HIV SURVEILLANCE REPORT, 2014

Minnesota Department of Health HIV/AIDS Surveillance System

Introduction (I)

- These two 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 Surveillance Report, 2014* or *HIV Surveillance* ***Technical Notes****.*

- This slide set describes new HIV diagnoses (including AIDS at first diagnosis) in Minnesota by person, place, and time.

- The slides rely on data from HIV/AIDS cases diagnosed through 2014 and reported to the Minnesota Department of Health (MDH) HIV/AIDS Surveillance System.

- The data are displayed by year of HIV diagnosis.

Introduction (II)

- Data analyses exclude persons diagnosed in federal or private correctional facilities, but include state prisoners (number of state prisoners believed to be living with HIV/AIDS = 135).

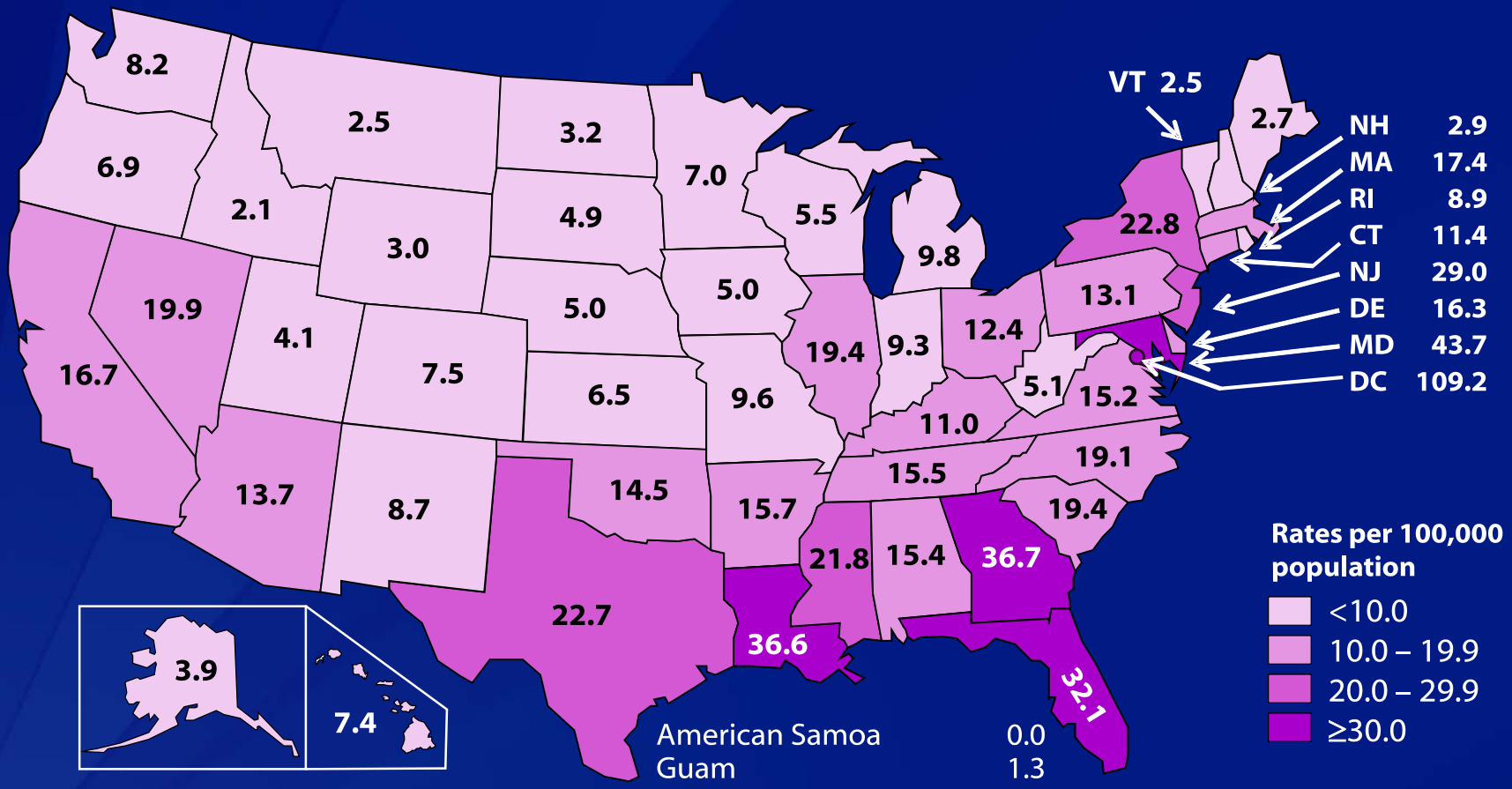
- Data analyses for new HIV diagnoses exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program (number of primary HIV+ refugees in this program living in MN as of December 31, 2014= 170), as well as, other refugees/immigrants reporting a positive test prior to their arrival in Minnesota (n=171).

- 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
  - Data do not include HIV-infected persons who have only tested anonymously
  - Case numbers for the most recent years may be undercounted due to delays in reporting
  - Reporting of living cases that were not initially diagnosed in Minnesota is known to be incomplete

National Context

Rates of Diagnoses of HIV Infection among Adults and Adolescents, 2013—United States and 6 Dependent Areas

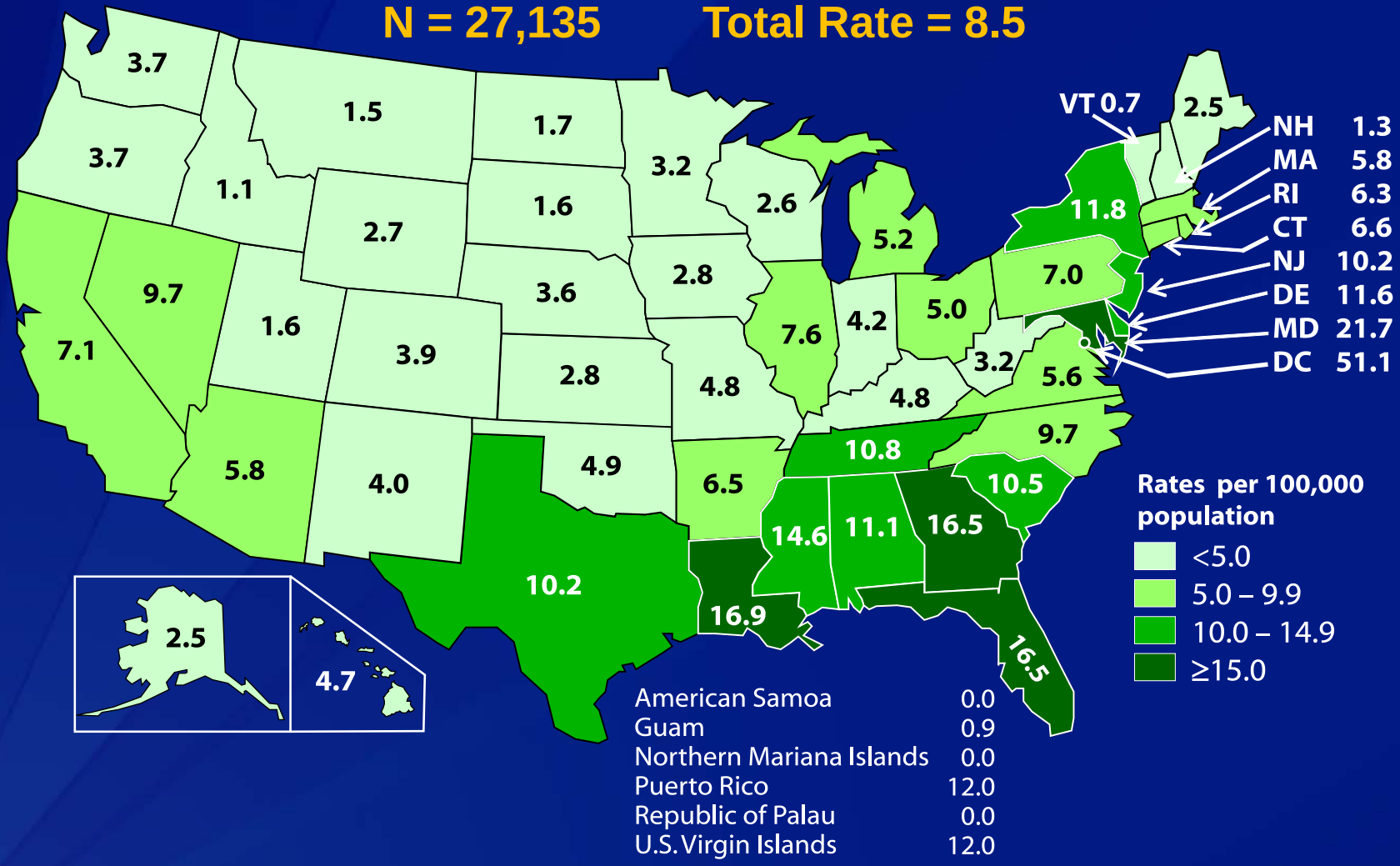
N = 47,958 Total Rate = 18.0



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Rates of Stage 3 (AIDS) Classifications among Persons with HIV Infection, 2013—United States and 6 Dependent Areas

