-specific HIV rates cannot be compared nationally because some states have not yet instituted HIV case surveillance. At present 34 states have name-based HIV reporting. The states that have HIV case surveillance are at various stages of implementation.

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, 2002, a cumulative total of 7,073 cases of HIV infection have been reported among Minnesota residents.[1] This includes 4,008 AIDS cases and 3,065 HIV, non-AIDS cases. Of these 7,073 HIV/AIDS cases, 2,528 are known to be deceased through correspondence with the reporting source, other health departments, reviews of death certificates and obituaries, active surveillance, and matches with the National Death Index.

[1] 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.

Overview of HIV/AIDS in Minnesota, 1990-2002

The annual number of new AIDS cases increased steadily from the beginning of the epidemic to the early 1990s, reaching a peak of 370 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 the declines slowed during the late 1990s and the numbers have become relatively stable the past few years. The number of newly diagnosed HIV (non-AIDS) cases has remained fairly constant since the mid 1990s at approximately 200 cases per year, despite consistent increases in the number of people living with HIV/AIDS. By the end of 2002, an estimated 4,598 persons with HIV/AIDS were assumed to be living in Minnesota.[2]

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 not changed over time. Although HIV infection is more common in communities with higher population densities and greater poverty, HIV or AIDS has been diagnosed in over 80% 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

[2] 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.

have increased over time. In 1990, males accounted for 90% of new HIV infections. In 2002, 71% of new infections occurred among males and 29% among females.

New HIV Infections by Race/Ethnicity[3]

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 has generally been decreasing since 1991.

In contrast to the overall large decline in the annual number of cases among White males, the decline among African American males was more gradual. The annual number of cases for African American males peaked in 1992 at 81 and gradually decreased to 37 in 2002.

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. The proportion of new HIV infections diagnosed among men of color as a whole has been increasing over time.

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. From 1990 to 2002, the annual number of new infections diagnosed doubled among African American females (25 cases in 2002) and increased nine-fold among African-born females between 1996 (3 cases) and 2002 (36 cases). The annual number of new infections diagnosed among Hispanic, American Indian, and Asian females continues to be quite small (fewer than 10 cases per year for each of these groups).

The most recent data illustrate that men and women of color are disproportionately affected by HIV/AIDS. Whites make up approximately 88% of the male population in Minnesota and 53% of the new HIV infections diagnosed among men in 2002. Men of color make up approximately 12% of the male population and 47% of the new infections diagnosed

[3] Black race was broken down into African-born and African American (Black, not African-born). The numbers exclude 50 persons arriving through the HIV-Positive Refugee Resettlement Program.

among men in 2002. Similarly for females, Whites make up approximately 89% of the female population and 16% of new infections among women in 2002 whereas women of color make up approximately 11% of the female population and 84% of the new infections among women.[4]

Please 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.

Average Age at HIV Diagnosis, Three-year Averages

In recent years, Hispanic and American Indian males were slightly younger (approximate age = 33 years) than White, African American, African-born, and Asian males (approximate age = 37 years) at the time of HIV diagnosis. During the past ten years, the average age at HIV diagnosis has been approximately 30 years for females, for all racial/ethnic groups. Age at HIV diagnosis can be used as a proxy for age at HIV *infection*. However, due to differences in testing behavior (e.g. variable lengths of time between HIV infection and diagnosis) across time and between sociodemographic groups, comparisons of average age at diagnosis are difficult to interpret.

New HIV Infections among Adolescents and Young Adults[5], 1990-2002

Many people are infected with HIV for years before they actually seek testing and become aware of their HIV status. This phenomenon especially affects the observed case counts for younger age groups. And as a result, the reported number of HIV infections among youth[5] (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, 9% of new HIV infections reported to the MDH were among youth. In 2002 this percentage was 11%. Among young men, the number of new HIV diagnoses peaked in 1992

[4] Population estimates based on U.S. Census 2000 data.
[5] 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.

at 43 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 28 in 2000, but then dropped to 17 cases in 2001 and 18 cases in 2002.

Unlike young men, the annual number of new HIV infections diagnosed among young women has remained relatively consistent over time. For example, 19 cases of HIV infection were diagnosed among young women in 1992 and 16 cases in 2002. Females accounted for 47% of new HIV infections diagnosed among adolescents and young adults in 2002. In contrast, adult females (25 years of age or older) only accounted for 25% of all adult cases.

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 40% of new HIV infections diagnosed between 2000 and 2002, African Americans accounted for 23% and Hispanics 23% of the cases. Among young women, Whites accounted for 35%, African Americans 30%, and African-born 23% of the new infections diagnosed during the same time period.

Men having sex with men (MSM) is the predominant mode of HIV exposure among adolescent and young adult males, accounting for 71% of the new HIV infections diagnosed between 2000 and 2002. Heterosexual contact and the joint risk of MSM and injecting drug use (IDU) each accounted for 3% of the cases. HIV exposure risk was not obtained for 23% of the young male cases.

Heterosexual contact accounted for 43% of new HIV infections diagnosed among adolescent and young adult females between 2000 and 2002, this includes 11% for whom heterosexual contact with an injecting drug user was their only identified risk factor. IDU accounts for 4% of the cases. The remaining 53% of the young females do not have a risk specified.

Some hypotheses regarding the classification of males and females with unspecified risk are discussed in the next section.

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. Though still the majority, both the number and proportion of new HIV infections attributed to MSM have been decreased since

1991 reaching an apparent plateau in 2000 at just under 130 cases per year. 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 been increasing. The number of cases without a specified risk has also been increasing.

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 2% of cases among women in 2002. Unspecified risk has been designated for a growing percentage of cases for the past several years. In 1996, 7% of women diagnosed with HIV infection did not have a specified mode of transmission. This percentage grew to 25% in 2002 with an additional 32% of female cases who would not agree to or could not be interviewed by a Disease Intervention Specialist 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)[6], 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 (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 2000 and 2002, MSM or MSM/IDU accounted for 84% of cases among White males, 59% of cases among Hispanic males, 47% of cases among African American males, and 6% of cases among African-born males. The latter three also had the highest proportions of cases with unspecified risk (27%, 38%, and 87%, respectively – this includes cases for whom no interview has been obtained). It is hypothesized that due, in part, to social stigma many of the cases with unspecified risk were unclassified MSM cases. 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 countries of origin. IDU, MSM/IDU or heterosexual contact with an injecting drug user was reported as a risk in 16% of male African American cases and 10% of Hispanic cases diagnosed during 2000-2002, but no more than 6% among Whites or African-born males.

[6] MMWR 2001; 50(RR-6):31-40.

The number of cases among Asian and American Indian men during the years 2000-2002 were insufficient to make generalizations regarding risk (less than 20 cases in each group), but male to male sex among Asians and IDU among American Indians appear to be the most prominent modes of exposure.

Heterosexual contact with a partner who has or is at increased risk for HIV infection accounted for 54% of cases among African American females, 48% of cases among White females during 2000-2002, and 18% of cases among African-born females. More than 39% of cases in each of these groups had no specified risk (including cases for whom no interview has been obtained). IDU directly accounted for 7% of cases among Whites, 4% among African Americans, and 0% among African-born. The number of cases among Hispanic, Asian, and American Indian women during the years 2000-2002 were insufficient to make generalizations regarding risk (less than 20 cases in each group).

Mother-to-Child HIV Transmission

The ability to interrupt the transmission of HIV from mother to child via antiretroviral therapy and appropriate prenatal 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.

In Minnesota, only two cases of perinatal transmission occurred during the past 3 years, representing a 2% rate of transmission. The rate of transmission in Minnesota between 1982 and 1994 (before widespread use of zidovudine[7] 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.

Emerging Trend: New HIV Infections among African-born Persons

The number of new HIV infections diagnosed among African-born persons in Minnesota has been steadily increasing from 7 cases in 1990 to 65 cases in 2002. During this time there was also a significant increase in African immigration to Minnesota. Among new HIV infections

[7] A common antiretroviral drug.

diagnosed in 2002, 21% were among African-born persons. Despite the absence of an accurate estimate of the number of African-born persons living in Minnesota, it is fair to speculate that they make up less than 1% of the total Minnesota population and are, therefore, disproportionately affected by HIV[8]. A notable difference in the local epidemic among African-born persons is the fairly equal distribution of cases between males and females. In 2002, 55% of new HIV infections diagnosed among African-born persons were female; among the remaining HIV infections diagnosed in Minnesota during 2002, only 21% were female.

[8] Based on U.S. Census 2000 data, the U.S. Census Bureau estimates between 20,424 and 35,188 African-born persons are living in Minnesota out of a total population of 4,919,479. Because there are many reasons African-born persons may not be included in the census count (e.g. difficulties with verbal or written English), even 35,188 is likely an underestimate of the actual size of the African-born population living in Minnesota.

Minnesota Department of Health
Protecting, maintaining and improving the health of all Minnesotans

HIV Surveillance Technical Notes

Surveillance of HIV/AIDS

The Minnesota Department of Health (MDH) collects case reports of HIV infection and AIDS diagnoses through a passive and active HIV/AIDS surveillance system. Passive surveillance relies on physicians and laboratories to report new cases of HIV infection or AIDS directly to the MDH in compliance with state law (1). Active surveillance conducted by MDH staff involves routine visits and correspondence with select facilities to ensure completeness of reporting and accuracy of the data.

Factors that impact the completeness and accuracy of HIV/AIDS surveillance data include: compliance with case reporting, timeliness of case reporting, test-seeking behaviors of HIV-infected individuals, and the availability and targeting of HIV testing services. Certain events have also impacted trends in HIV/AIDS surveillance data. For example changes over time in the surveillance case definition (most notably the 1993 expansion of the case definition for adults and adolescents (2)) have resulted in artificial jumps in AIDS case counts at the time the new definition went into effect or in the preceding year because changes in case definition allowed for retrospective diagnoses.

New HIV Infections

New HIV infections refer to persons who are diagnosed with HIV infection and newly reported to the MDH. This includes case-patients that meet the CDC surveillance definition for AIDS at the time they are initially diagnosed with HIV infection (AIDS at first diagnosis). Cases of new HIV infection are displayed by year of earliest HIV diagnosis. The number of new HIV infections in Minnesota includes only persons who were first reported with HIV infection while residents of Minnesota. Persons moving to Minnesota already infected with HIV are excluded if they were previously reported in another state.

Vital Status of HIV/AIDS Cases

Persons are assumed alive unless the MDH has knowledge of their death. Persons are assumed residing in Minnesota if their most recently reported state of residence was Minnesota and the MDH has not received notice of relocation outside of the state. Vital status information is updated by monthly visits to select reporting facilities, correspondence with other health departments, daily obituary reviews in local newspapers, annual death certificate reviews, and periodic matches with the National Death Index. “AIDS deaths” refers to all deaths among AIDS cases regardless of the cause.

Place of Residence for HIV/AIDS Cases

Persons are assumed to be residing in Minnesota if their most recently reported state of residence was Minnesota and the MDH has not received notice of relocation outside of the state. Likewise, a person’s county or city of residence is assumed to be the most recently reported value unless the MDH is otherwise notified. Residence information is updated through standard case reporting, monthly visits to select reporting facilities and/or correspondence with other state health departments. Persons diagnosed with HIV infection while imprisoned in a state correctional facility are included in the data presented unless otherwise noted (federal and private prisoners are excluded). Residential relocation, including release from state prison, is difficult to track and therefore data presented by *current* residence must be interpreted in this light. Data on residence at *time of diagnosis* are considered more accurate, limited only by the accuracy of self-reported residence location.

Data Tabulation and Presentation

The data displayed are not adjusted to correct for reporting delays, case definition changes, or other factors.

MDH surveillance reports published before 2000 displayed data by year of report, the data in these documents are displayed by earliest date of HIV diagnosis. The report date is a function of reporting practices and may be months or years after the date of diagnosis and the date of infection. The date of diagnosis is temporally closer to the date of infection. Displaying data by year of diagnosis more closely approximates when infection occurred. Readers should bear in mind that diagnosis date is also an approximation for infection date. Many years may pass between time of infection and diagnosis; the incubation period (3) for HIV is around 10 years. It should also be noted that because of delays in reporting, the annual number of cases reportedly diagnosed in recent years is slightly lower than actual. This discrepancy corrects itself over time. The number of cases diagnosed within a calendar year changes relatively little after two years have passed.

Unless otherwise noted, data analyses exclude persons diagnosed in federal or private correctional facilities (inmates generally are not Minnesota residents before incarceration and do not stay in Minnesota upon their release), infants with unknown or negative HIV status who were born to HIV positive mothers, and HIV-infected refugees who resettled in Minnesota as part of the HIV-Positive Refugee Resettlement Program.

Mode of Exposure Hierarchy

All state and city HIV/AIDS surveillance systems funded by the Centers for Disease Control and Prevention use a standardized hierarchy of mode of exposure categories. HIV and AIDS cases with more than one reported mode of exposure to HIV are classified in the exposure category listed first in the hierarchy. In this way, each case is counted as having only one mode of exposure. The only exception to this rule is the joint risk of male-to-male sex (MSM) and injection drug use (IDU), which makes up a separate exposure category in the hierarchy. The following is a list of the hierarchy for adolescent/adult HIV/AIDS cases:
(1) MSM
(2) IDU
(3) MSM/IDU
(4) Hemophilia patient
(5) Heterosexual contact
(6) Receipt of blood transfusion or tissue/organ transplant
(7) Other (e.g. needle stick in a health care setting)
(8) Risk not specified.

The following is the list of the hierarchy for pediatric HIV/AIDS cases:

(1) Hemophilia patient
(2) Mother with HIV or HIV risk
(3) Receipt of blood transfusion or tissue/organ transplant
(4) Other
(5) Risk not specified.

Heterosexual contact is only designated if a male or female can report specific heterosexual contact with a partner who has, or is at increased risk for, HIV infection (e.g. an injection drug user). For females this includes heterosexual contact with a bisexual male (mainly due to the elevated prevalence of HIV infection among men who have sex with men).

“Risk not specified” refers to cases with no reported history of exposure to HIV through any of the routes listed in the hierarchy of exposure categories. These cases include persons who have not yet been interviewed by MDH staff; persons whose exposure history is incomplete because they died, declined to be interviewed, or were lost to follow-up; and persons who were interviewed or for whom follow-up information was available but no exposure was identified/acknowledged.

The growing number of cases with unspecified risk in recent years is, in part, artificial and due to interviews that have not yet been completed. In time, a number of these will be assigned a mode of exposure category. However, part of the observed increase is real. As stated above, a person must have intimate knowledge about his/her partner to meet the criteria for heterosexual mode of exposure. Often cases will not be certain about their partners’ HIV status or risk. Additionally, the perception of social stigma presumably decreases the likelihood that a person will acknowledge certain risk behaviors, particularly male-to-male sex or injection drug use. Thus, if the *true* numbers of cases due to heterosexual contact, MSM, and/or IDU increase, a larger number of cases without a specified risk would be expected.

A recent study by the Centers for Disease Control and Prevention used statistical methods to redistribute risk among female HIV/AIDS cases with unspecified risk (4). The results are helpful but are based on national data which are not necessarily applicable to the state or local level. Speculation regarding the distribution of risk behaviors among those with unspecified risk is difficult, especially in men, for whom even a national study is not available.

Re-distribution of Mode of Exposure

In 2004 the Minnesota Department of Health began estimating mode of exposure for cases with unspecified risk in its annual summary slides. Estimation was done by using the risk distribution for cases reported between 2002 and 2004 with known risk by race and gender and applying it to those with unspecified risk of the same race and gender. There were two exceptions to this method, African-born cases and Asian/Pacific Islander women. For both African-born and Asian/Pacific Islander women a breakdown of 95% heterosexual risk and 5% other risk was used. For African-born males a breakdown of 5% male-to-male sex, 90% heterosexual risk, and 5% other risk was used. These percentages are based on epidemiological literature and/or community experience.

Below is an example of how the process worked for white, African American and African-born females:

Reported Female cases 2002 - 2004

Race/Risk	Heterosexual n (%†)	IDU n (%†)	Other (5) n (%†)	Unspecified n	Total N
White	25 (86)	4 (14)	0 (0)	14	43
African-American	23 (79)	3 (10)	3 (10)	33	62
African-born	13 (81)	0 (0)	3 (19)	89	105

† Percent of those with know risk.

Female Cases for 2002 - 2004 with Estimated risk:

Race/Risk	Heterosexual	IDU	Other	Unspecified	Total N
White	(.86*14) + 25 = 37	(.14*14) + 4 =6	0	0	43
African-American	(.79*33) + 23 = 49	(.1*33) + 3 = 6	(.1*33) + 3 =6	0	62
African-born‡	(.95*89) + 13 = 98	0	(.05*89) + 3 = 7	0	105

‡ Used a distribution of 95% heterosexual and 5% other.

Definitions Related to Race/Ethnicity

When data are stratified by race, Black race is broken down into African-born and African American (not African-born) based on reported country of birth.

The terms “persons of color” and “non-Whites” refer to all race/ethnicity categories other than White (Black, Hispanic, American Indian, and Asian/Pacific Islander).