N = 27,135 Total Rate = 8.5

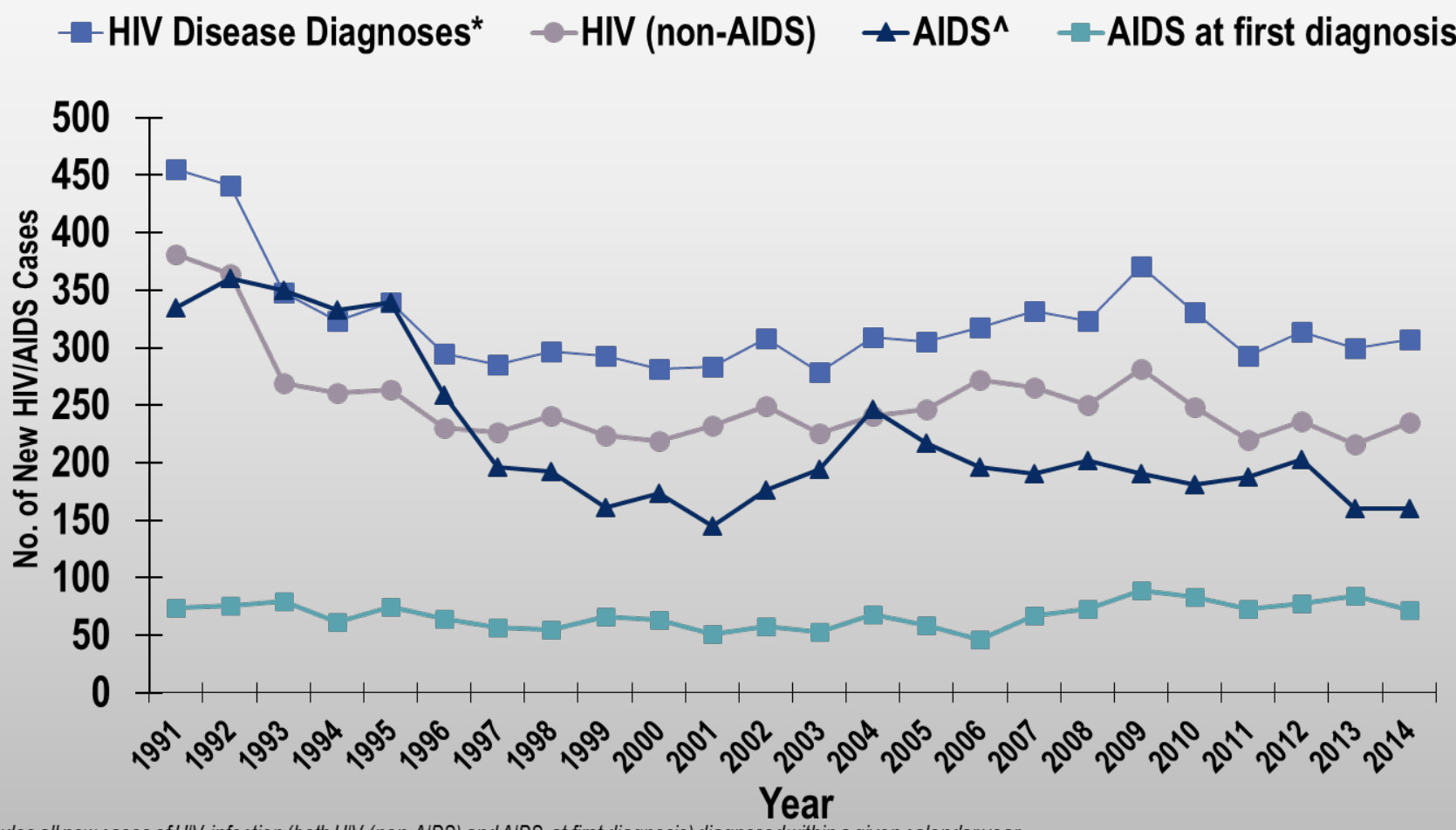


Note. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Overview of HIV/AIDS in Minnesota

HIV/AIDS in Minnesota

New HIV Disease Diagnoses, HIV (non-AIDS) and AIDS Cases by Year, 1990-2014

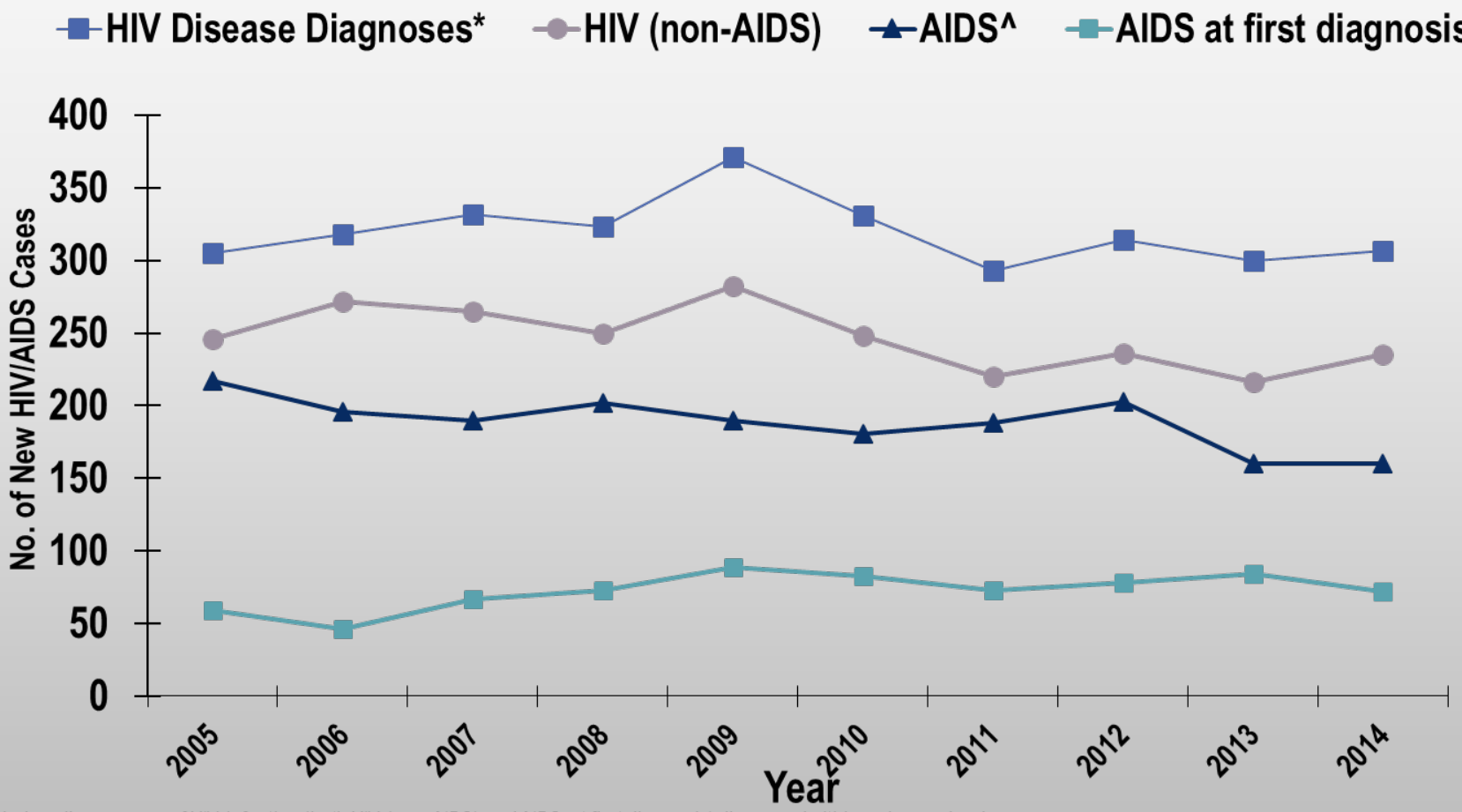


*Includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year.