Interstate De-Duplication Project (IDEP)

In 2004, the Minnesota Department of Health (MDH) participated in IDEP. IDEP is a CDC project aimed at eliminating duplicate reports of HIV and AIDS cases among states. Each case of HIV and AIDS is assigned to the state (or states when the diagnosis of HIV and AIDS occurs in two different states) where a person was first diagnosed. The first round looked at cases reported through December 31, 2001. Through this project, MDH identified 164 cases of HIV infection (including AIDS at first report) and 55 AIDS cases whose first diagnosis was not in Minnesota. These cases were previously considered as diagnosed in Minnesota and were counted in the cumulative number of cases diagnosed in Minnesota. As such, the change of “ownership” (where the case was diagnosed) has reduced both cumulative and yearly totals for Minnesota. Additionally, MDH also identified 250 cases that no longer live in Minnesota.

The results of IDEP are particularly noticeable in the total number of persons living with HIV/AIDS in Minnesota, which increased from 4,895 to 5,002, a gain of only 107 cases, instead of 292 (new infections minus deaths plus (difference between people moving in and people moving out)) between 2003 and 2004.

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(1) Minnesota Rule 4605.7040 (return to text)
(2) MMWR 1992;41[no.RR-17]:1-19 (return to text)
(3) Incubation period is the time between initial infection with the virus and the development of disease symptoms. (return to text)
(4) MMWR 2001; 50(RR-6):31-40 (return to text)
(5) Other includes Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk (return to text)

If you have questions or comments about this page, contact idepcweb@health.state.mn.us or call 612-676-5414 (TTY: 612-676-5653) for the MDH Infectious Disease Epidemiology, Prevention and Control Division.

Updated Monday, 11-Apr-05 10:49:41

Table 1. Number of New Cases and Rates (per 100,000 persons) of HIV Infection, HIV (non-AIDS), and AIDS* Minnesota, 1982-2002

Year	HIV Infection		HIV (non-AIDS)		AIDS	
	Cases	Rate	Cases	Rate	Cases	Rate
1982-1992	*3976*	--	*2919*	--	*1718*	--
1993	356	7.8	223	4.9	352	7.8
1994	333	7.3	227	4.9	335	7.3
1995	347	7.5	221	4.8	344	7.4
1996	295	6.3	190	4.0	262	5.6
1997	283	6.0	193	4.1	197	4.1
1998	302	6.3	195	4.1	197	4.1
1999	312	6.4	204	4.2	163	3.4
2000	276	5.6	177	3.6	162	3.3
2001	288	5.9	201	4.1	127	2.6
2002	305	6.2	211	4.3	151	3.1
Cumulative Total	*7073*	*143.8*	*4961*	*100.8*	*4008*	*81.5*

* HIV Infection = New cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year. HIV (non-AIDS) = New cases of HIV infection (excluding AIDS at first diagnosis) diagnosed within a given calendar year. AIDS = All new cases of AIDS diagnosed within a given calendar year.

** The cumulative rate is calculated by dividing the estimated current state population by the cumulative number of cases and multiplying by 100,000. Rates for individual calendar years were calculated using 2000 U.S. Census population data (2000-2002) and 1993-1999 population estimates were calculated using interpolation between U.S. Census 1990 data and U.S. Census 2000 data.

Please Note: The sum of HIV (non-AIDS) cases and AIDS cases will be greater than the number of cases of HIV Infection in a given year. The difference occurs because, unlike the HIV Infection category, the AIDS category includes both cases that are AIDS at first diagnosis as well as those cases that progress from HIV (non-AIDS) to AIDS during the year (see above definitions).

Numbers and rates exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program.

Table 2. Number of Cases and Rates (per 100,000 persons) of HIV Infection by Residence, Age, & Gender* -- Minnesota, 2002			
Group	**HIV Infection Cases**	**%**	**HIV Infection Rate**
Residence**			
Minneapolis	126	42%	32.9
St. Paul	41	14%	14.3
Suburban	104	34%	5.3
Greater Minnesota	32	11%	1.4
Total	*303*	*100%*	*6.2*
Age			
<13 yrs	5	2%	0.5
13-19 yrs	7	2%	1.3
20-24 yrs	27	9%	8.4
25-29 yrs	47	15%	14.7
30-34 yrs	67	22%	19.0
35-39 yrs	64	21%	15.5
40-44 yrs	33	11%	8.0
45-49 yrs	23	8%	6.3
50-54 yrs	18	6%	6.0
55-59 yrs	9	3%	4.0
60+ yrs	5	2%	0.6
Total	*305*	100%	*6.2*
Gender			
Male	218	71%	9.0
Female	87	29%	3.5
Total	*305*	*100%*	*6.2*

* HIV Infection includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2002.

** Residence information missing for 2 cases of HIV infection in 2002.

Suburban = Seven-county metropolitan area except Minneapolis & St. Paul (Anoka, Carver, Dakota, Hennepin (except Minneapolis), Ramsey (except St. Paul), Scott, and Washington counties). Greater Minnesota = Remaining 80 counties outside of the seven-county metropolitan area.

Numbers and rates exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program. State prisoners are included (2 new diagnoses in 2002).

Rates calculated using U.S. Census 2000 data.

Table 3. Number of Cases and Rates (per 100,000 persons) of HIV Infection by Race/Ethnicity & Mode of Exposure* -- Minnesota, 2002									
	Males			Females			*Total*		
Group	**Cases**	**%**	**Rate**	**Cases**	**%**	**Rate**	***Cases***	***%***	***Rate***
Race/Ethnicity									
White, non-Hispanic	115	53%	#	14	16%	#	*129*	*42%*	*3.0*
Black**, African-American	37	17%	#	25	29%	#	*62*	*20%*	*37.0*
Black**, African-born	29	13%	#	36	41%	#	*65*	*21%*	*130-185****
Hispanic	25	11%	#	6	7%	#	*31*	*10%*	*21.6*
American Indian	3	1%	#	4	5%	#	*7*	*2%*	*8.6*
Asian/PI	7	3%	#	2	2%	#	*9*	*3%*	*5.3*
Unknown	2	1%	X	0	0%	X	*2*	*1%*	*X*
Total	*218*	*100%*	*9.0*	*87*	*100%*	*3.5*	*305*	*100%*	*6.2*
Mode of Exposure									
MSM	128	59%	X	--	--	X	*128*	*42%*	X
IDU	6	3%	X	2	2%	X	*8*	*3%*	X
MSM/IDU	7	3%	X	--	--	X	*7*	*2%*	X
Heterosexual (Total)	(14)	6%	X	(30)	34%	X	*(44)*	*14%*	X
with IDU	5	--	X	9	--	X	*14*	--	X
with Bisexual Male	--	--	X	2	--	X	*2*	--	X
with Hemophiliac/other	0	--	X	0	--	X	*0*	--	X
with HIV+, unknown risk	9	--	X	19	--	X	*28*	--	X
Perinatal	0	0%	X	3	3%	X	*3*	*1%*	X
Other	0	0%	X	2	2%	X	*2*	*1%*	*X*
Unspecified	29	13%	X	22	25%	X	*51*	*17%*	*X*
No Interview	34	16%	X	28	32%	X	*62*	*20%*	*X*
Total	*218*	*100%*	*9.0*	*87*	*100%*	*3.5*	*305*	*100%*	*6.2*

* HIV infection includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2002.

** African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere).

***Accurate population estimates for Black, African-born persons living in Minnesota are unavailable – anecdotal (50,000) and 2000 U.S. Census data (35,188)) were used to create the range of rates reported for African-born persons. The population estimate for Black, African-American persons (167,784) was calculated by subtracting the U.S. Census estimate for African-born persons (35,188) from the total Black population (202,972). Note that this assumes that all African-born persons are Black (as opposed to another race).

U.S. Census 2000 data necessary to calculate race-specific rates (specifically a breakdown of the state population by "Race alone or in Combination with one or more races" by gender) have not yet been released for Minnesota. When these data become available this table will be updated.

Numbers exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program.
MSM = Men who have sex with men. IDU = Injecting drug use. Heterosexual = For males: heterosexual contact with a female known to be HIV+, an injecting drug user, or a hemophiliac/blood product or organ transplant recipient. For females: heterosexual contact with a male known to be HIV+, bisexual, an injecting drug user, or a hemophiliac/blood product or organ transplant recipient. Perinatal = Mother to child HIV transmission; birth may have occurred in a previous year. Unspecified = Cases who did not acknowledge any of the risks listed above. No Interview = Cases who refused to be, could not be or have not yet been interviewed.

Table 4. Number of Cases and Rates (per 100,000 persons) of HIV Infection by County of Residence* -- Minnesota, 2002		
County**	**HIV Infection Cases**	**HIV Infection Rate*****
Aitkin	0	-
Anoka	15	5.0
Becker	0	-
Beltrami	0	-
Benton	0	-
Big Stone	0	-
Blue Earth	2	-
Brown	0	-
Carlton	0	-
Carver	1	-
Cass	0	-
Chippewa	0	-
Chisago	0	-
Clay	0	-
Clearwater	0	-
Cook	0	-
Cottonwood	0	-
Crow Wing	0	-
Dakota	18	5.1
Dodge	0	-
Douglas	0	-
Faribault	0	-
Fillmore	0	-
Freeborn	0	-
Goodhue	1	-
Grant	0	-
Hennepin	187	16.8
Houston	0	-
Hubbard	0	-
Isanti	1	-
Itasca	1	-
Jackson	0	-
Kanabec	0	-
Kandiyohi	0	-
Kittson	0	-
Koochiching	0	-
Lac Qui Parle	0	-
Lake	0	-
Lake of the Woods	0	-
Le Sueur	0	-
Lincoln	0	-
Lyon	0	-
McLeod	0	-
Mahnomen	1	-
Marshall	0	-
Martin	0	-
Meeker	0	-
Mille Lacs	2	-
Morrison	0	-
Mower	0	-

Table 4. Number of Cases and Rates (per 100,000 persons) of HIV Infection by County of Residence* -- Minnesota, 2002		
County**	**HIV Infection Cases**	**HIV Infection Rate*****
Murray	0	-
Nicollet	0	-
Nobles	0	-
Norman	0	-
Olmsted	4	-
Otter Tail	0	-
Pennington	0	-
Pine	3	-
Pipestone	0	-
Polk	1	-
Pope	0	-
Ramsey	43	8.4
Red Lake	0	-
Redwood	0	-
Renville	0	-
Rice	2	-
Rock	0	-
Rosseau	1	-
St. Louis	4	-
Scott	1	-
Sherburne	1	-
Sibley	0	-
Stearns	6	4.5
Steele	0	-
Stevens	0	-
Swift	0	-
Todd	0	-
Traverse	0	-
Wabasha	0	-
Wadena	0	-
Waseca	0	-
Washington	6	3.0
Watonwan	0	-
Wilkin	0	-
Winona	1	-
Wright	1	-
Yellow Medicine	0	-
*State Total***	*303*	*6.2*

* HIV infection includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2002. County of residence as reported at time of diagnosis.

** Residence information missing for 2 cases of HIV infection in 2002; Total rate is based on all cases in the state (n = 305).

*** Rates not calculated for counties with fewer than 5 cases.

Numbers and rates exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program. HIV infection was diagnosed among 2 state prisoners during 2002 (State correctional facilities are located in the following counties: Anoka, Carlton, Chisago, Goodhue, Pine, Rice, Scott, St. Louis, Stearns, and Washington).

Rates calculated using U.S. Census 2000 data.

Perinatal HIV Exposure*

Table 5a. Number of Births to HIV-Infected Women by Year of Child's Birth and Mother's Race/Ethnicity, Minnesota 1982-2002**

Year(s)	Race/Ethnicity of Mother							*Total*	Foreign-born Mothers****	
	White	Black, African-American***	Black, African-born***	Hispanic	American Indian	Asian/PI	Unknown		Number	(% of total in time period)
1982-1989	15	6	0	0	1	1	0	*23*	2	9%
1990	4	2	0	0	1	0	0	*7*	0	0%
1991	5	4	0	0	3	0	0	*12*	0	0%
1992	9	5	1	1	0	0	0	*16*	1	6%
1993	8	6	1	0	1	0	0	*16*	1	6%
1994	5	9	1	2	2	0	0	*19*	1	5%
1995	8	8	0	1	2	0	0	*19*	1	5%
1996	8	2	0	2	1	1	0	*14*	3	21%
1997	7	8	1	1	0	1	0	*18*	1	6%
1998	8	6	3	1	2	0	0	*20*	4	20%
1999	8	12	3	1	1	1	0	*26*	5	19%
2000	12	8	6	2	1	1	0	*30*	8	27%
2001	1	20	13	1	2	0	0	*37*	15	41%
2002	7	4	9	2	1	0	0	*23*	8	35%
Cumulative Total	105	100	38	14	18	5	0	280	50	18%

NOTE: A birth to an HIV-infected woman was only included in the table if her residence at the time of child's birth was reported as Minnesota.

* Exposure of child to HIV during pregnancy, at birth, and/or during breastfeeding.

** HIV-infected women may or may not have progressed to an AIDS diagnosis.

*** African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere).

**** Mothers' places of birth include: Africa (35), Asia/Pacific Islands (5), Central America/Caribbean (5), Mexico (3), and South America (2).

Note: During 2001 an Enhanced Perinatal Surveillance (EPS) Project was undertaken and resulted in more complete reporting of births to HIV-infected mothers; 19 of 37 births reported in 2001 were identified through the EPS Project.

Perinatal HIV Transmission*

Table 5b. Number of Perinatally-Acquired HIV/AIDS Cases by Year of Child's Birth and Mother's Race/Ethnicity, Minnesota 1982-2002

Year(s)	Race/Ethnicity of Mother							*Total*	Foreign-born Mothers***	
	White	Black, African-American**	Black, African-born**	Hispanic	American Indian	Asian/PI	Unknown		Number	(% of total in time period)
1982-1989	5	2	0	0	1	1	0	*9*	1	11%
1990	2	0	0	0	0	0	0	*2*	0	0%
1991	4	0	0	0	0	0	0	*4*	0	0%
1992	2	0	0	0	0	0	0	*2*	0	0%
1993	2	1	0	0	0	0	0	*3*	0	0%
1994	2	0	0	1	0	0	0	*3*	0	0%
1995	0	0	0	1	1	0	0	*2*	0	0%
1996	0	1	0	1	0	1	0	*3*	2	67%
1997	0	0	1	0	0	0	0	*1*	0	0%
1998	1	1	2	0	0	0	0	*4*	2	50%
1999	0	0	0	0	0	0	0	*0*	0	-
2000	0	1	0	0	0	0	0	*1*	0	0%
2001	0	0	0	0	0	0	0	*0*	0	-
2002	0	0	0	1	0	0	0	*1*	1	100%
Cumulative Total	18	6	3	4	2	2	0	35	6	17%
Rate of Transmission 1996-2002	2%	5%	9%	--	--	--	--	6%	11%	--
Cumulative Rate of Transmission****	17%	6%	8%	--	--	--	--	13%	12%	--

NOTE: Cases of perinatally-acquired HIV/AIDS were only included in the table if the child's residence at the time of birth was reported as Minnesota.

* Transmission of HIV from mother to child during pregnancy, at birth, and/or during breastfeeding.

** African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere).

*** Mothers' places of birth include: Africa (2), Asia/Pacific Islands (2), Central America/Caribbean (1), and Mexico (1).

**** The cumulative rate of HIV transmission is calculated by dividing the total number of perinatally-acquired HIV infections by the total number of births in a category and multiplying by 100.

Rates calculated only for categories where the cumulative number of births is 30 or greater.

HIV/AIDS Prevalence & Mortality Report, 2002

Minnesota Department of Health
HIV/AIDS Surveillance System

MINNESOTA MDH DEPARTMENT OF HEALTH

Introduction (I)

- These three introduction slides provide a general context for the data used to create this slide set. If you have questions about any of the slides please refer to the ***Companion Text*** *to the Minnesota HIV/AIDS Prevalence & Mortality Report, 2002 or HIV/AIDS Prevalence & Mortality* ***Technical Notes****.*

- This slide set displays estimates of the number of persons living with HIV/AIDS (**prevalence**) and mortality in Minnesota by person, place, and time.

- The slides rely on data from HIV/AIDS cases diagnosed through 2002 and reported to the Minnesota Department of Health (MDH) HIV/AIDS Surveillance System.

Introduction (II)

- Data analyses exclude persons diagnosed in federal or private correctional facilities, but include state prisoners (n=99).

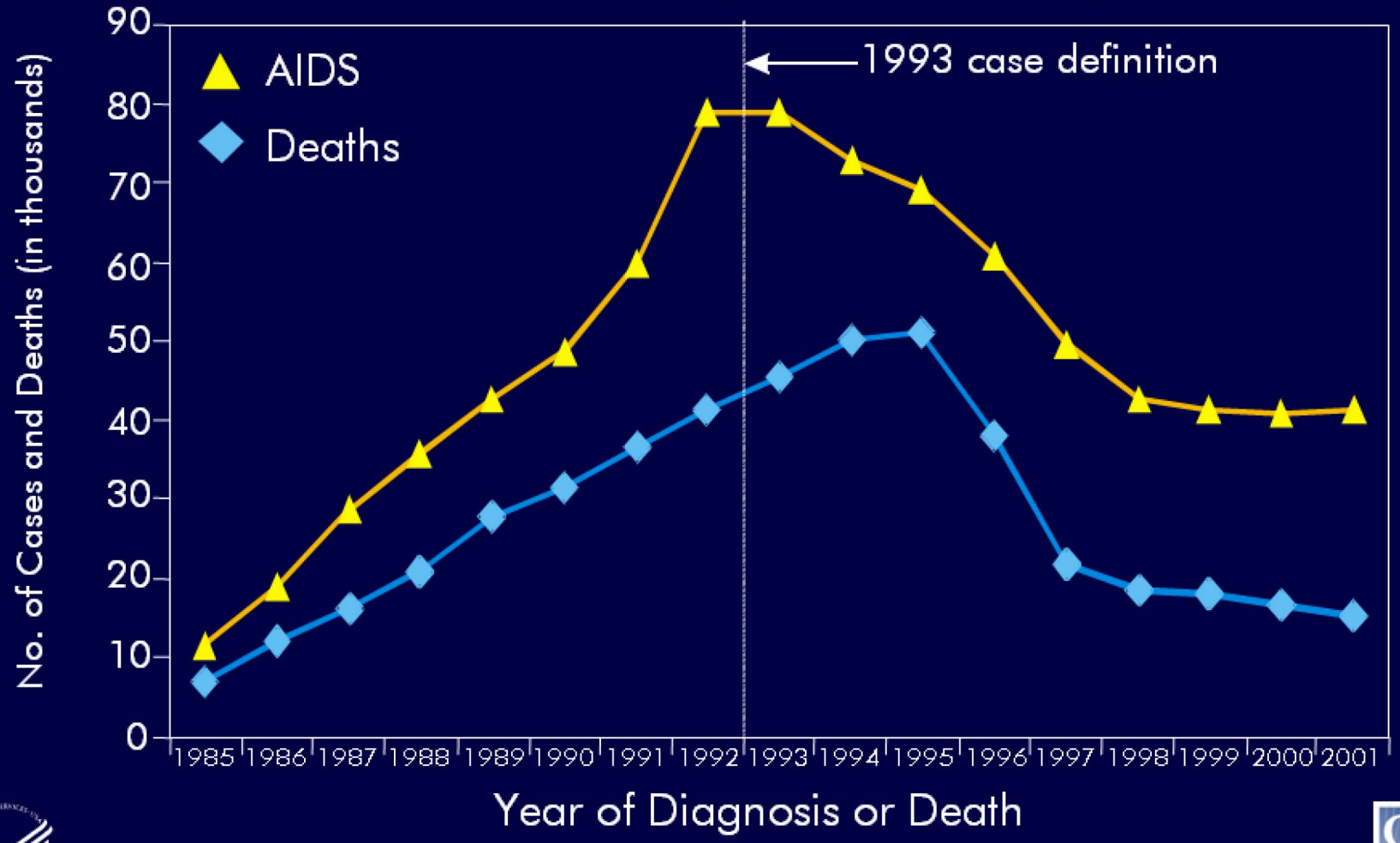
- Some limitations of surveillance data:
  - Data do not include HIV-infected persons who have not been tested for HIV
  - Data do not include persons whose positive test results have not been reported to the MDH
  - Case numbers for the most recent years may be undercounted due to delays in reporting

Introduction (III)

- Persons are assumed to be alive unless the MDH has knowledge of their death.
- Persons whose most recently reported state of residence was Minnesota are assumed to be currently residing in Minnesota unless the MDH has knowledge of their relocation. Our ability to track changes of residence, including within the state, is limited.
- Vital status and current residence are updated through one or more of the following methods:
  - Standard case reporting
  - Correspondence with other health departments
  - Obituary reviews (daily)
  - Active surveillance (monthly)
  - Death certificate reviews (annually)
  - National Death Index match

National Context

Estimated Incidence of AIDS and Deaths of Adults and Adolescents with AIDS*, 1985 - 2001, United States

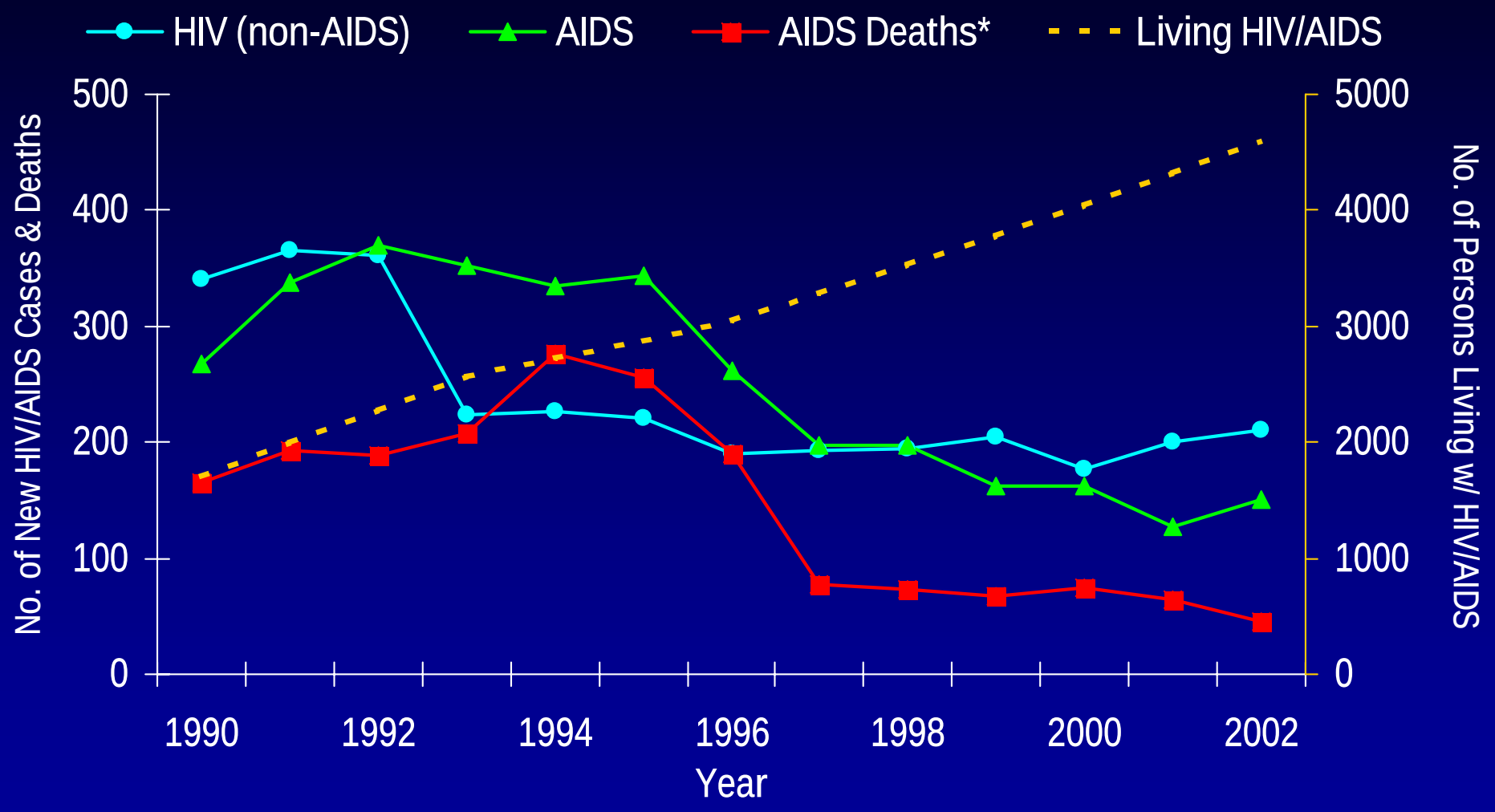


*Adjusted for reporting delays

Overview of HIV/AIDS in Minnesota

HIV/AIDS in Minnesota:

Number of New Cases, Prevalent Cases, and Deaths by Year, 1990-2002



* *Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota

Estimated Number of Persons Living with HIV/AIDS in Minnesota

- As of December 31, 2002, 4,598* persons are assumed alive and living in Minnesota with HIV/AIDS
  - 2,736 living with HIV infection (non-AIDS)
  - 1,862 living with AIDS

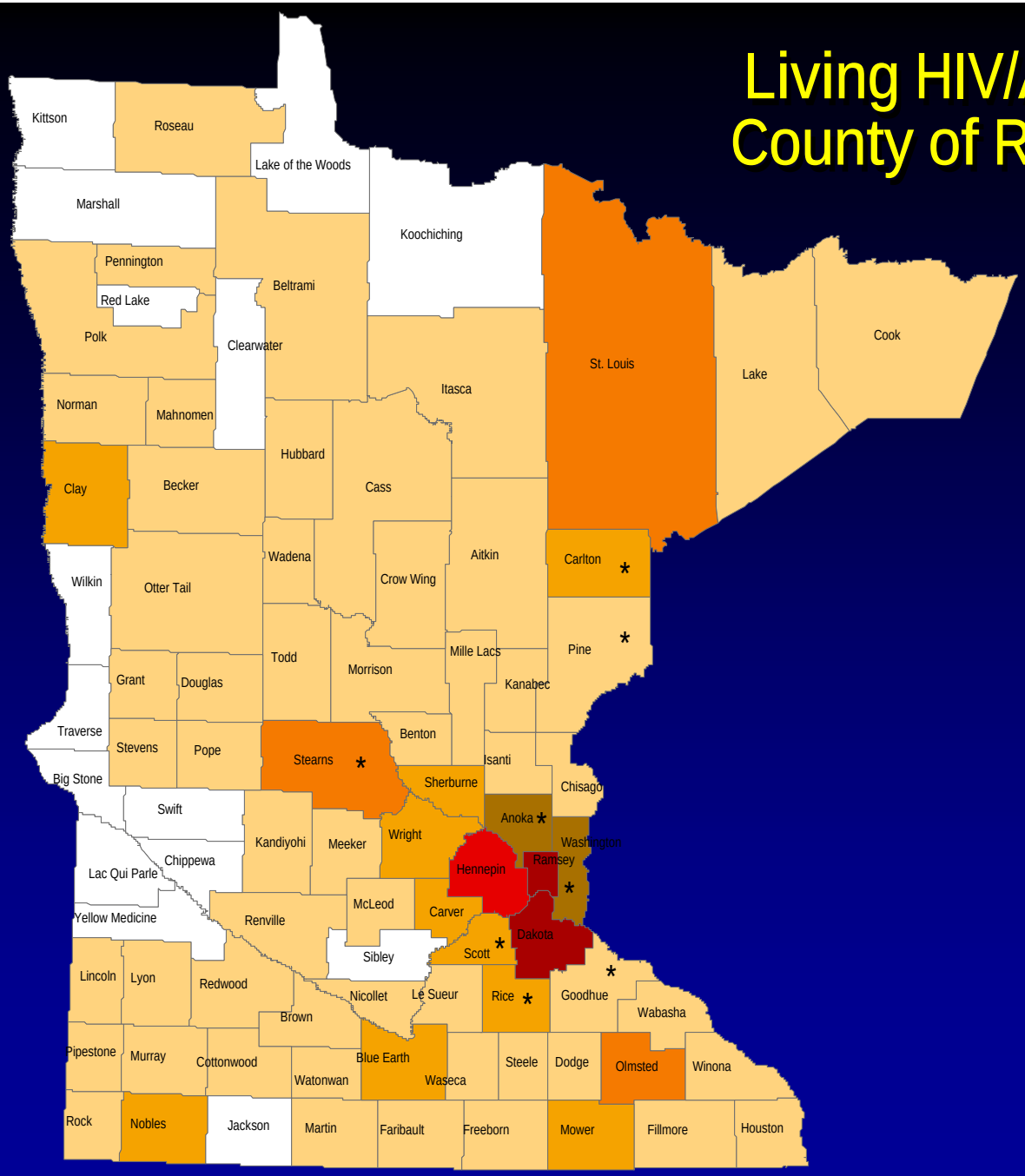
- This number includes 439 persons who were first reported with HIV or AIDS elsewhere and subsequently moved to Minnesota

- This number excludes 439 persons who were first reported with HIV or AIDS in Minnesota and subsequently moved out of the state

** This number includes persons who reported Minnesota as their current state of residence, regardless of residence at time of diagnosis.*

Place

Living HIV/AIDS Cases by County of Residence, 2002



Number Living with HIV/AIDS

- None
- 1 - 10
- 11 - 30
- 31 - 90
- 91 - 150
- 151 – 1,000
- 1,001 – 2,770

City of Minneapolis – 2,159
City of St. Paul – 681
Suburban[#] – 1,198
Greater Minnesota - 560

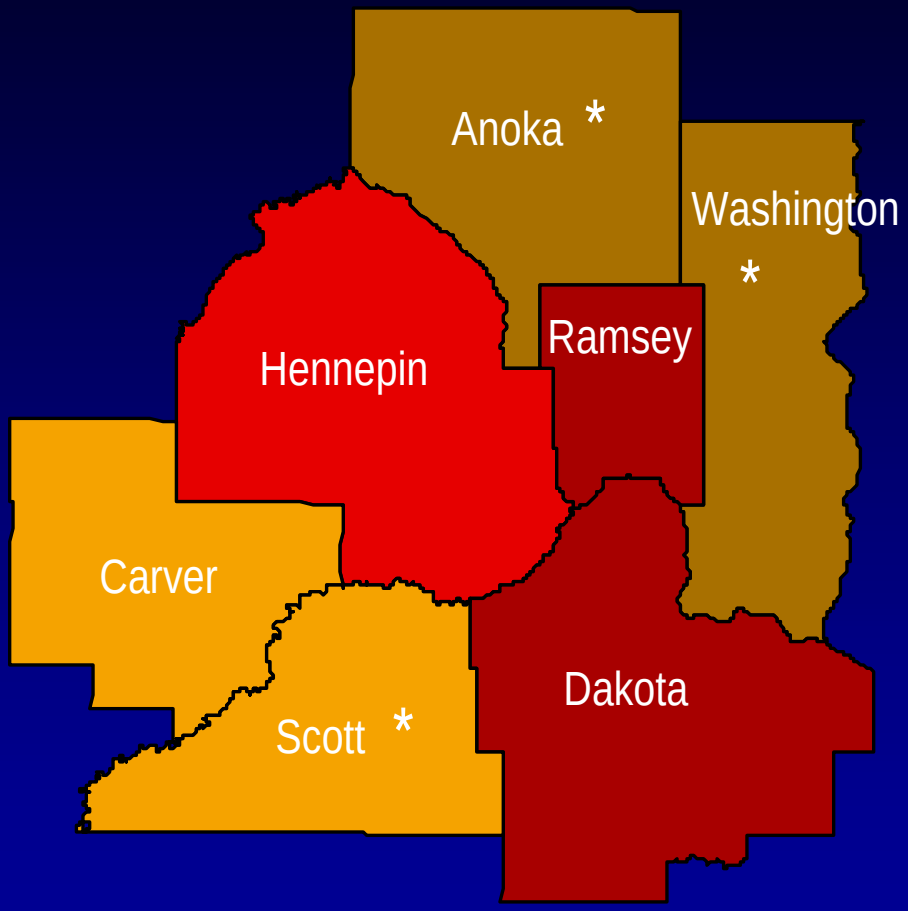
Total number = 4,598
(27 people missing residence information)

* Counties in which a state correctional facility is located

[#] 7-county metro area, excluding the cities of Minneapolis and St. Paul

Data Source: *Minnesota HIV/AIDS Surveillance System*

Map of Metro Area:
Living HIV/AIDS Cases by County of Residence, 2002



Number Living with HIV/AIDS

- None
- 1 - 10
- 11 - 30
- 31 - 90
- 91 - 150
- 151 – 1,000
- 1,001 – 2,770

City of Minneapolis – 2,159
City of St. Paul – 681
Suburban# – 1,198

Total number (Metro only) = 4,038

* Counties in which a state correctional facility is located

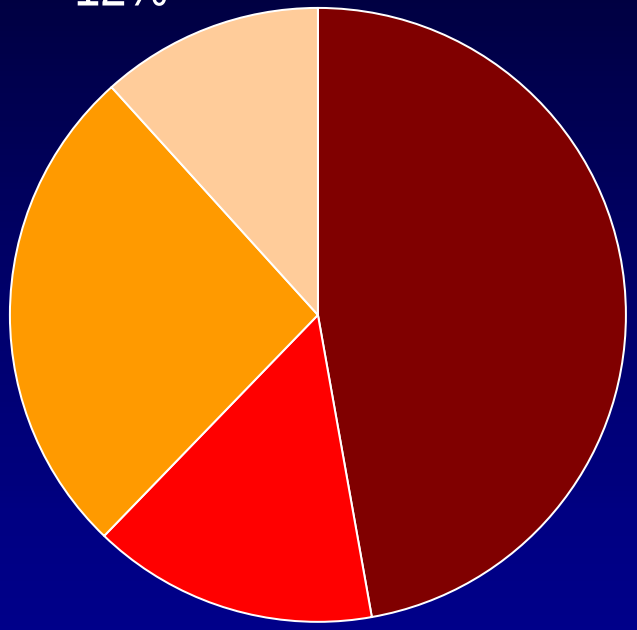
7-county metro area, excluding the cities of Minneapolis and St. Paul

Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Current Residence, 2002

Total Number = 4,598

(27 persons missing residence information)

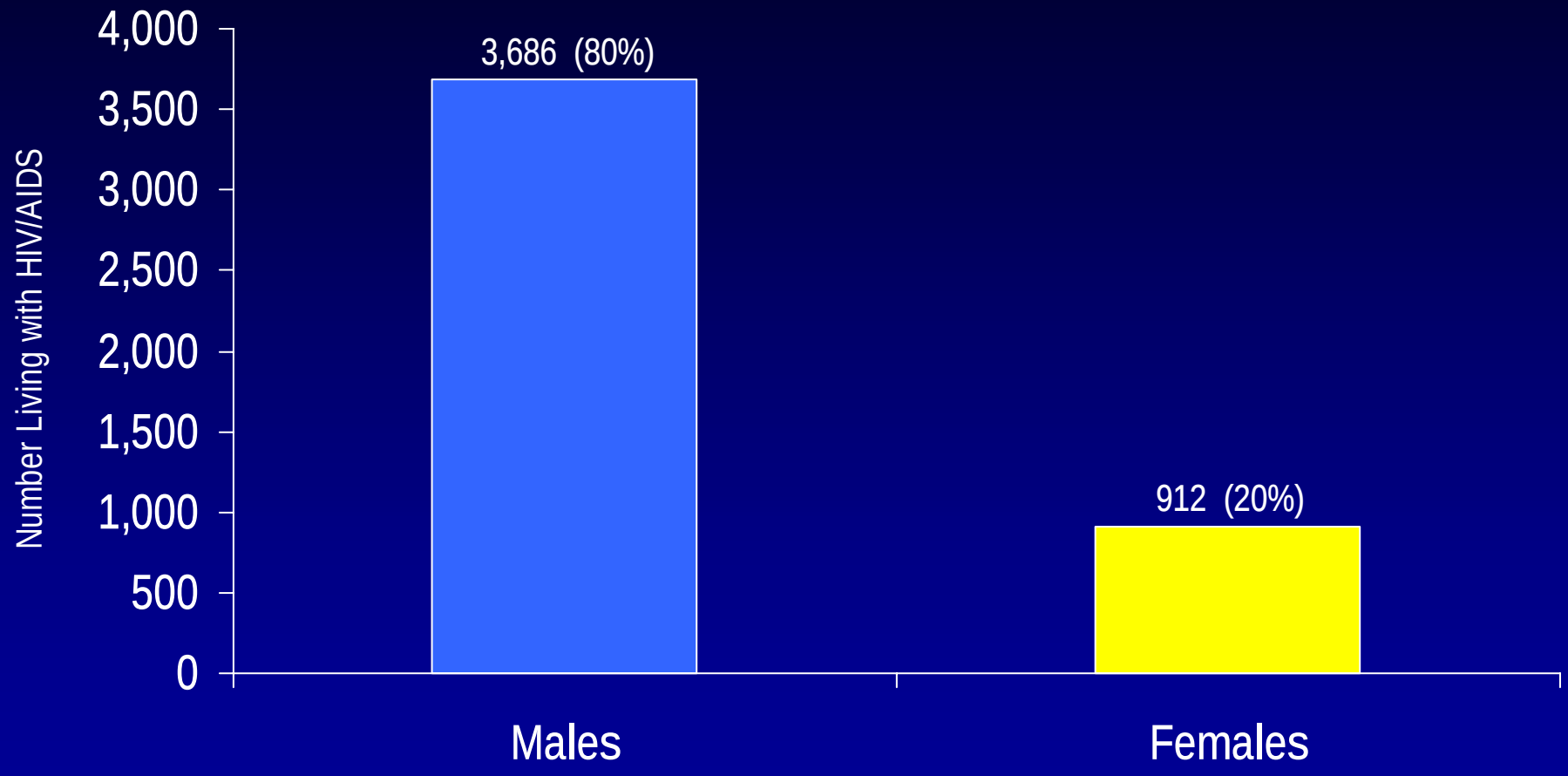


Suburban = Seven-county metro area including Anoka, Carver, Dakota, Hennepin (except Minneapolis), Ramsey (except St. Paul), Scott, and Washington counties. Greater MN = All other Minnesota counties, outside the seven-county metro area.

Data Source: *Minnesota HIV/AIDS Surveillance System*

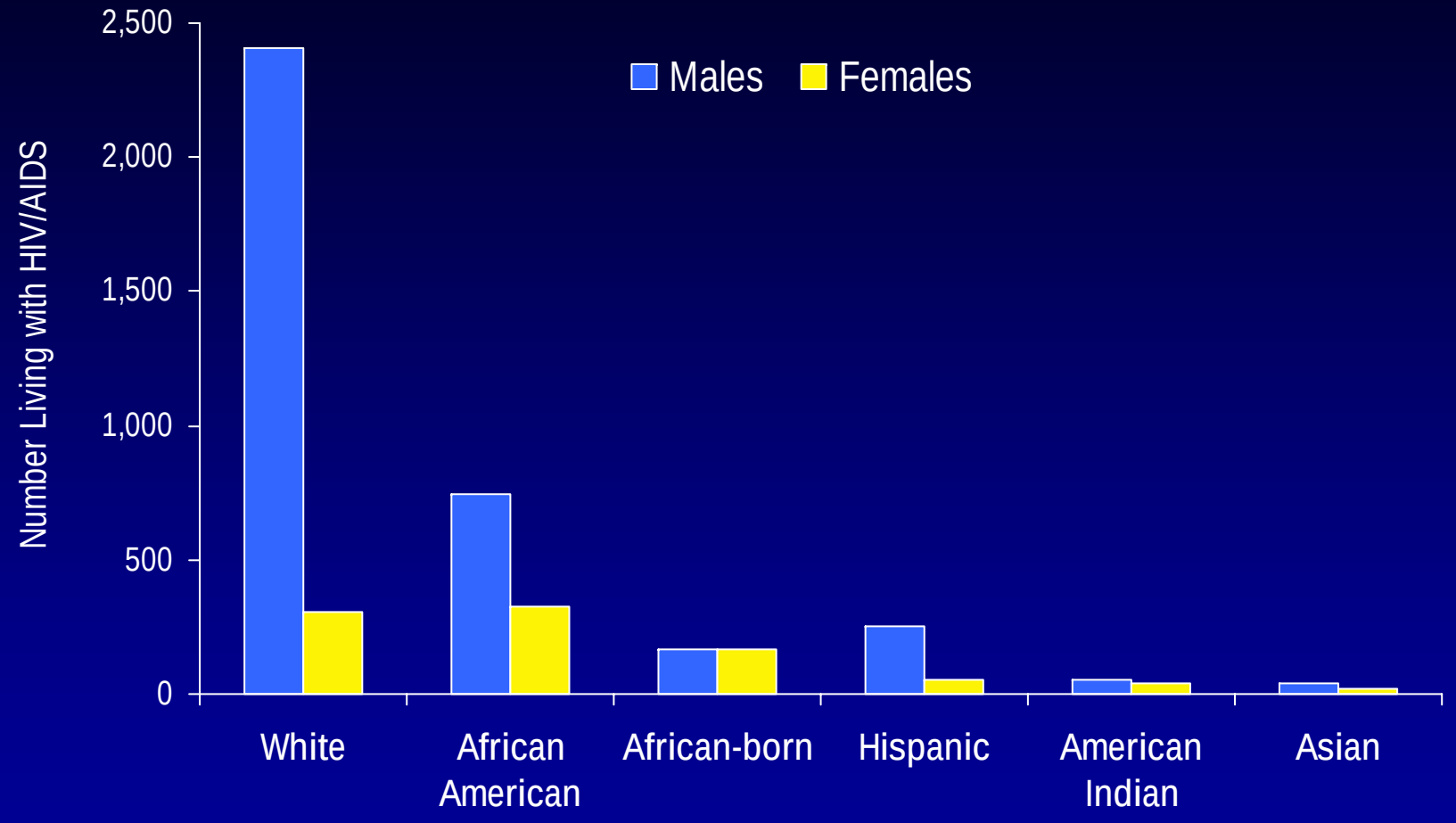
Gender and Race/Ethnicity

Persons Living with HIV/AIDS in Minnesota by Gender, 2002



Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Gender and Race/Ethnicity*, 2002

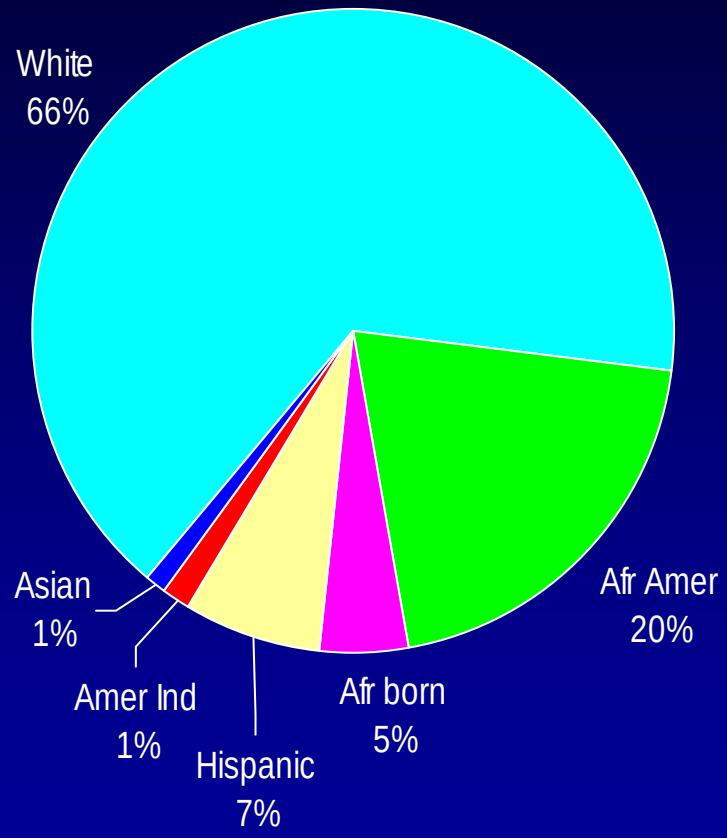


* *"African-born" refers to Blacks who reported an African country of birth; "African American" refers to all other Blacks.*
Persons with unknown race were omitted (n=32).

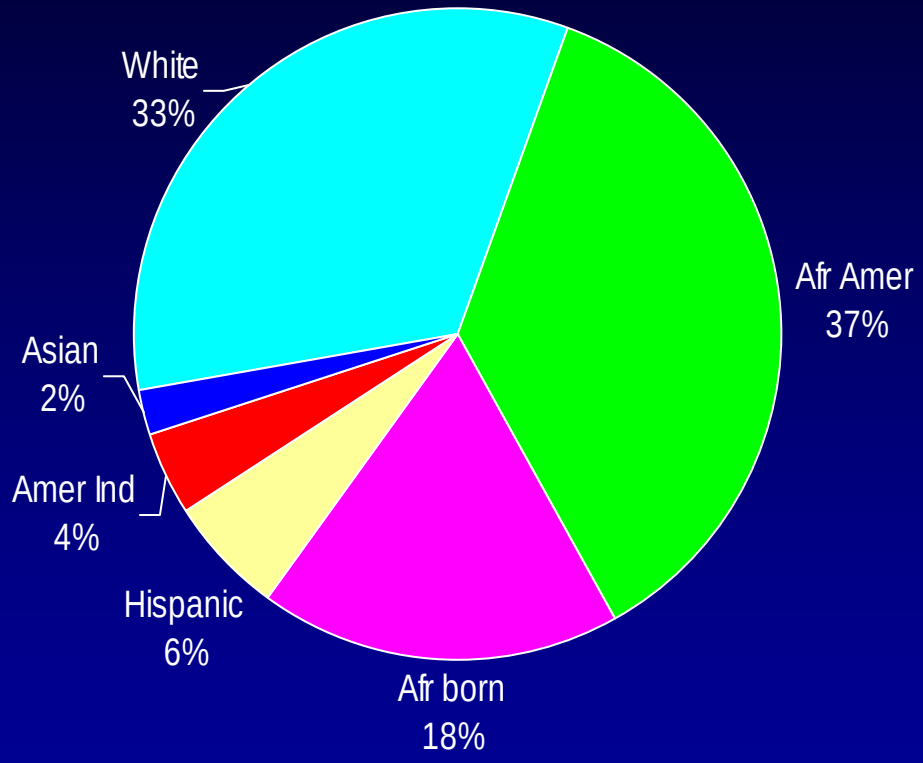
Data Source: *Minnesota HIV/AIDS Surveillance System*

Persons Living with HIV/AIDS in Minnesota by Gender and Race/Ethnicity, 2002

Males* (n = 3,686)



Females* (n = 912)



n = Number of persons Amer Ind = American Indian

Afr Amer = African American (Black, not African-born persons)

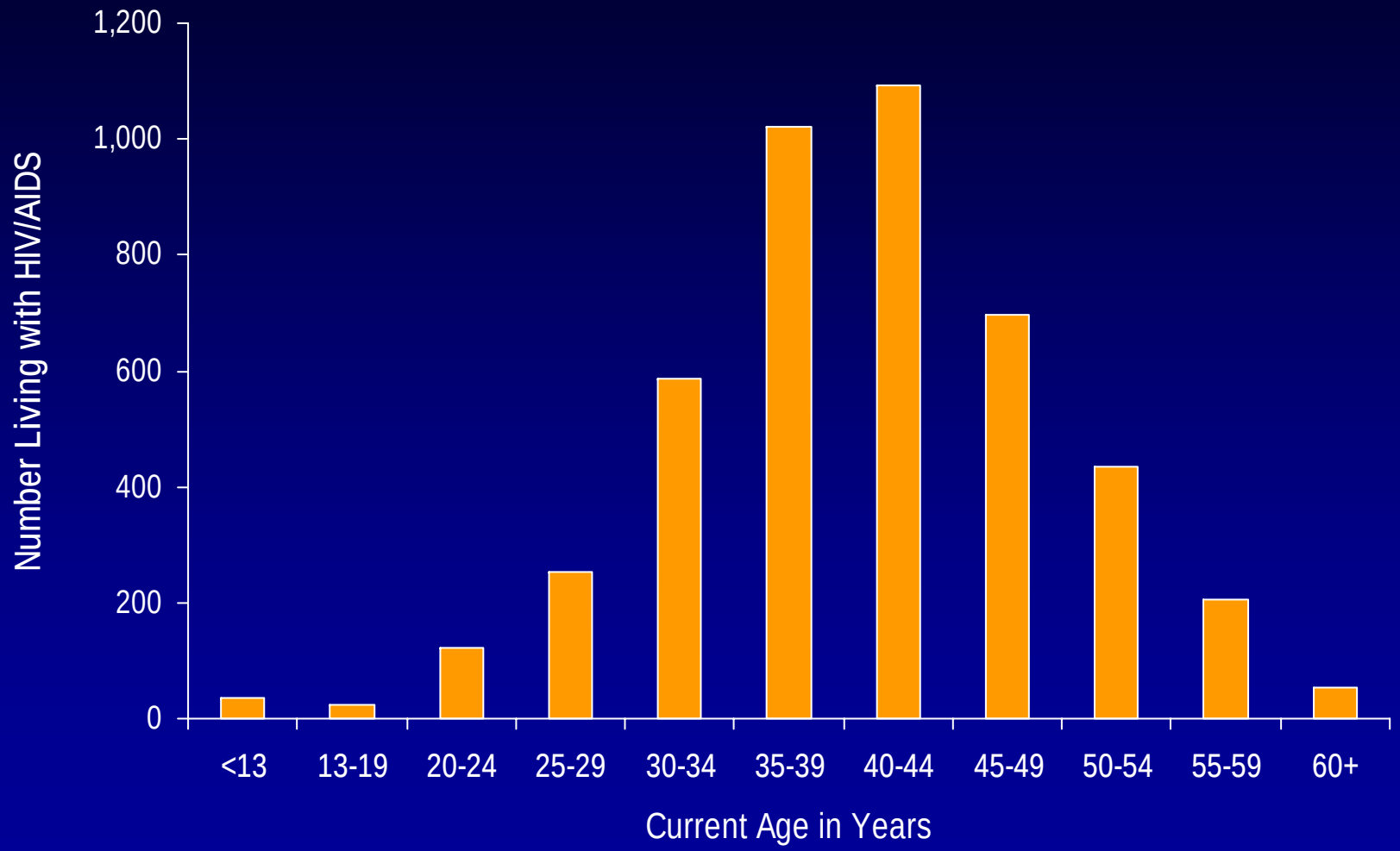
Afr born = African-born (Black, African-born persons)