^Includes all new cases of AIDS diagnosed within a given calendar year, including AIDS at first diagnosis. This includes refugees in the HIV+ Resettlement Program, as well as, other refugee/immigrants diagnosed with AIDS subsequent to their arrival in the United States.

HIV/AIDS in Minnesota

New HIV Disease Diagnoses, HIV (non-AIDS) and AIDS Cases by Year, 2005-2014

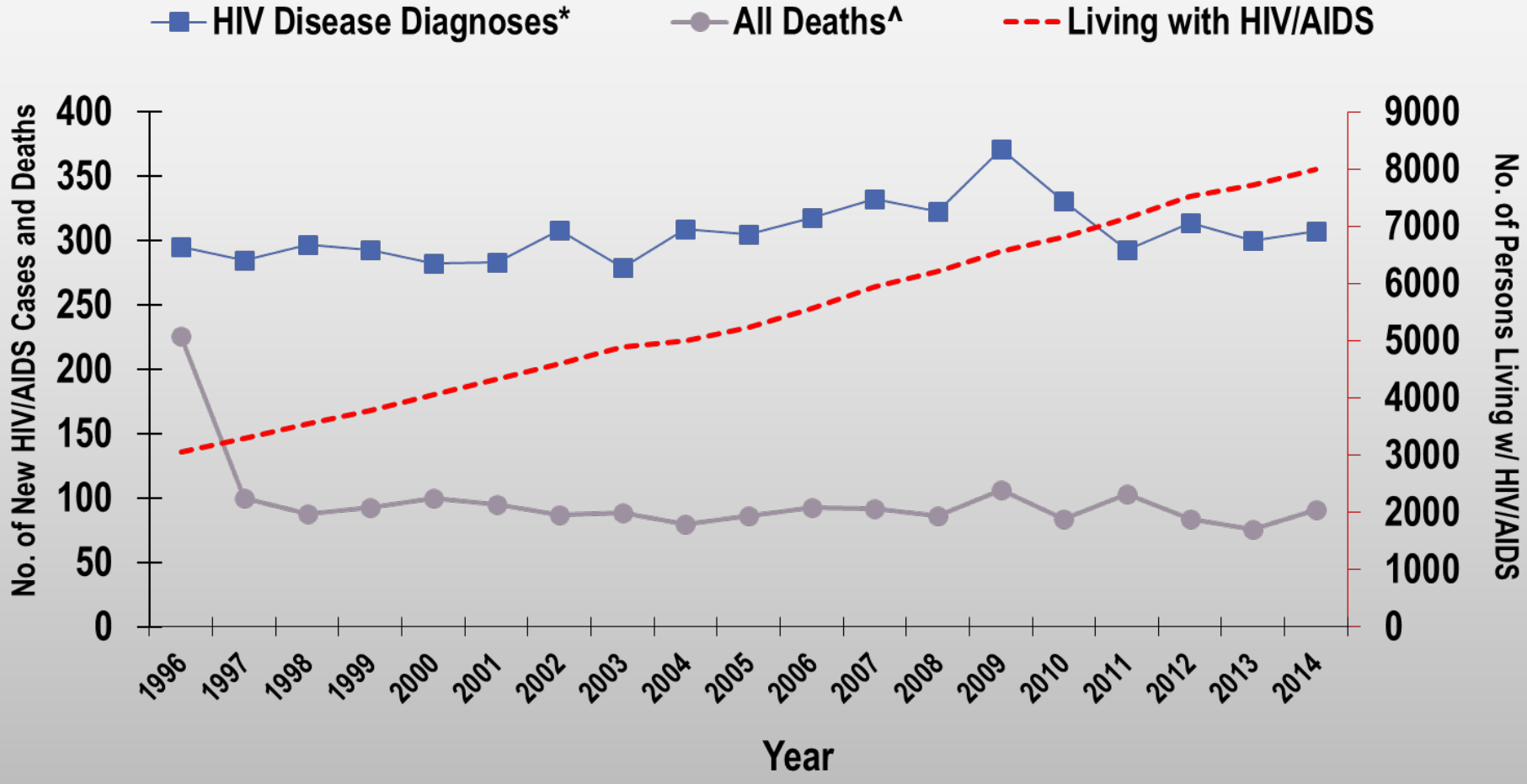


*Includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year.

^Includes all new cases of AIDS diagnosed within a given calendar year, including AIDS at first diagnosis. This includes refugees in the HIV+ Resettlement Program, as well as, other refugee/immigrants diagnosed with AIDS subsequent to their arrival in the United States.

HIV/AIDS in Minnesota

New HIV Disease Diagnoses, Deaths and Prevalent Cases by Year, 1996-2014

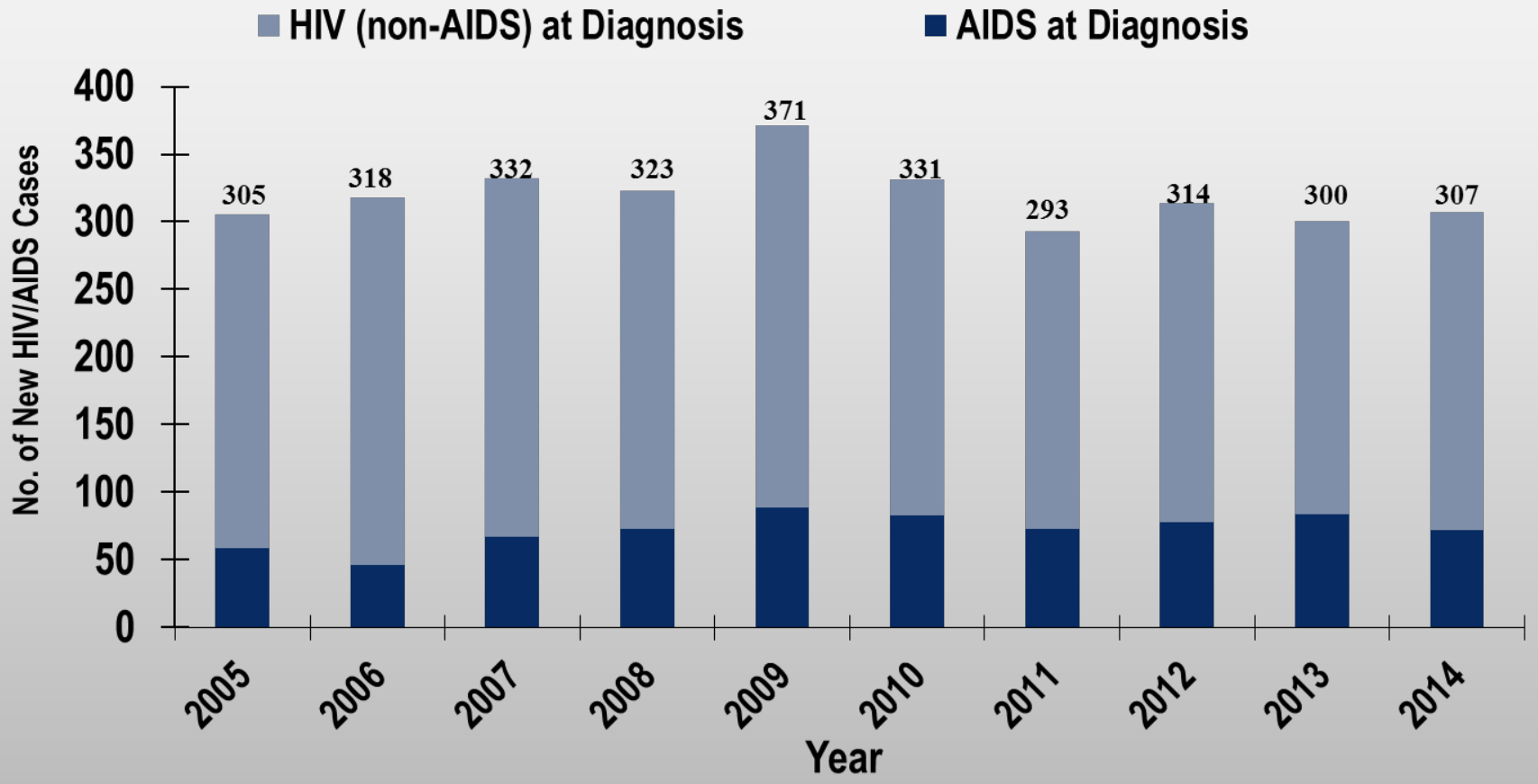


*Includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year.