** 28 males and 4 females had missing race and were excluded.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Age

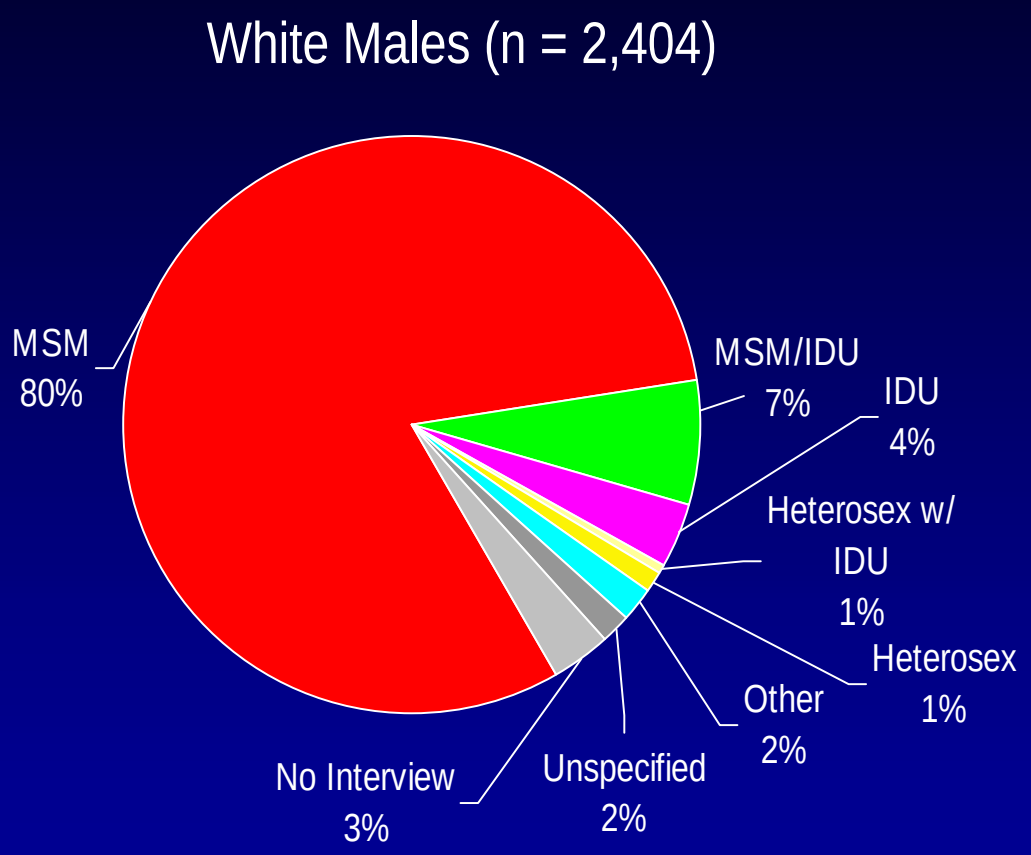
Persons Living with HIV/AIDS in Minnesota by Age Group, 2002



Data Source: *Minnesota HIV/AIDS Surveillance System*

Mode of Exposure

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

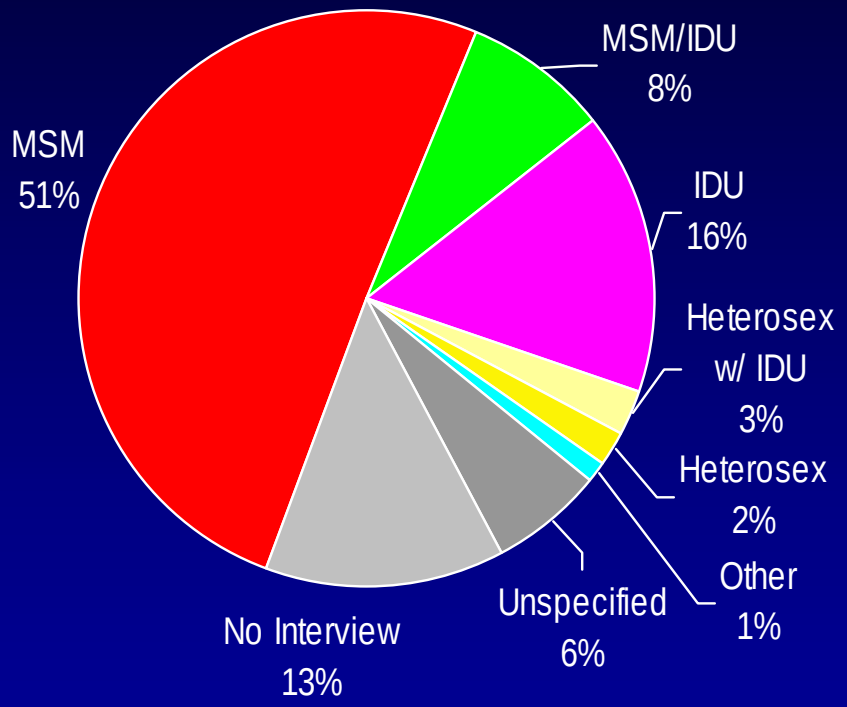


n = Number of persons
IDU = Injecting drug use
MSM = Men who have sex with men
Heterosex = Heterosexual contact
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African American Males† (n = 746)

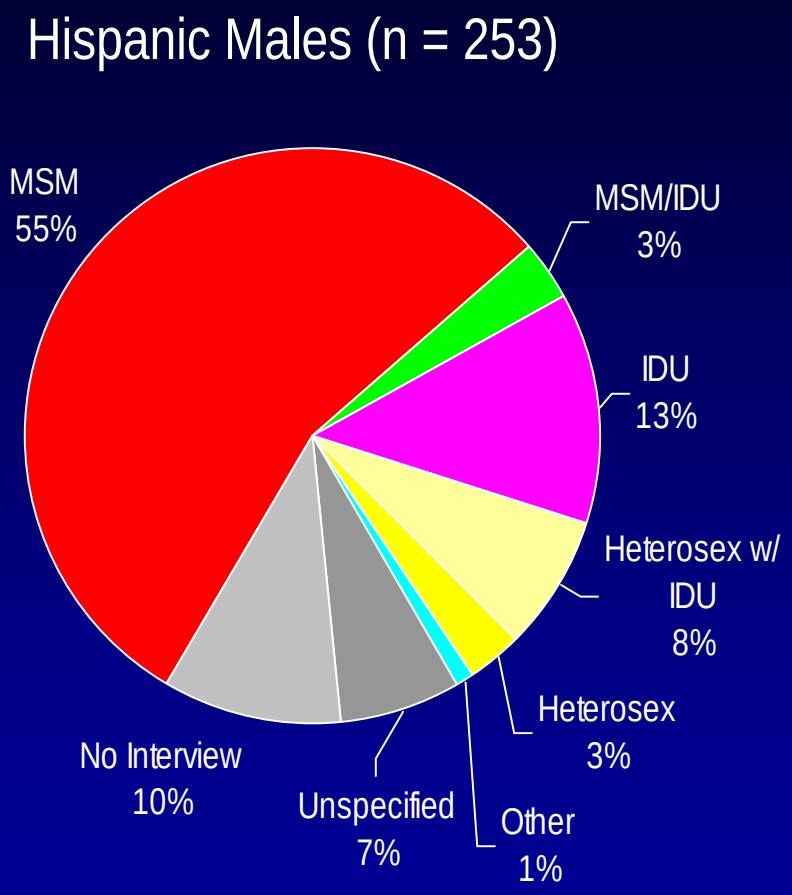


n = Number of persons
IDU = Injecting drug use
MSM = Men who have sex with men
Heterosex = Heterosexual contact
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
No Interview = Could not, would not or have yet to be interviewed

† *Refers to Black, African American (not African-born) males.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002



n = Number of persons
IDU = Injecting drug use

MSM = Men who have sex with men
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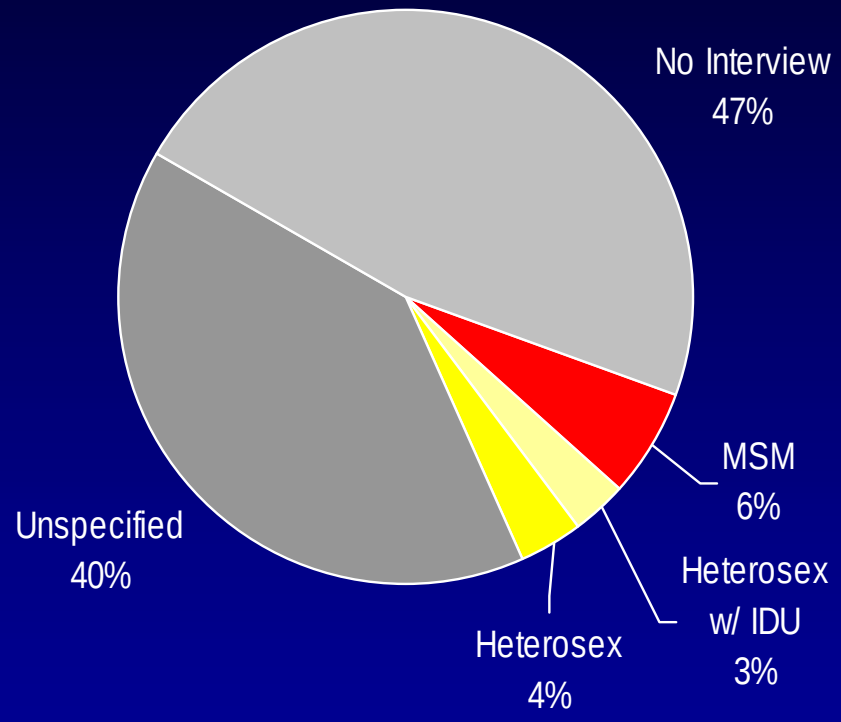
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African-born Males† (n = 165)



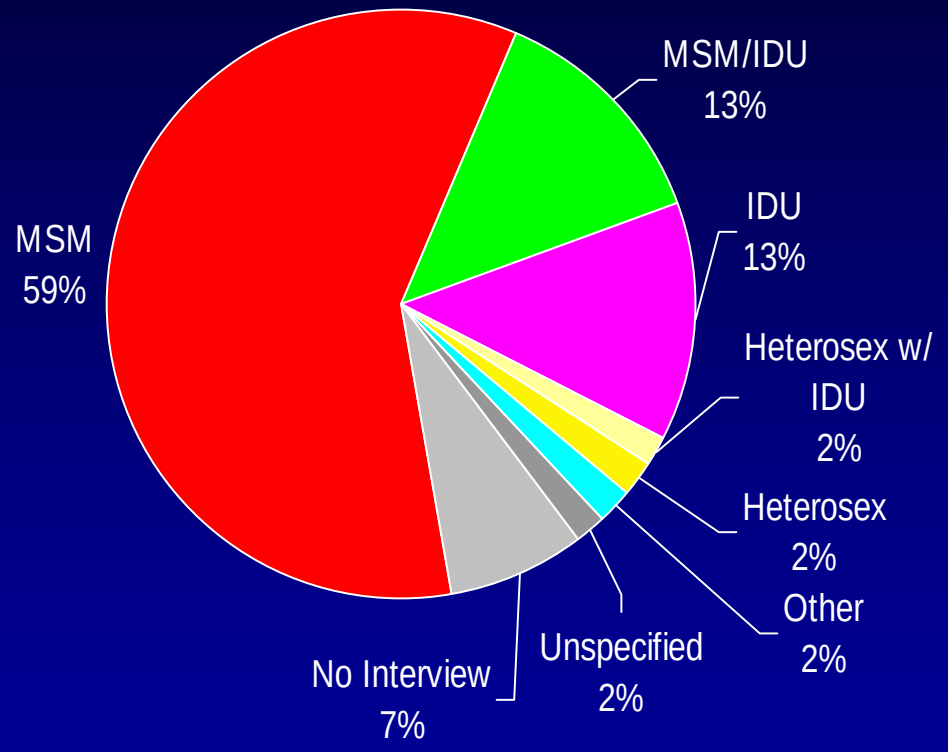
n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact

† *Refers to Black, African-born males.* No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

American Indian Males (n = 53)

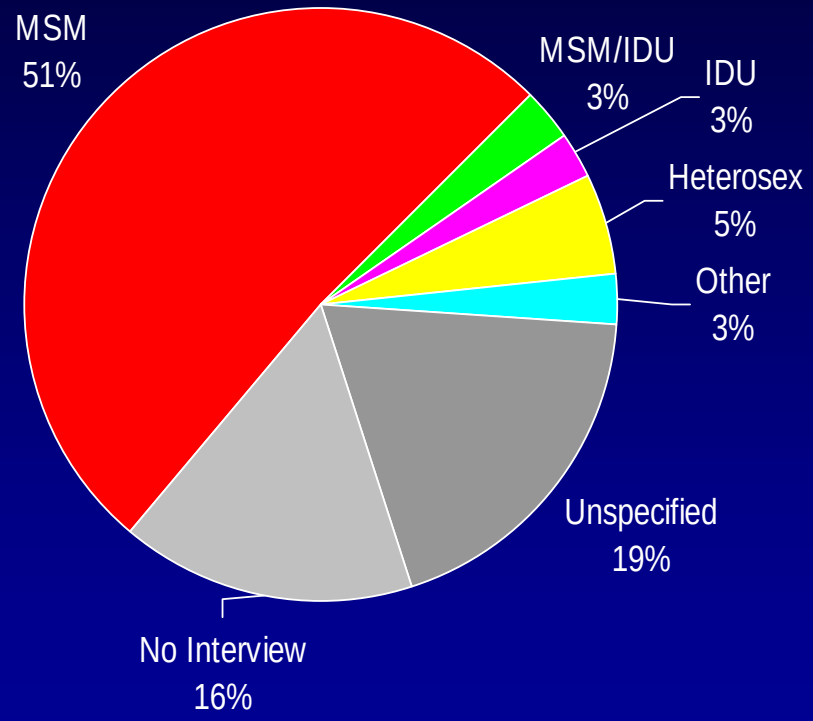


n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Males Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Asian Males (n = 37)

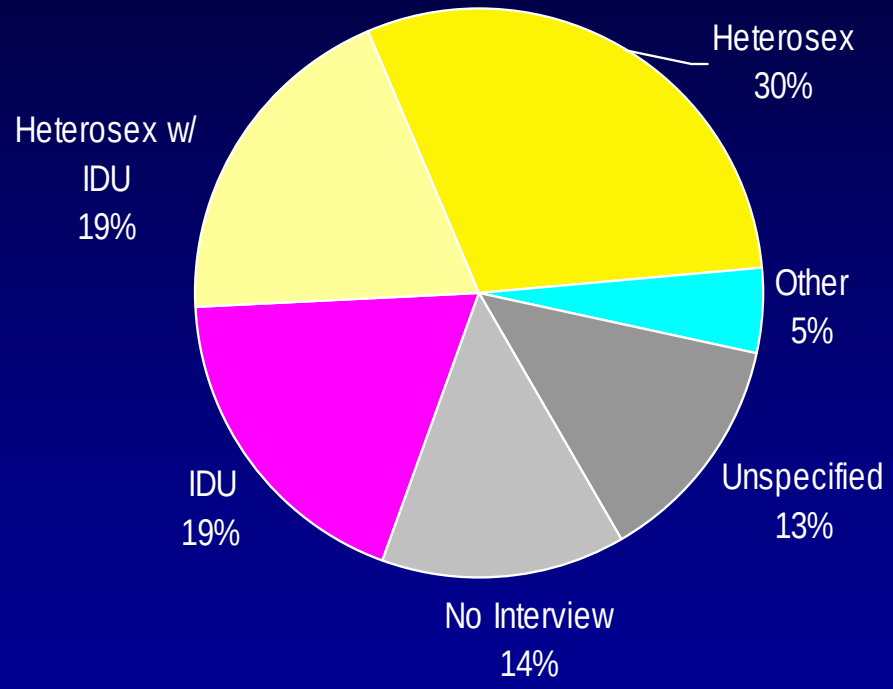


n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African American Females† (n = 329)



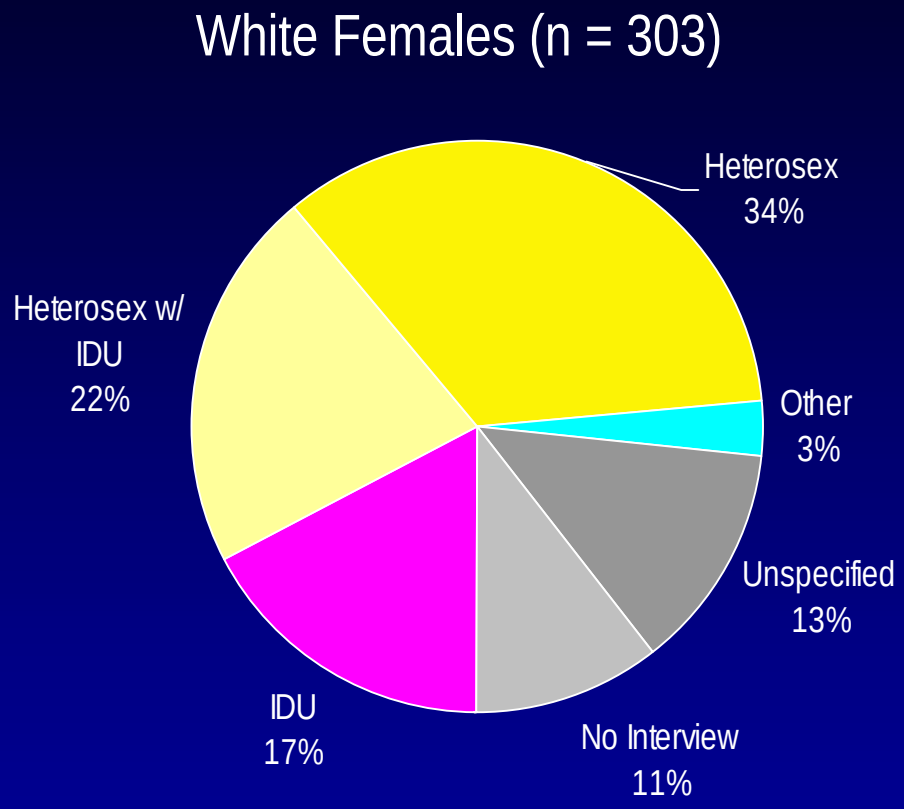
n = Number of persons Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