^Deaths in Minnesota among people with HIV/AIDS, regardless of location of diagnosis and cause.

HIV/AIDS in Minnesota

HIV (non-AIDS) and AIDS at Diagnosis by Year, 2005-2014



*Includes all new cases of HIV infection (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year.

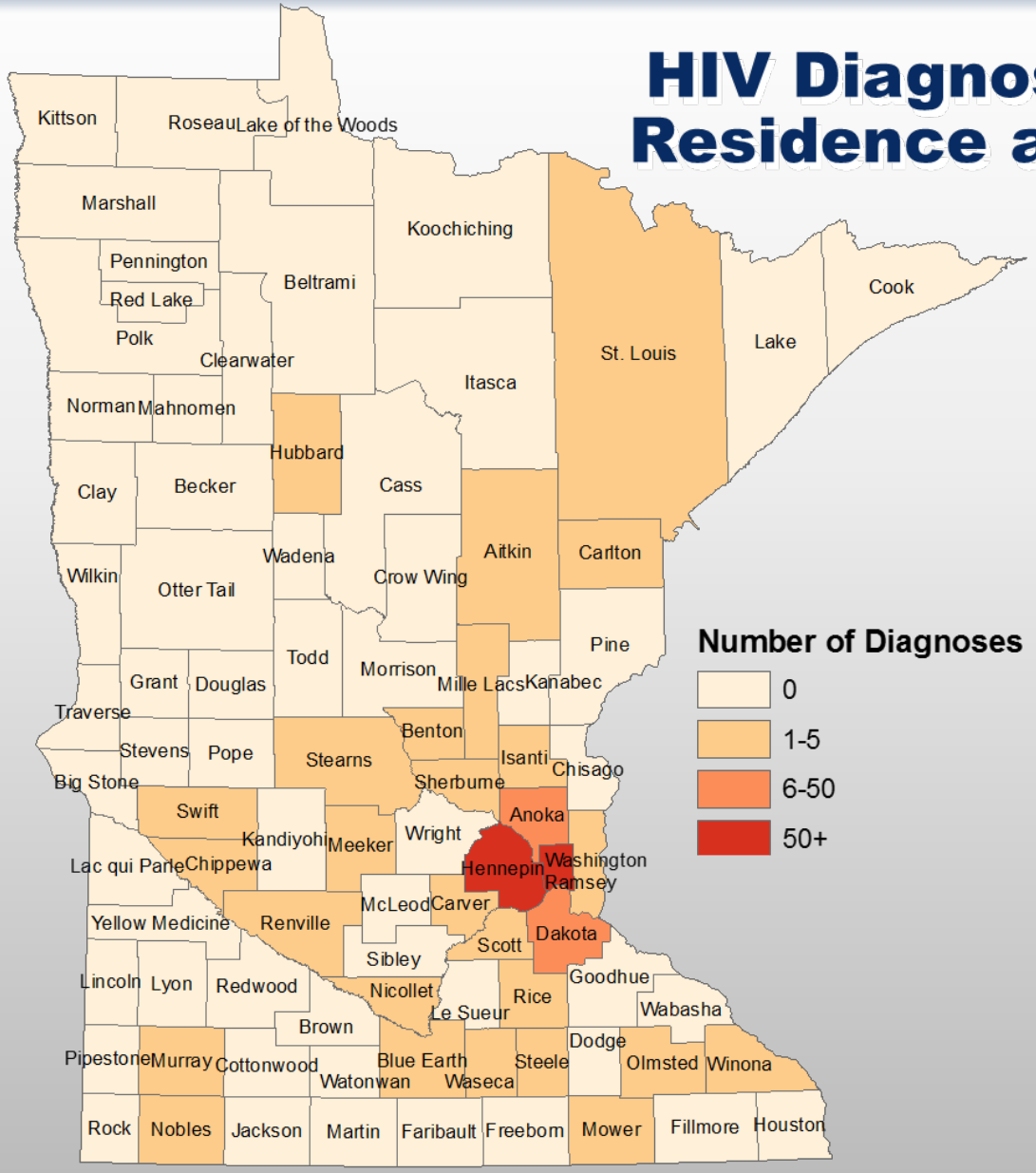
^Includes all new cases of AIDS diagnosed within a given calendar year, including AIDS at first diagnosis. This includes refugees in the HIV+ Resettlement Program, as well as, other refugee/immigrants diagnosed with AIDS subsequent to their arrival in the United States.

HIV Diagnoses* in Minnesota by Person, Place, and Time

* HIV or AIDS at first diagnosis

Place

HIV Diagnoses* by County of Residence at Diagnosis, 2014

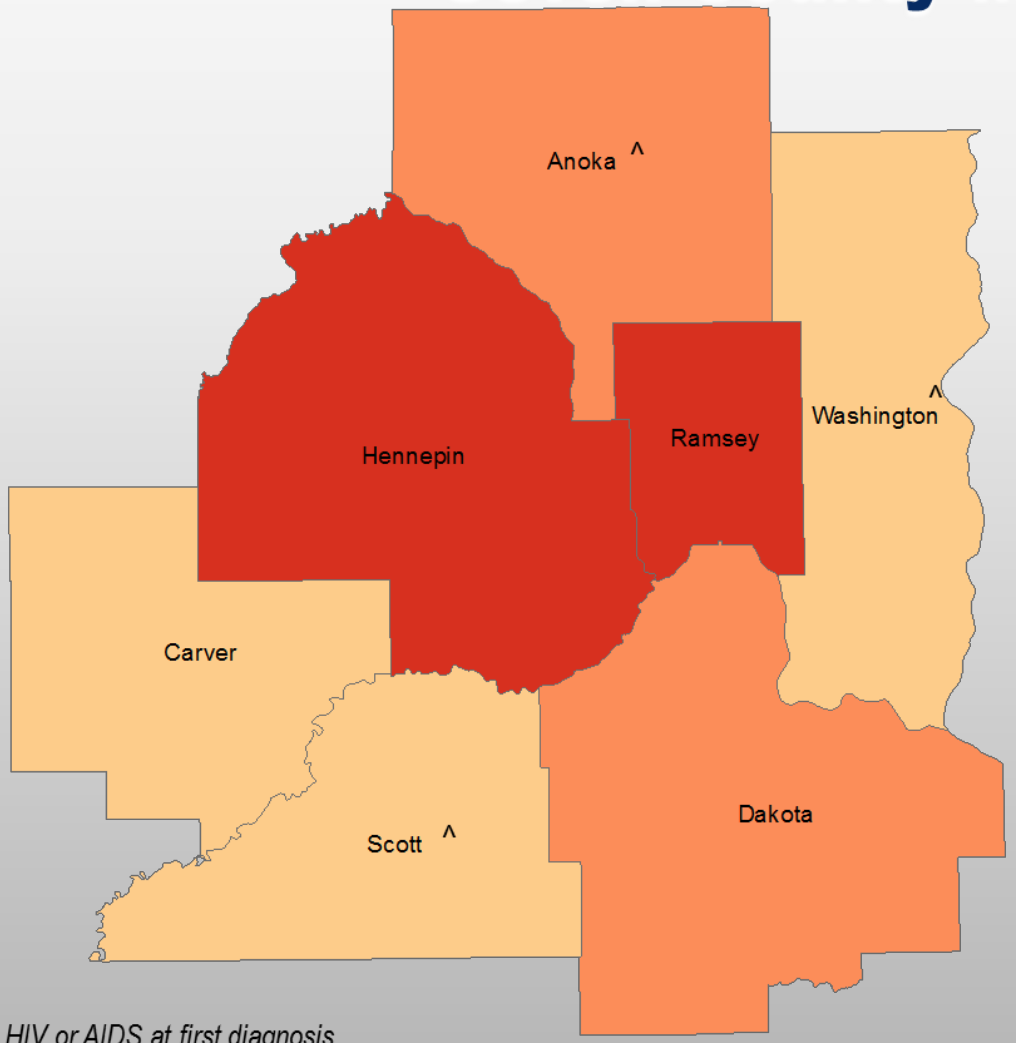


City of Minneapolis – 97
City of St. Paul – 44
Suburban# – 123
Greater Minnesota – 43
Total number = 307

*HIV or AIDS at first diagnosis

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

HIV Diagnoses* by County of Residence at Diagnosis, 2014
Seven-County Metro Area



Number of Diagnoses

- 0
- 1-5
- 6-50
- 50+

City of Minneapolis –97
City of St. Paul – 44
Suburban# – 123

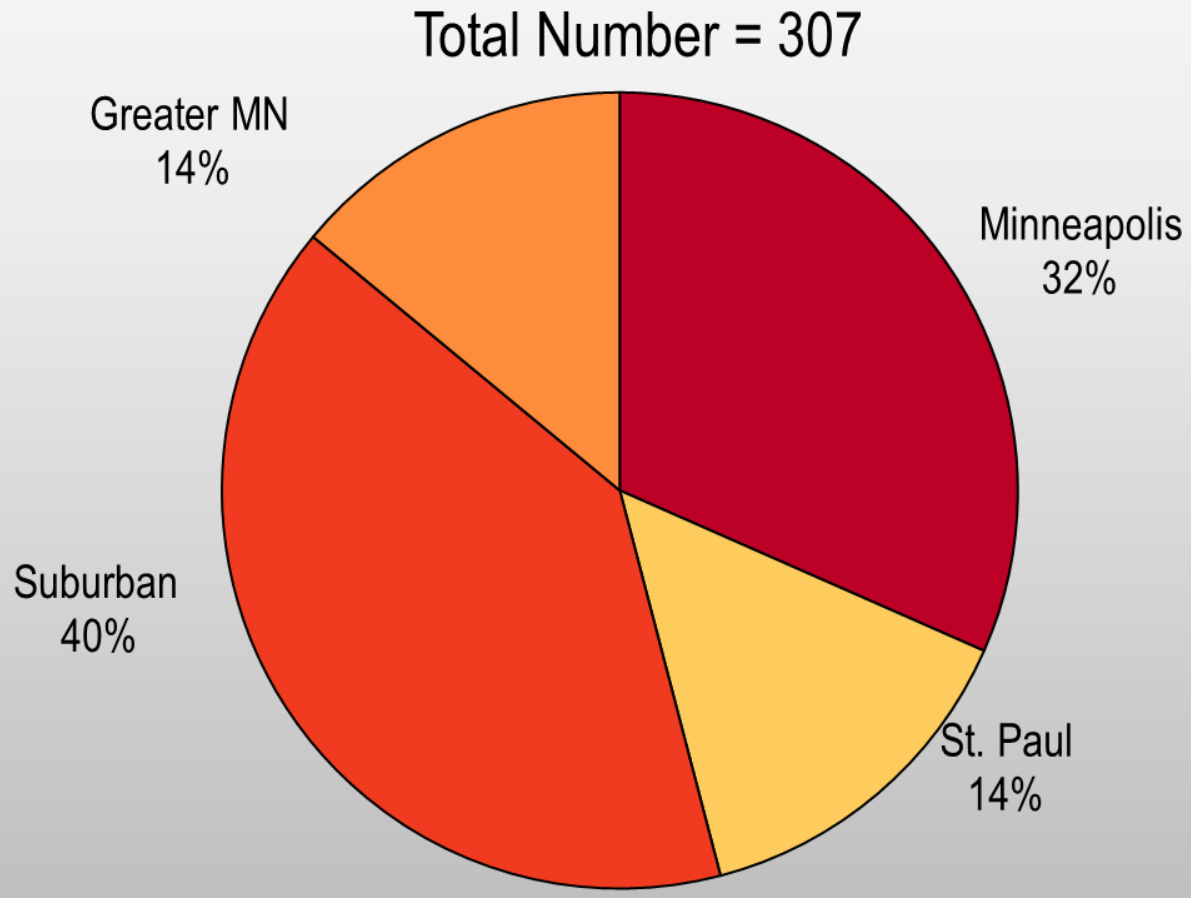
Total number (Metro only) = 264

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

^Counties in which a state correctional facility is located.

* *HIV or AIDS at first diagnosis*

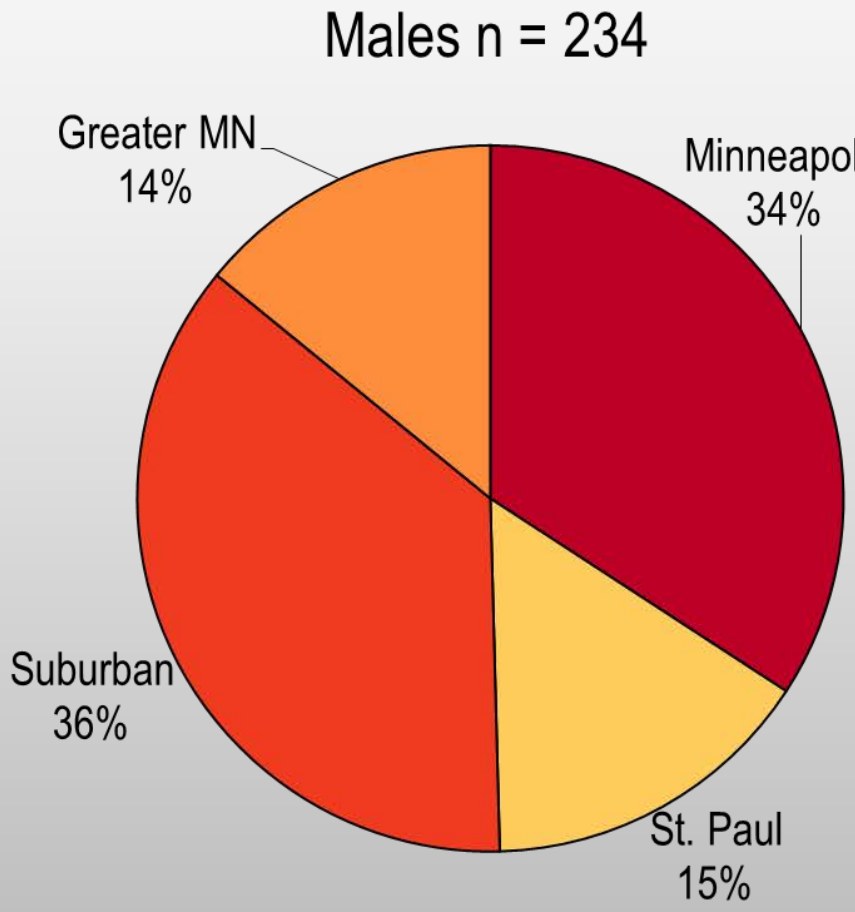
HIV Diagnoses* in Minnesota by Residence at Diagnosis, 2014

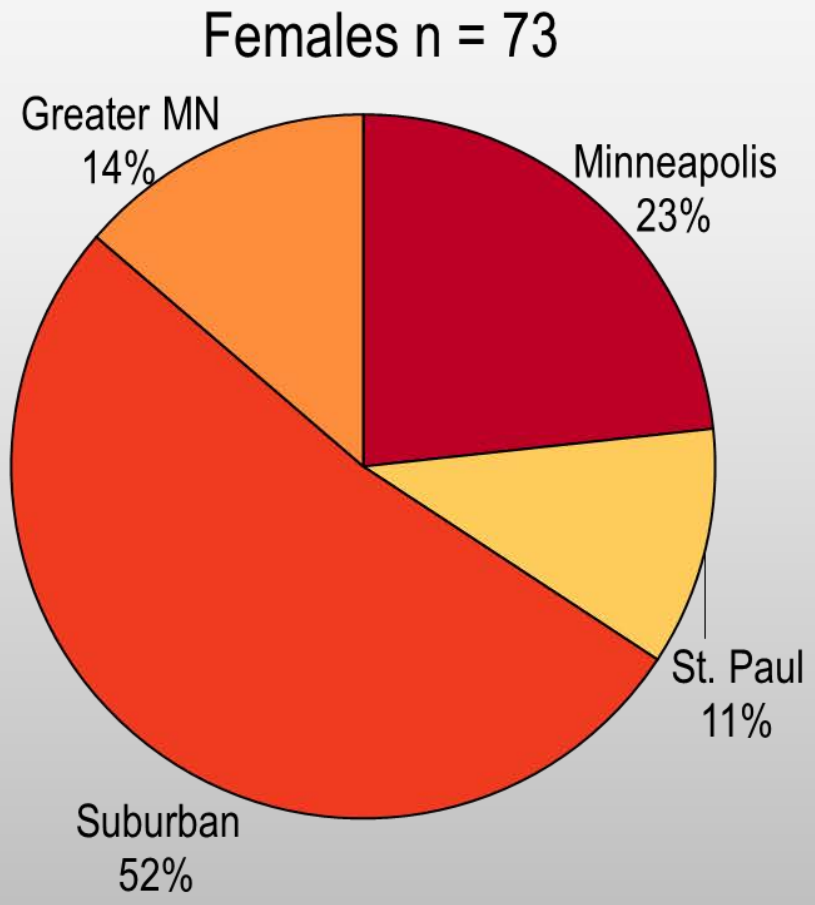


Suburban = Seven-county metro area including Anoka, Carver, Dakota, Hennepin (except Minneapolis), Ramsey (except St. Paul), Scott, and Washington counties. Greater MN = All other Minnesota counties, outside the seven-county metro area.