IDU = Injecting drug use Heterosex = Heterosexual contact No Interview = Could not, would not or have yet to be interviewed

† *Refers to Black, African American (not African-born) females.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

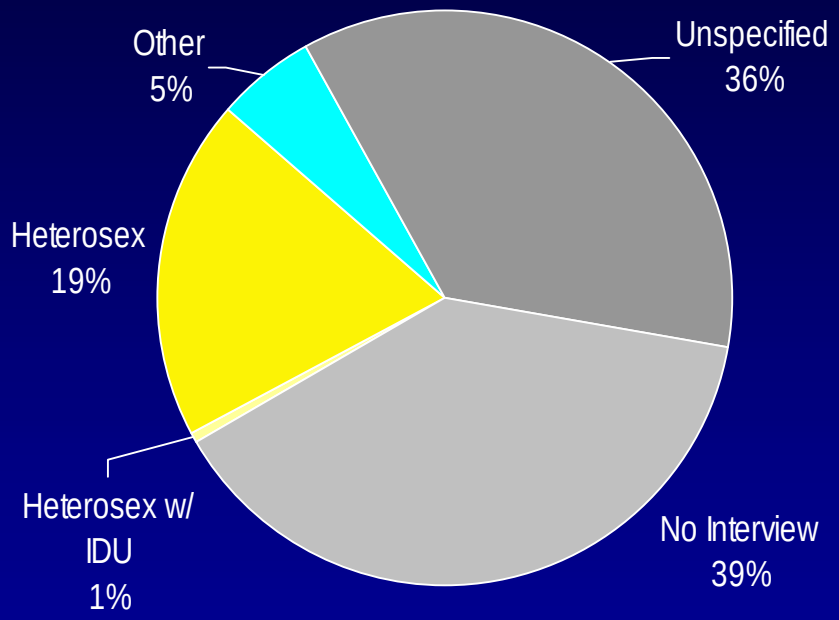


n = Number of persons
IDU = Injecting drug use
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

African-born Females† (n = 166)



n = Number of persons

Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

Heterosex = Heterosexual contact

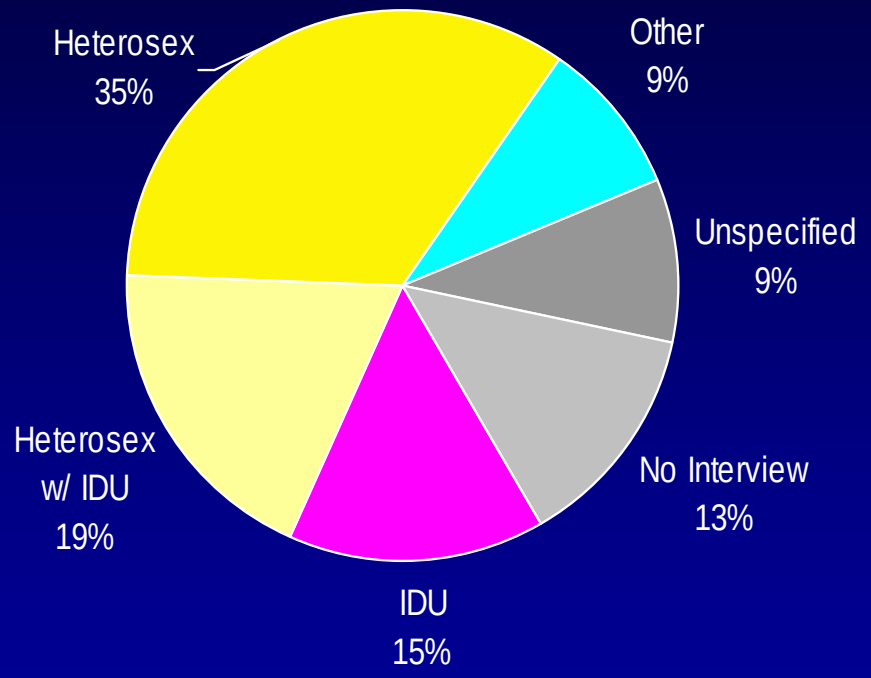
No Interview = Could not, would not or have yet to be interviewed

† *Refers to Black, African-born females.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Hispanic Females (n = 53)

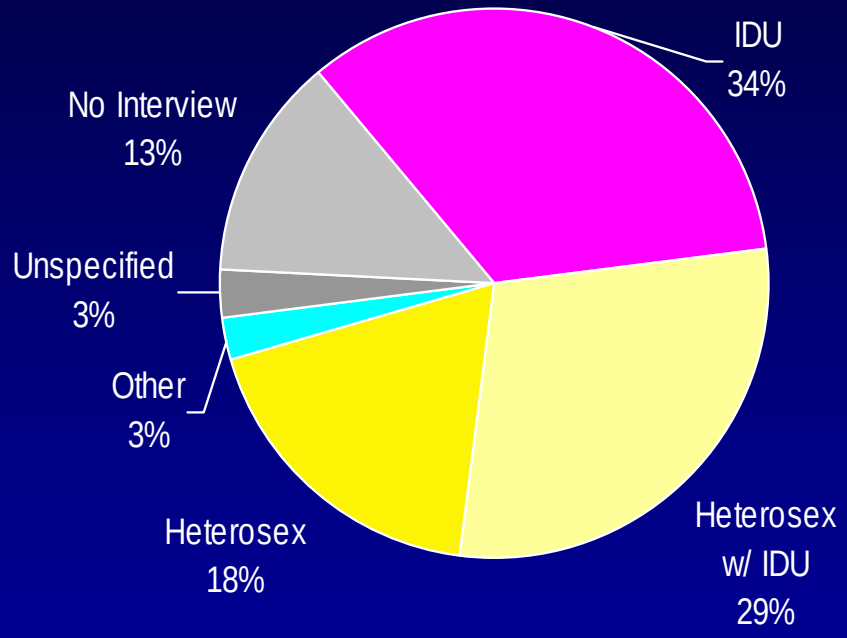


n = Number of persons
IDU = Injecting drug use
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
Heterosex = Heterosexual contact
No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

American Indian Females (n = 37)



n = Number of persons IDU = Injecting drug use Heterosex = Heterosexual contact

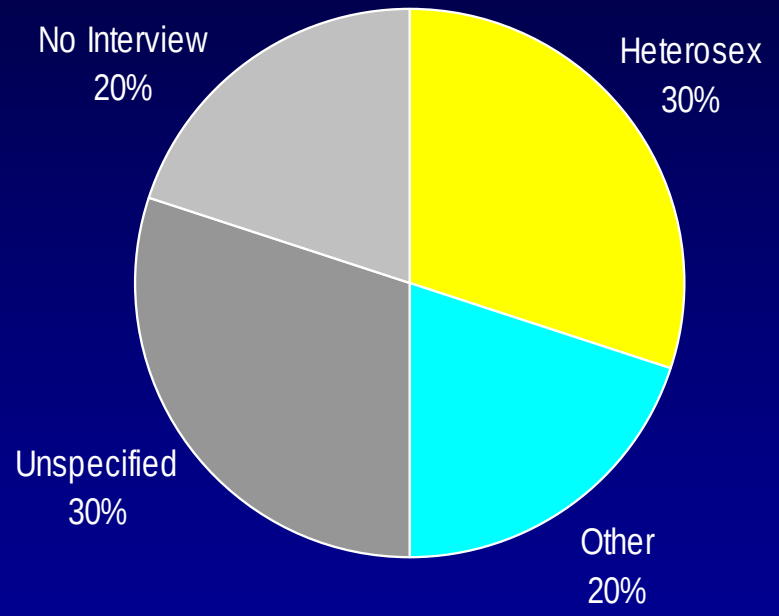
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Females Living with HIV/AIDS in Minnesota by Mode of Exposure, 2002

Asian Females (n = 20)

CAUTION: Small number of cases – interpret carefully.



n = Number of persons

Heterosex = Heterosexual contact

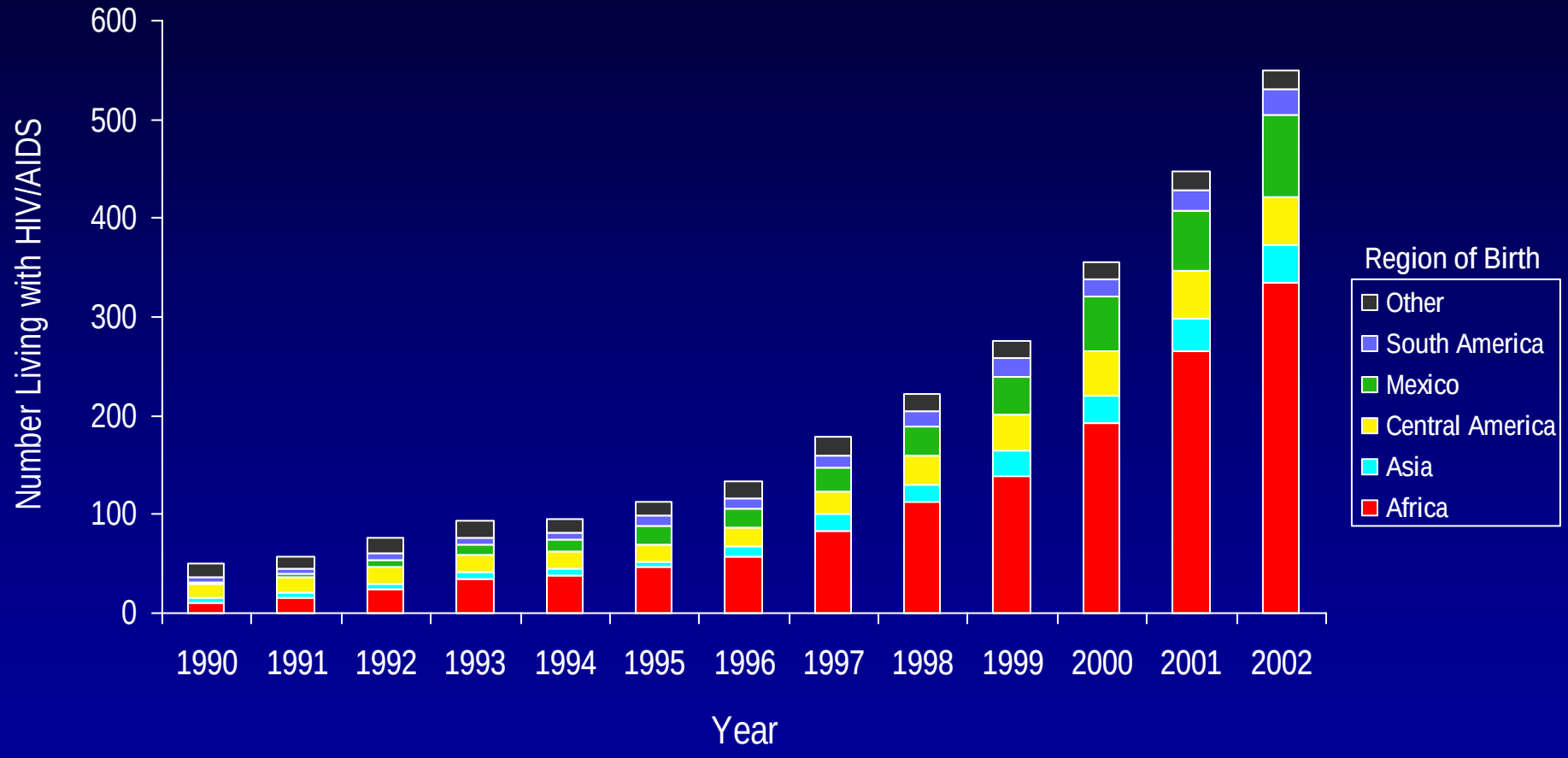
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