** HIV or AIDS at first diagnosis*

HIV Diagnoses* in Minnesota by Gender and Residence at Diagnosis, 2014





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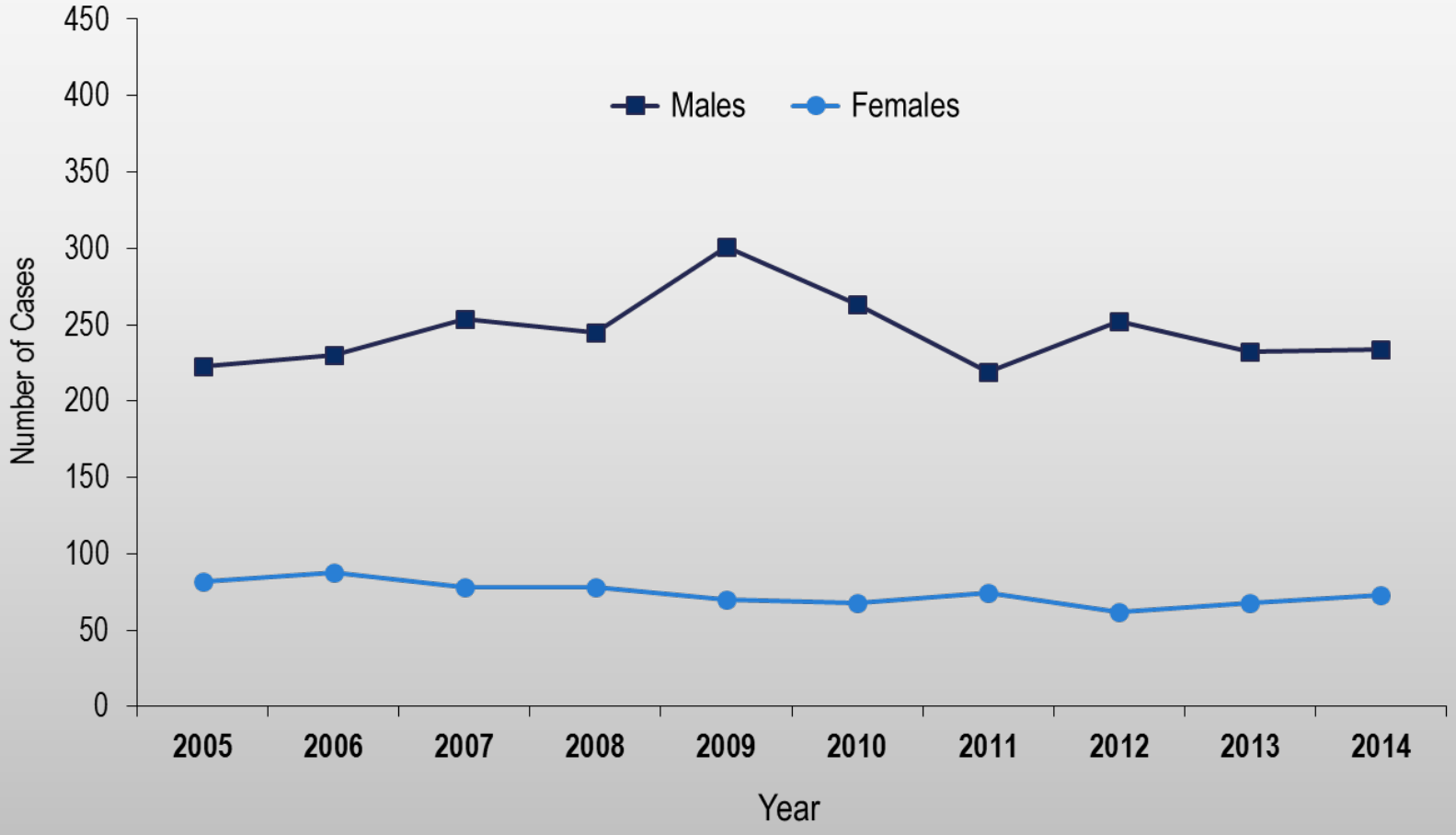
** HIV or AIDS at first diagnosis*

Gender and Race/Ethnicity

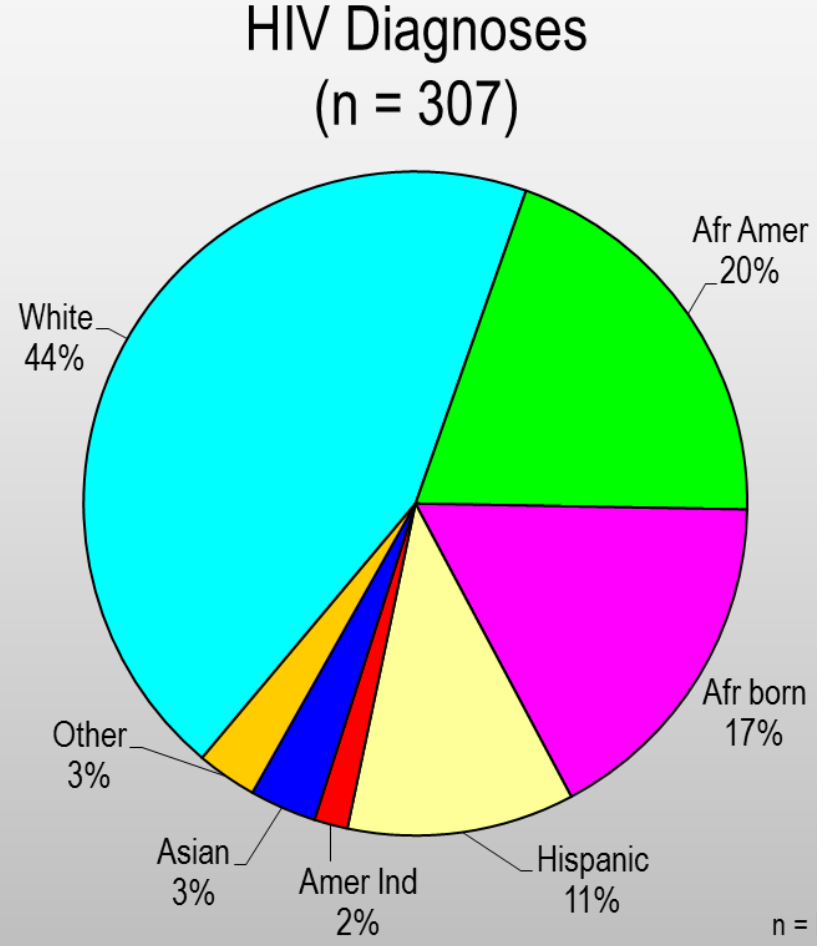
HIV Diagnoses* by Gender and Year of Diagnosis, 2005 - 2014

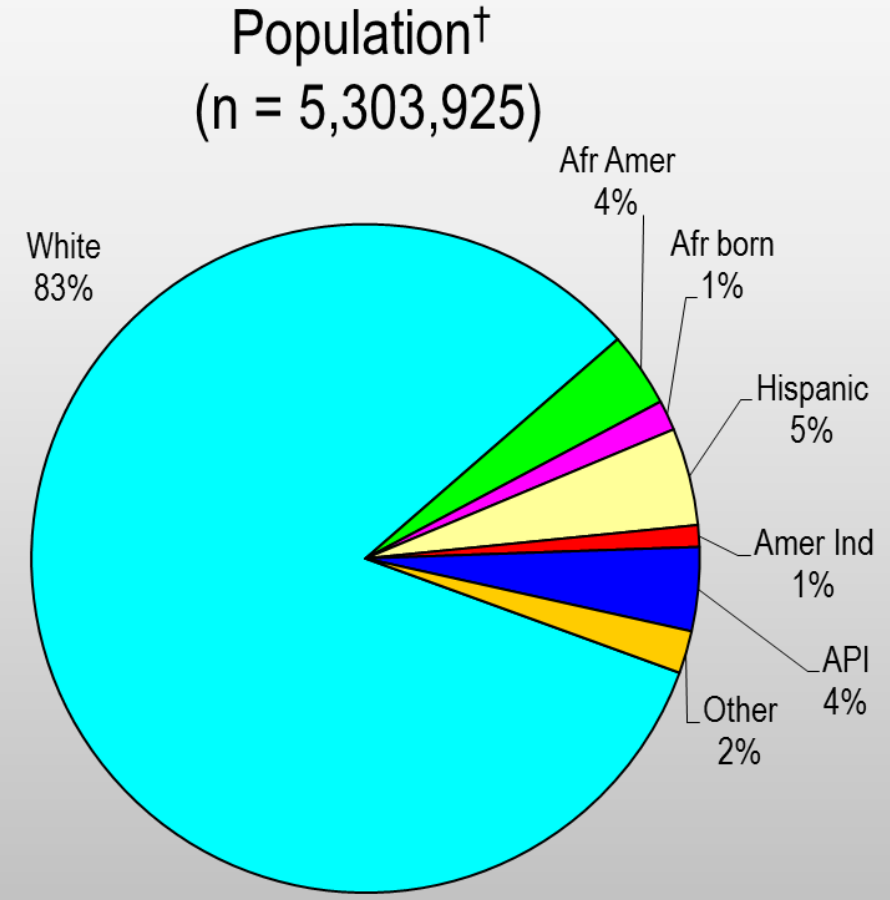


** HIV or AIDS at first diagnosis*

HIV/AIDS in Minnesota: Annual Review

HIV Diagnoses* in Year 2014 and General Population in Minnesota by Race/Ethnicity





n = Number of persons Amer Ind = American Indian

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

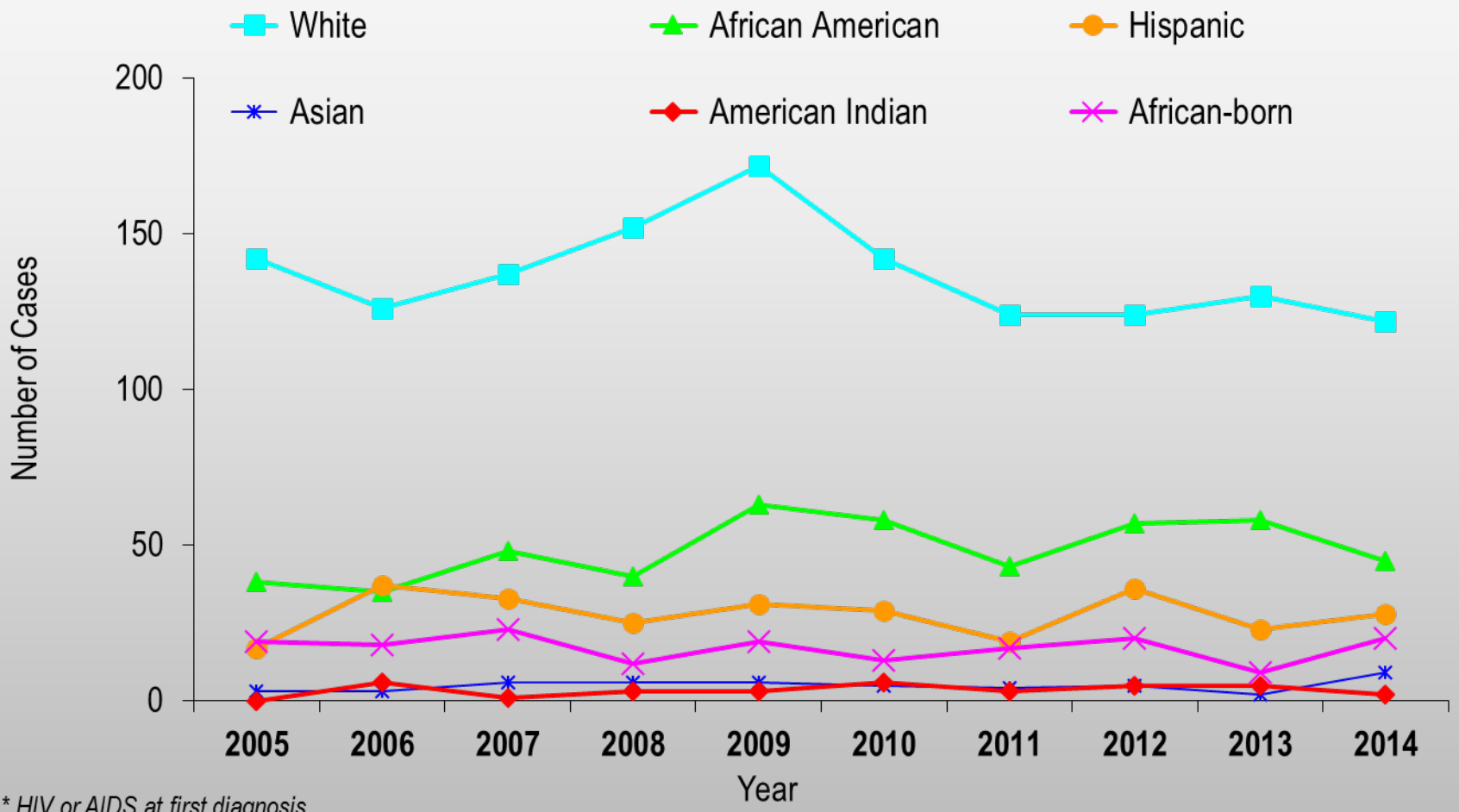
Afr born = African-born (Black, African-born persons)

* *HIV or AIDS at first diagnosis*

† *Population estimates based on 2010 U.S. Census data.*

HIV/AIDS in Minnesota: Annual Review

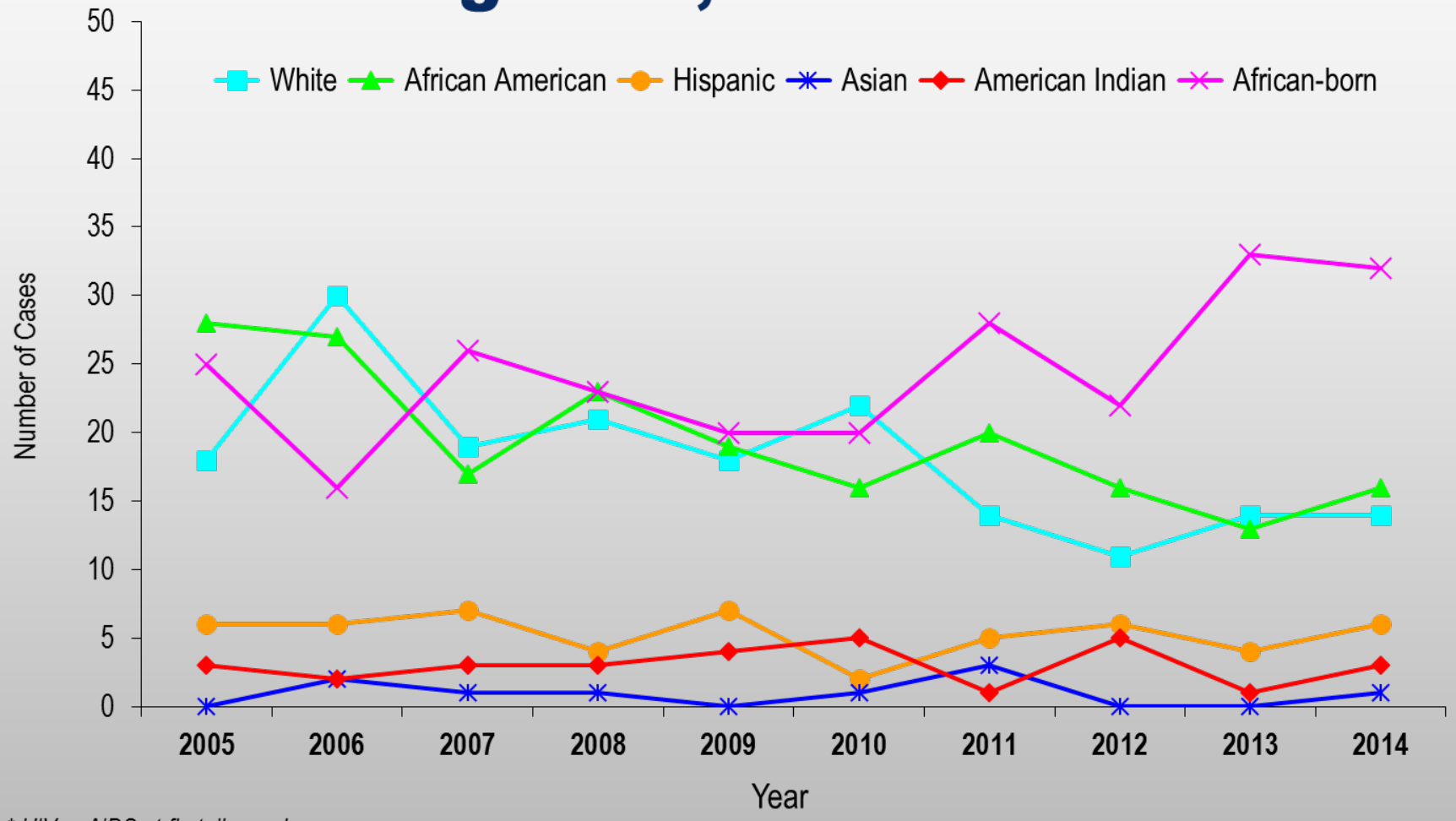
HIV Diagnoses* Among Males by Race/Ethnicity† and Year of Diagnosis, 2005 - 2014