No Interview = Could not, would not or have yet to be interviewed

Data Source: *Minnesota HIV/AIDS Surveillance System*

Emerging Trend

Foreign-Born Persons Living with HIV/AIDS in Minnesota, 1990-2002

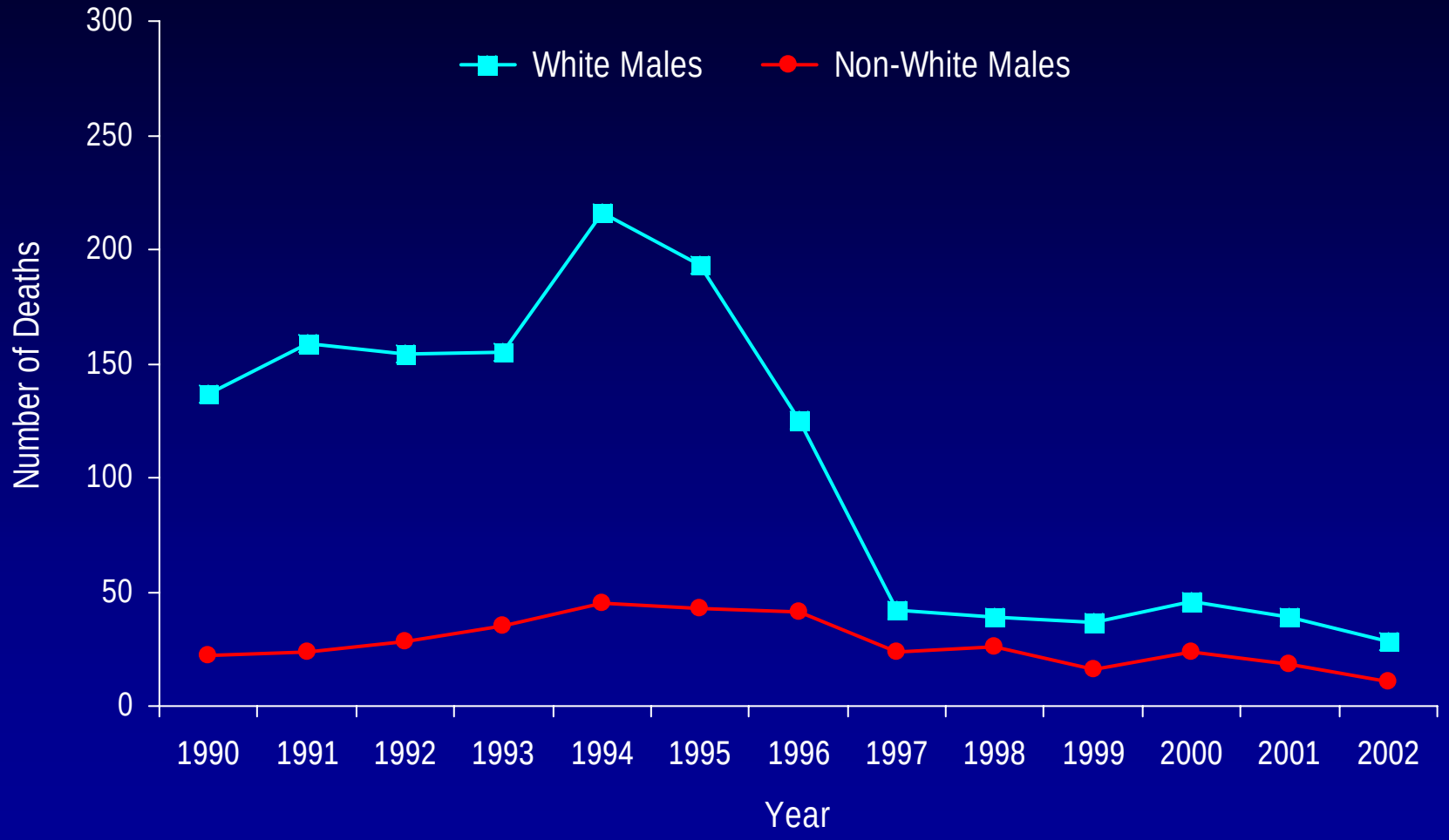


Data Source: *Minnesota HIV/AIDS Surveillance System*

HIV/AIDS in Minnesota: Annual Review

Mortality

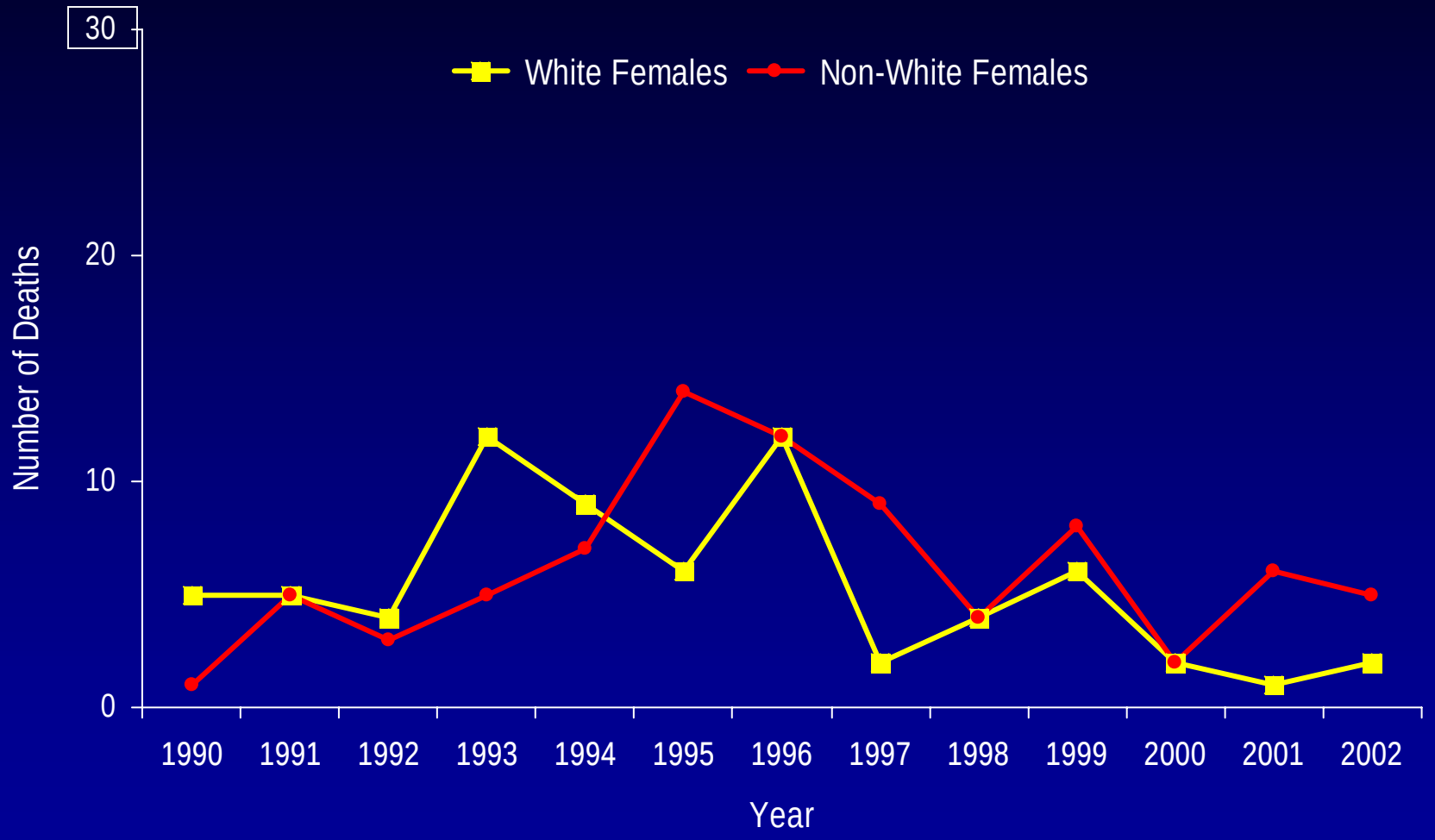
Reported Deaths* among Male AIDS Cases in Minnesota, 1990-2002



** Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Reported Deaths* among Female AIDS Cases in Minnesota, 1990-2002



** Deaths among AIDS cases, regardless of cause.*

Data Source: *Minnesota HIV/AIDS Surveillance System*

Companion Text for the Slide Set:
Minnesota HIV/AIDS Prevalence & Mortality Report, 2002

INTRODUCTION

The *Minnesota HIV/AIDS Prevalence & Mortality Report, 2002* contains estimates of HIV/AIDS prevalence (the number of persons living with HIV or AIDS) and mortality in Minnesota. These estimates can be used to help educate, plan for HIV/AIDS services and develop policy.

Data Source

The data in this report are based on confidential case reports collected through the Minnesota Department of Health (MDH) HIV/AIDS Surveillance System. In Minnesota, laboratory-confirmed infections of human immunodeficiency virus (HIV) are monitored by the MDH through this active and passive surveillance system. State law (Minnesota Rule 4605.7040) requires 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 Limitations

The prevalence estimate is calculated by totaling the number of HIV and AIDS cases diagnosed through December 31, 2002 who are not known to be deceased and whose most recently reported state of residence was Minnesota. It bears noting that persons who are HIV-infected but not yet tested are not included in this prevalence estimate. Migration (known HIV-infected persons moving in or out of the state) also affects the estimate. Refer to the *HIV/AIDS Prevalence & Mortality Technical Notes* for a more detailed description of data inclusions and exclusions.

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.

PERSONS LIVING WITH HIV/AIDS IN THE UNITED STATES

The Centers for Disease Control & Prevention (CDC) estimates that there are 800,000 to 900,000 people currently living with HIV/AIDS in the United States. The number of people specifically living with AIDS in the United States has been increasing in recent years: from approximately 290,400 in 1998 to approximately 344,000 in 2001.[1]

PERSONS LIVING WITH HIV/AIDS IN MINNESOTA

Overview of HIV/AIDS in Minnesota, 1990-2002

The number of persons assumed to be living with HIV/AIDS in Minnesota has been steadily increasing over time. As of December 31, 2002, an estimated 4,598 persons with HIV/AIDS were residing in Minnesota, a 6% increase from 2001. While the number of new HIV (non-AIDS) cases has remained steady since the mid-1990s at just under 200 cases per year, both the number of newly diagnosed AIDS cases and the number of deaths among AIDS cases have been declining since 1996. The decreases are primarily due to the success of new treatments introduced in 1995 (protease inhibitors) and 1996 (highly active antiretroviral therapy or HAART). 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, the declines slowed during the late 1990s and the numbers have been relatively stable the past few years.

Living HIV/AIDS Cases, 2002

Among the estimated 4,598 prevalent cases in Minnesota, 2,736 are diagnosed with HIV (non-AIDS) and 1,862 are diagnosed with AIDS. The majority (88%) of prevalent cases reside in the seven-county metropolitan area surrounding the Twin Cities of Minneapolis and St. Paul (Hennepin, Ramsey, Anoka, Dakota, Scott, and Washington counties). Although HIV infection is more common in communities with higher

[1] *HIV/AIDS Surveillance Report* Vol. 13, No. 2: December 2001. Centers for Disease Control & Prevention.

population densities and greater poverty, HIV or AIDS has been diagnosed in over 80% of counties in Minnesota.

Gender & Race/Ethnicity

Approximately 80% of prevalent HIV/AIDS cases are males. Broken down by race/ethnicity, 65% of male cases are White, 20% African American, 7% Hispanic, 4% African-born, 1% American Indian, and 1% Asian/Pacific Islander. In total, 35% of males living with HIV/AIDS are non-White whereas only 12% of the general male population is Non-White. Among female cases, the distribution is even more skewed toward women of color: 33% White, 36% African American, 18% African-born, 6% Hispanic, 4% American Indian, and 2% Asian/Pacific Islander. Thus, 67% of prevalent female HIV/AIDS cases are non-White whereas only 11% of the general female population in Minnesota is non-White.

Please note that race is not considered a biological reason for disparities related to HIV/AIDS 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 less access to health care.

Age

Seventy-eight percent (78%) of persons living with HIV/AIDS in 2002 are currently 35 years of age or older. Broken down into five-year age groups, 40-44 year olds make up the largest group (24% of cases), followed by 35-39 year olds (22%) and 45-49 year olds (15%).

Mode of Exposure

The proportions of living cases attributable to particular modes of exposure differ among gender and race groups. While 88% of White males reported male-to-male sex (MSM or MSM/IDU) as a risk factor, only 52% of non-White males reported this mode of exposure. The difference in proportions is partly explained by the relatively large number of non-White males with unspecified risk, particularly among African American,

African-born and Asian men. It is hypothesized that due, in part, to social stigma many of the cases with unspecified risk were unclassified MSM cases. 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 countries of origin. The percent of male cases that identified IDU, MSM/IDU, or heterosexual contact with an injecting drug user as a risk factor was particularly high for American Indians (28%), African Americans (26%) and Hispanics (24%). The percentages among White, Asian, and African-born males were 11%, 5%, and 3%, respectively. Similar to the MSM category, IDU may be underreported due to social stigma.

Across all race/ethnicity groups, females most frequently report heterosexual contact as their mode of HIV exposure. However, IDU was reported as directly or indirectly (via heterosexual contact with a person who injected drugs) involved in a large percentage of female cases among most race/ethnicity groups. The largest percentage of IDU-related cases occurred among American Indians (63%) followed by Whites, African Americans, and Hispanics with 39%, 38%, and 34%, respectively. One case among African-born females was related to IDU and no cases among Asian females. African-born females living with HIV/AIDS had the largest percentage of cases with unspecified risk: 75% compared to approximately 22% among the other female race/ethnicity groups. The number of prevalent HIV/AIDS cases among Asian females was too small (n = 20) to make generalizations about risk. See the *HIV/AIDS Prevalence & Mortality Technical Notes* for a detailed discussion of mode of exposure categories.

Emerging Trend

Between 1990 and 2002, the number of foreign-born persons living with HIV/AIDS in Minnesota increased substantially, especially among the African-born population. In 1990, 50 foreign-born persons were reported to be living with HIV/AIDS in Minnesota. By 2002, this number increased ten-fold to 550 persons. This trend illustrates the growing diversity of the infected population in Minnesota and the need for culturally appropriate HIV care services and prevention efforts.

HIV/AIDS MORTALITY IN MINNESOTA

The number of deaths[2] among Minnesota AIDS cases decreased between 1995 and 1997 and remained relatively constant between 1997 and 2002. The largest declines in mortality were observed among White males in the mid 1990s. In recent years, the number of deaths among AIDS cases has been comparable between White and non-White males and between White and non-White females. Only 7 deaths among AIDS cases were reported in 2002 among women and 39 among men.

[2] Includes all deaths, regardless of cause.

Minnesota Department of Health
Protecting, maintaining and improving the health of all Minnesotans

HIV/AIDS Prevalence and Mortalitity Technical Notes

Surveillance of HIV/AIDS

The Minnesota Department of Health (MDH) collects case reports of HIV infection and AIDS diagnoses through a passive and active HIV/AIDS surveillance system. Passive surveillance relies on physicians and laboratories to report new cases of HIV infection or AIDS directly to the MDH in compliance with state law (1). Active surveillance conducted by MDH staff involves routine visits and correspondence with select facilities to ensure completeness of reporting and accuracy of the data.

Factors that impact the completeness and accuracy of HIV/AIDS surveillance data include: compliance with case reporting, timeliness of case reporting, test-seeking behaviors of HIV-infected individuals, and the availability and targeting of HIV testing services. Certain events have also impacted trends in HIV/AIDS surveillance data. For example changes over time in the surveillance case definition (most notably the 1993 expansion of the case definition for adults and adolescents (2)) have resulted in artificial jumps in AIDS case counts at the time the new definition went into effect or in the preceding year because changes in case definition allowed for retrospective diagnoses.

Vital Status of HIV/AIDS Cases

Persons are assumed alive unless the MDH has knowledge of their death. Persons are assumed residing in Minnesota if their most recently reported state of residence was Minnesota and the MDH has not received notice of relocation outside of the state. Vital status information is updated by monthly visits to select reporting facilities, correspondence with other health departments, daily obituary reviews in local newspapers, annual death certificate reviews, and periodic matches with the National Death Index. “AIDS deaths” refers to all deaths among AIDS cases regardless of the cause.

Place of Residence for HIV/AIDS Cases

Persons are assumed to be residing in Minnesota if their most recently reported state of residence was Minnesota and the MDH has not received notice of relocation outside of the state. Likewise, a person’s county or city of residence is assumed to be the most recently reported value unless the MDH is otherwise notified. Residence information is updated through standard case reporting, monthly visits to select reporting facilities and/or correspondence with other state health departments. Persons diagnosed with HIV infection while imprisoned in a state correctional facility are included in the data presented unless otherwise noted (federal and private prisoners are excluded). Residential relocation, including release from state prison, is difficult to track and therefore data presented by *current* residence must be interpreted in this light. Data on residence at *time of diagnosis* are considered more accurate, limited only by the accuracy of self-reported residence location.

Data Tabulation and Presentation

Unless otherwise noted, data analyses exclude persons diagnosed in federal or private correctional facilities (inmates generally are not Minnesota residents before incarceration and do not stay in Minnesota upon their release), infants with unknown or negative HIV status who were born to HIV positive mothers. Data include HIV-infected refugees who resettled in Minnesota as part of the HIV-Positive Refugee Resettlement Program.

The HIV/AIDS surveillance system is a live database that is continuously updated to reflect the most current information available. Variables such as current state of residence are over-written when updates are made. Annual archive files were initiated in 2001. Thus, the numbers of HIV/AIDS cases residing in Minnesota in 2000 and 2001 were estimated using the current state of residence variable while the number in previous years (1990-1999) was estimated using state of residence at time of diagnosis, vital status, and date of death variables. The number of HIV/AIDS cases alive in a certain year was calculated by summing cases with an HIV/AIDS diagnosis in that year or prior whose vital status in 2001 was “alive” or whose date of death was

either after the calendar year of interest or missing.

Mode of Exposure Hierarchy

All state and city HIV/AIDS surveillance systems funded by the Centers for Disease Control and Prevention use a standardized hierarchy of mode of exposure categories. HIV and AIDS cases with more than one reported mode of exposure to HIV are classified in the exposure category listed first in the hierarchy. In this way, each case is counted as having only one mode of exposure. The only exception to this rule is the joint risk of male-to-male sex (MSM) and intravenous drug use (IDU), which makes up a separate exposure category in the hierarchy. The following is a list of the hierarchy for adolescent/adult HIV/AIDS cases:
(1) MSM
(2) IDU
(3) MSM/IDU
(4) Hemophilia patient
(5) Heterosexual contact
(6) Receipt of blood transfusion or tissue/organ transplant
(7) Other (e.g. needle stick in a health care setting)
(8) Risk not specified.

The following is the list of the hierarchy for pediatric HIV/AIDS cases:
(1) Hemophilia patient
(2) Mother with HIV or HIV risk
(3) Receipt of blood transfusion or tissue/organ transplant
(4) Other
(5) Risk not specified.

Heterosexual contact is only designated if a male or female can report specific heterosexual contact with a partner who has, or is at increased risk for, HIV infection (e.g. an intravenous drug user). For females this includes heterosexual contact with a bisexual male (mainly due to the elevated prevalence of HIV infection among men who have sex with men).

“Risk not specified” refers to cases with no reported history of exposure to HIV through any of the routes listed in the hierarchy of exposure categories. These cases include persons who have not yet been interviewed by MDH staff; persons whose exposure history is incomplete because they died, declined to be interviewed, or were lost to follow-up; and persons who were interviewed or for whom follow-up information was available but no exposure was identified/acknowledged.

The growing number of cases with unspecified risk in recent years is, in part, artificial and due to interviews that have not yet been completed. In time, a number of these will be assigned a mode of exposure category. However, part of the observed increase is real. As stated above, a person must have intimate knowledge about his/her partner to meet the criteria for heterosexual mode of exposure. Often cases will not be certain about their partners’ HIV status or risk. Additionally, the perception of social stigma presumably decreases the likelihood that a person will acknowledge certain risk behaviors, particularly male-to-male sex or injecting drug use. Thus, if the *true* numbers of cases due to heterosexual contact, MSM, and/or IDU increase, a larger number of cases without a specified risk would be expected.

A recent study by the Centers for Disease Control and Prevention used statistical methods to redistribute risk among female HIV/AIDS cases with unspecified risk (3). The results are helpful but are based on national data that are not necessarily applicable to the state or local level. Speculation regarding the distribution of risk behaviors among those with unspecified risk is difficult, especially in men, for whom even a national study is not available.

Re-distribution of Mode of Exposure

In 2004 the Minnesota Department of Health began estimating mode of exposure for cases with unspecified risk in its annual summary slides. Estimation was done by using the risk distribution for living cases with known risk by race and gender and applying it to those with unspecified risk of the same race and gender. There were two exceptions to this method, African-born cases and Asian/Pacific Islander women. For both African-born and Asian/Pacific Islander women a breakdown of 95% heterosexual risk and 5% other risk was

used. For African-born males a breakdown of 5% male-to-male sex, 90% heterosexual risk, and 5% other risk was used. These percentages are based on epidemiological literature and/or community experience.

Below is an example of how the process worked for white, African American and African-born females:

Living Cases Among Females in 2004					
Race/Risk	Heterosexual n (%†)	IDU n (%†)	Other n (%†)	Unspecified n	Total N
White	178 (72)	58 (24)	10 (4)	78	324
African-American	174 (69)	62 (25)	16 (6)	107	359
African-born	43 (83)	0 (0)	9 (17)	223	275

† Percent of those with know risk.

Female Cases with Estimated Risk				
Race/Risk	Heterosexual	IDU	Other	Total N
White	(.72*78) + 178 = 234	(.24*78) + 58 =77	(.04*78) + 10 =13	324
African-American	(.69*107) + 174 = 248	(.25*107) + 62 = 88	(.06*107) + 16 =23	359
African-born‡	(.95*223) + 43 = 255	0	(.05*223) + 9 = 20	275

‡ Used a distribution of 95% heterosexual and 5% other.

Definitions Related to Race/Ethnicity

When data are stratified by race, Black race is broken down into African-born and African American (not African-born) based on reported country of birth.

The terms “persons of color” and “non-Whites” refer to all race/ethnicity categories other than White (Black, Hispanic, American Indian, and Asian/Pacific Islander).

Interstate De-Duplication Project (IDEP)

In 2004, the Minnesota Department of Health (MDH) participated in IDEP. IDEP is a CDC project aimed at eliminating duplicate reports of HIV and AIDS cases among states. Each case of HIV and AIDS is assigned to the state (or states when the diagnosis of HIV and AIDS occurs in two different states) where a person was first diagnosed. The first round looked at cases reported through December 31, 2001. Through this project, MDH identified 164 cases of HIV infection (including AIDS at first report) and 55 AIDS cases whose first diagnosis was not in Minnesota. These cases were previously considered as diagnosed in Minnesota and were counted in the cumulative number of cases diagnosed in Minnesota. As such, the change of “ownership” (where the case was diagnosed) has reduced both cumulative and yearly totals for Minnesota. Additionally, MDH also identified 250 cases that no longer live in Minnesota.

The results of IDEP are particularly noticeable in the total number of persons living with HIV/AIDS in Minnesota, which increased from 4,895 to 5,002, a gain of only 107 cases, instead of 292 (new infections minus deaths plus (difference between people moving in and people moving out)) between 2003 and 2004.

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(1) Minnesota Rule 4605.7040 (return to text)
(2) MMWR 1992;41[no.RR-17]:1-19 (return to text)
(3) MMWR 2001; 50(RR-6):31-40 (return to text)

If you have questions or comments about this page, contact idepcweb@health.state.mn.us or call 612-676-5414 (TTY: 612-676-5653) for the MDH Infectious Disease Epidemiology, Prevention and Control Division.

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Table 1. Number and Rate (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by Residence, Age, and Gender* -- Minnesota, 2002							
Group	HIV (non-AIDS)		AIDS		*Total*		*HIV/AIDS*
	Cases	%	Cases	%	*Cases*	*%*	*Prevalence Rate*
Residence**							
Minneapolis	1,299	48%	860	46%	*2,159*	*47%*	*564.3*
St. Paul	397	15%	284	15%	*681*	*15%*	*237.2*
Suburban	712	26%	486	26%	*1,198*	*26%*	*60.7*
Greater Minnesota	304	11%	229	12%	*533*	*12%*	*23.4*
Total	*2,712*	*100%*	*1,859*	*100%*	*4,571*	*100%*	*93.5*
Age***							
<13 yrs	25	1%	10	1%	*35*	*1%*	*3.8*
13-19 yrs	18	1%	5	<1%	*23*	*1%*	*4.4*
20-24 yrs	102	4%	19	1%	*121*	*3%*	*37.5*
25-29 yrs	183	7%	71	4%	*254*	*6%*	*79.4*
30-34 yrs	413	15%	174	9%	*587*	*13%*	*166.1*
35-39 yrs	618	23%	402	22%	*1,020*	*22%*	*247.3*
40-44 yrs	632	23%	461	25%	*1,093*	*24%*	*265.5*
45-49 yrs	363	13%	333	18%	*696*	*15%*	*191.1*
50-54 yrs	220	8%	215	12%	*435*	*9%*	*144.3*
55-59 yrs	99	4%	106	6%	*205*	*4%*	*90.4*
60+ yrs	55	2%	66	4%	*121*	*3%*	*15.7*
Total	*2,728*	*100%*	*1,862*	*100%*	*4,590*	*100%*	*93.5*
Gender							
Male	2,147	78%	1,539	83%	*3,686*	*80%*	*151.3*
Female	589	22%	323	17%	*912*	*20%*	*36.7*
Total	*2,736*	*100%*	*1,862*	*100%*	*4,598*	*100%*	*93.5*
StateTotals	*2,736*		*1,862*		*4,598*		*93.5*

* Cases reported to the MDH, assumed to be alive, and currently residing in Minnesota as of 12/31/02. HIV/AIDS prevalence rate calculated by dividing the total number of prevalent cases in a stratum (e.g persons aged 20-24 years) by the estimated population for that stratum and multiplying by 100,000. Population estimates are based on 2000 U.S. Census data.

** Residence information missing for 24 persons living with HIV and 3 persons living with AIDS.

*** Age missing for 8 persons living with HIV and 0 persons living with AIDS.

Suburban = Seven-county metropolitan area except Minneapolis & St. Paul (Anoka, Carver, Dakota, Hennepin (except Minneapolis), Ramsey (except St. Paul), Scott, and Washington counties). Greater Minnesota = Remaining 80 counties outside of the seven-county metropolitan area.

Numbers exclude federal and private prisoners, but include 99 state prisoners and refugees in the HIV-Positive Refugee Resettlement Program.

Table 2. Number and Rate (per 100,000) of Males & Females Living with HIV (non-AIDS) and AIDS by Race/Ethnicity and Mode of Exposure* - Minnesota, 2002

Group	Males				Females				*Total*				
	HIV (non-AIDS)	AIDS	*Total*		HIV (non-AIDS)	AIDS	*Total*		*HIV (non-AIDS)*	*AIDS*	*Grand Total*		
			Cases	*%*			*Cases*	*%*			*Cases*	*%*	*Rate***
Race/Ethnicity													
White, non-Hispanic	1,384	1,020	*2,404*	*65%*	197	106	*303*	*33%*	*1,581*	*1,126*	*2,707*	*59%*	*62.6*
Black**, African-American	455	291	*746*	*20%*	217	112	*329*	*36%*	*672*	*403*	*1,075*	*23%*	*640.7*
Black**, African-born	99	66	*165*	*4%*	101	65	*166*	*18%*	*200*	*131*	*331*	*7%*	*662-940.7*
Hispanic	129	124	*253*	*7%*	33	20	*53*	*6%*	*162*	*144*	*306*	*7%*	*213.4*
American Indian	29	24	*53*	*1%*	23	14	*37*	*4%*	*52*	*38*	*90*	*2%*	*111.0*
Asian/PI	23	14	*37*	*1%*	14	6	*20*	*2%*	*37*	*20*	*57*	*1%*	*33.9*
Unknown	28	0	*28*	*1%*	4	0	*4*	*0%*	*32*	*0*	*32*	*1%*	*x*
Total	*2,147*	*1,539*	*3,686*	*100%*	*589*	*323*	*912*	*100%*	*2,736*	*1,862*	*4,598*	*100%*	*93.5*
Mode of Exposure													
MSM	1,456	1,078	*2,534*	*69%*	--	--	--	--	*1,456*	*1,078*	*2,534*	*55%*	*x*
IDU	153	96	*249*	*7%*	68	66	*134*	*15%*	*221*	*162*	*383*	*8%*	*x*
MSM/IDU	137	106	*243*	*7%*	--	--	--	--	*137*	*106*	*243*	*5%*	*x*
Heterosexual (Total)	(65)	(51)	(116)	*3%*	(283)	(136)	(419)	*46%*	*(348)*	*(187)*	*(535)*	*12%*	*x*
with IDU	31	31	62	--	90	62	152	--	121	93	214	--	*x*
with Bisexual Male	-	-	-	--	58	23	81	--	58	23	81	--	*x*
with Hemophiliac/other	1	1	2	--	7	0	7	--	8	1	9	--	*x*
with HIV+, unknown risk	33	19	52	--	128	51	179	--	161	70	231	--	*x*
Perinatal	7	5	*12*	*0%*	20	8	28	*3%*	27	13	40	*1%*	*x*
Other	21	24	*45*	*1%*	7	7	*14*	*2%*	*28*	*31*	*59*	*1%*	*x*
Unspecified	101	79	*180*	*5%*	96	59	*155*	*17%*	*197*	*138*	*335*	*7%*	*x*
No Interview	207	100	*307*	*8%*	115	47	*162*	*18%*	*322*	*147*	*469*	*10%*	*x*
Total	*2,147*	*1,539*	*3,686*	*100%*	*589*	*323*	*912*	*100%*	*2,736*	*1,862*	*4,598*	*100%*	*93.5*

* Cases reported to the MDH, assumed to be alive, and currently residing in Minnesota as of 12/31/02. HIV/AIDS prevalence rate calculated by dividing the total number of prevalent cases in a stratum (e.g White, non-Hispanic) by the estimated population for that stratum and multiplying by 100,000. Population estimates are based on 2000 U.S. Census data.

** African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere).

MSM = Men who have sex with men. IDU = Injecting drug use. Heterosexual = For males: heterosexual contact with a female known to be HIV+, an injecting drug user, or a hemophiliac/blood product or organ transplant recipient. For females: heterosexual contact with a male known to be HIV+, bisexual, an injecting drug user, or a hemophiliac/blood product or organ transplant recipient. Perinatal = Mother to child HIV transmission. Other = Hemophilia patient/blood product or organ transplant recipient. Unspecified = Cases who did not acknowledge any of the risks listed above. No Interview = Cases who refused to be, could not be or have not yet been interviewed.

Numbers exclude federal and private prisoners, but include 99 state prisoners and refugees in the HIV-Positive Refugee

***Accurate population estimates for Black, African-born persons living in Minnesota are unavailable – anecdotal (50,000) and 2000 U.S. Census data (35,188)) were used to create the range of rates reported for African-born persons. The population estimate for Black, African-American persons (167,784) was calculated by subtracting the U.S. Census estimate for African-born persons (35,188) from the total Black population (202,972). Note that this assumes that all African-born persons are Black (as opposed to another race).

Table 3. Number and Rate (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by County of Residence* -- Minnesota, 2002				
County**	HIV (non-AIDS)	AIDS	*Total*	*Rate****
Aitkin	2	2	*4*	-
Anoka	83	61	*144*	*48.3*
Becker	0	3	*3*	-
Beltrami	3	4	*7*	*17.7*
Benton	3	3	*6*	*17.5*
Big Stone	0	0	*0*	-
Blue Earth	10	6	*16*	*28.6*
Brown	2	5	*7*	*26.0*
Carlton	10	7	*17*	*53.7*
Carver	14	9	*23*	*32.8*
Cass	1	3	*4*	-
Chippewa	0	0	*0*	-
Chisago	3	4	*7*	*17.0*
Clay	9	2	*11*	*21.5*
Clearwater	0	0	*0*	-
Cook	0	1	*1*	-
Cottonwood	1	2	*3*	-
Crow Wing	5	3	*8*	*14.5*
Dakota	100	65	*165*	*46.4*
Dodge	1	2	*3*	-
Douglas	1	5	*6*	*18.3*
Faribault	2	6	*8*	*49.4*
Fillmore	4	2	*6*	*28.4*
Freeborn	1	1	*2*	-
Goodhue	7	2	*9*	*20.4*
Grant	2	1	*3*	-
Hennepin	1,656	1,114	*2,770*	*248.2*
Houston	1	1	*2*	-
Hubbard	2	3	*5*	*27.2*
Isanti	5	3	*8*	*25.6*
Itasca	6	3	*9*	*20.5*
Jackson	0	0	*0*	-
Kanabec	1	2	*3*	-
Kandiyohi	4	4	*8*	*19.4*
Kittson	0	0	*0*	-
Koochiching	0	0	*0*	-
Lac Qui Parle	0	0	*0*	-
Lake	1	0	*1*	-
Lake of the Woods	0	0	*0*	-
Le Sueur	1	2	*3*	-
Lincoln	2	0	*2*	-
Lyon	7	1	*8*	*31.5*
McLeod	2	1	*3*	-
Mahnomen	1	0	*1*	-
Marshall	0	0	*0*	-
Martin	3	1	*4*	-
Meeker	2	1	*3*	-
Mille Lacs	1	5	*6*	*26.9*
Morrison	0	4	*4*	-
Mower	10	5	*15*	*38.9*
Murray	0	1	*1*	-
Nicollet	2	3	*5*	*16.8*
Nobles	9	3	*12*	*57.6*
Norman	1	2	*3*	-

Table 3. Number and Rate (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by County of Residence* -- Minnesota, 2002				
County**	**HIV (non-AIDS)**	**AIDS**	***Total***	***Rate******
Olmsted	34	25	*59*	*47.5*
Otter Tail	4	3	*7*	*12.2*
Pennington	1	0	*1*	-
Pine	5	3	*8*	*30.2*
Pipestone	0	1	*1*	-
Polk	6	3	*9*	*28.7*
Pope	1	3	*4*	-
Ramsey	470	330	*800*	*156.5*
Red Lake	0	0	*0*	-
Redwood	0	1	*1*	-
Renville	2	0	*2*	-
Rice	15	10	*25*	*44.1*
Rock	3	0	*3*	-
Rosseau	0	1	*1*	-
St. Louis	40	28	*68*	*33.9*
Scott	18	11	*29*	*32.4*
Sherburne	6	8	*14*	*21.7*
Sibley	0	0	*0*	-
Stearns	34	16	*50*	*37.5*
Steele	3	0	*3*	-
Stevens	1	1	*2*	-
Swift	0	0	*0*	-
Todd	1	0	*1*	-
Traverse	0	0	*0*	-
Wabasha	3	3	*6*	*27.8*
Wadena	1	1	*2*	-
Waseca	2	0	*2*	-
Washington	67	40	*107*	*53.2*
Watonwan	2	3	*5*	*42.1*
Wilkin	0	0	*0*	-
Winona	1	2	*3*	-
Wright	11	8	*19*	*21.1*
Yellow Medicine	0	0	*0*	-
*State Total***	*2,712*	*1,859*	*4,571*	*93.5*

* Cases reported to the MDH, assumed to be alive, and currently residing in Minnesota as of 12/31/02. HIV/AIDS prevalence rate calculated by dividing the total number of prevalent cases in a stratum (e.g persons living in Hennepin County) by the estimated population for that stratum and multiplying by 100,000. Population estimates are based on 2000 U.S. Census data.

** Residence information missing for 24 persons living with HIV and 3 persons living with AIDS.

Numbers exclude federal and private prisoners, but include 99 state prisoners and refugees in the HIV-Positive Refugee Resettlement Program. State correctional facilities are located in the following counties: Anoka, Carlton, Chisago, Goodhue, Pine, Rice, Scott, St. Louis, Stearns, and Washington.

*** Rates not calculated for counties with fewer than 5 cases.

Table 4. Number of HIV (non-AIDS) Cases, AIDS Cases, and AIDS Deaths*
Minnesota, 1990-2002

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
HIV (non-AIDS)	341	366	361	223	227	221	190	193	195	204	177	201	211
AIDS	268	337	370	352	335	344	262	197	197	163	162	127	151
AIDS deaths	165	193	189	207	277	256	190	78	73	67	74	64	46

* HIV (non-AIDS) = New cases of HIV infection (excluding AIDS at first diagnosis) diagnosed within a given calendar year. AIDS = All new cases of AIDS diagnosed within a given calendar year. AIDS deaths = Number of deaths known to have occurred among AIDS cases in a given calendar year, regardless of cause.

Please Note: These numbers refer to events, not individuals. For example, a person diagnosed as an HIV (non-AIDS) case in 1992 and then diagnosed as an AIDS case in 2000 will be counted twice in Table 4, once for each event. Thus, the numbers of HIV (non-AIDS) and AIDS cases cannot be summed over years to obtain cumulative totals. Please refer to the Minnesota HIV Surveillance Report, 2002 New HIV Infections, Table 1 for cumulative totals.

Case numbers exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program.

Table 5. Known Mortality among Minnesota AIDS Cases by Year of Diagnosis -- Minnesota, through 2002*				
Year	**Cases Diagnosed**	**Cases Known to be Dead****	**Case-Fatality Rate*****	**Deaths Occurring in this Interval**
1982-1989	743	710	96%	368
1990	268	246	92%	165
1991	337	302	90%	193
1992	370	278	75%	189
1993	352	232	66%	207
1994	335	183	55%	277
1995	344	107	31%	256
1996	262	67	26%	190
1997	197	39	20%	78
1998	197	31	16%	73
1999	163	21	13%	67
2000	165	18	11%	74
2001	135	8	6%	64
2002	152	5	3%	46
Cumulative Total	4,020	2,247	56%	2,247

* CDC 1993 AIDS definition used for all cases.

** Cases known to be dead (by any cause) as of 12/31/2002. Reporting of deaths is incomplete.

*** Case-fatality rate is calculated by dividing the number of cases known to be dead by those diagnosed in a given interval and multiplying by 100.

Numbers exclude federal and private prisoners, but include 99 state prisoners and refugees in the HIV-Positive Refugee Resettlement Program.