* *HIV or AIDS at first diagnosis*

† *"African-born" refers to Blacks who reported an African country of birth; "African American" refers to all other Blacks. Cases with unknown or multiple races are excluded.*

HIV Diagnoses* Among Females by Race/Ethnicity† and Year of Diagnosis, 2005 – 2014



* HIV or AIDS at first diagnosis

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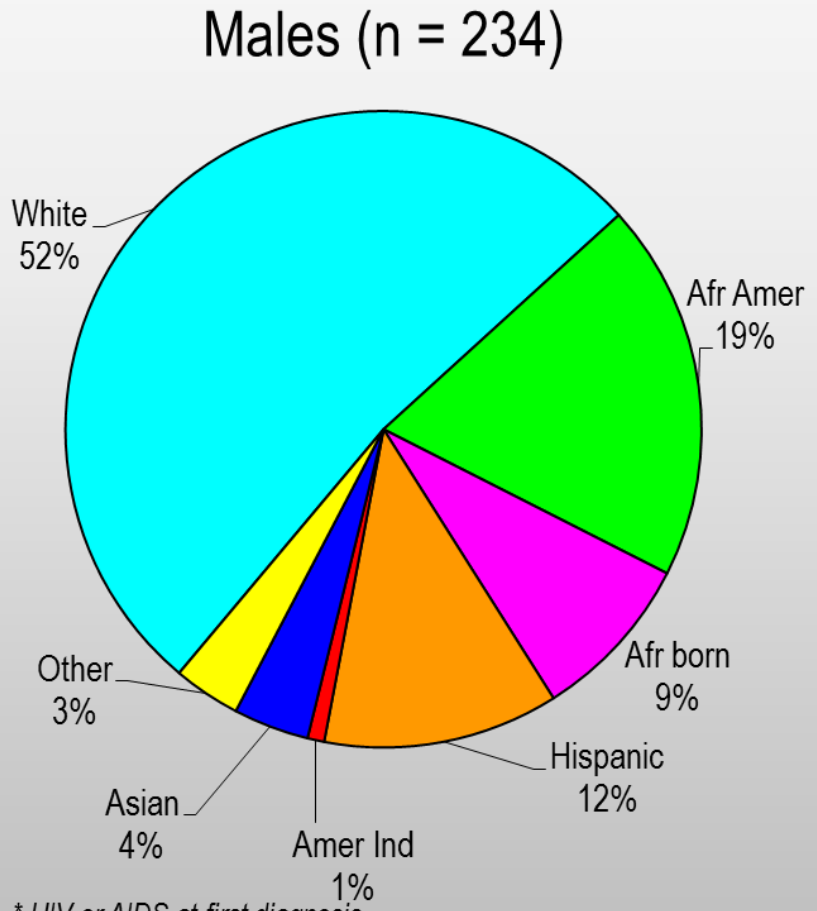
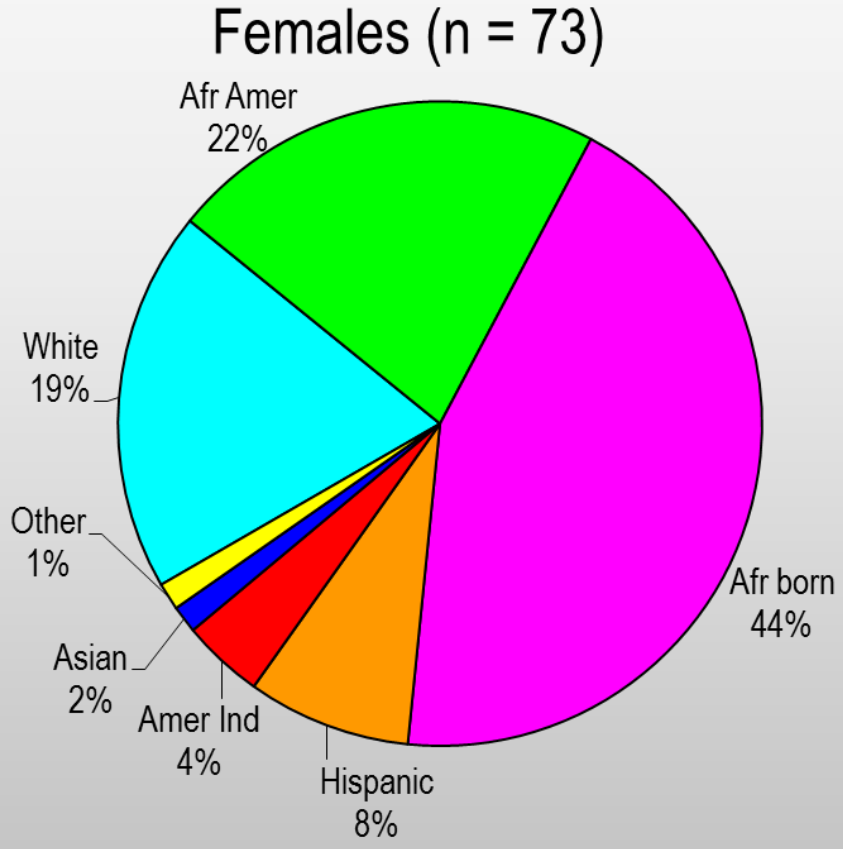
HIV Diagnoses* Diagnosed in Year 2014 by Gender and Race/Ethnicity





* *HIV or AIDS at first diagnosis*

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

Afr born = African-born (Black, African-born persons) Amer Ind = American Indian

Other = Multi-racial persons or persons with unknown race

Number of Cases and Rates (per 100,000 persons) of HIV Diagnoses* by Race/Ethnicity† – Minnesota, 2014

Race/Ethnicity	*Cases*	*%*	*Rate*
White, non-Hispanic	136	44%	3.1
Black, African-American	61	20%	31.8
Black, African-born	52	17%	67.0††
Hispanic	34	11%	13.6
American Indian	5	2%	9.0
Asian/Pacific Islander	10	3%	4.7
Other^	9	3%	#
Total	*307*	*100%*	*5.8*

** HIV or AIDS at first diagnosis; 2010 U.S. Census Data used for rate calculations.*

† "African-born" refers to Blacks who reported an African country of birth; "African American" refers to all other Blacks.

†† Estimate of 77,557 Source: 2010-2012 American Community Survey. Additional calculations by the State Demographic Center.

^ Other = Multi-racial persons or persons with unknown or missing race

#-Number of cases too small to calculate reliable rate

Number of Cases and Rates (per 100,000 persons) of Adult and Adolescent HIV Diagnoses** by Gender/Risk†, Minnesota, 2014

Gender/Risk	Cases	%	Rate
Men (Total)	**(234)**	**76%**	**10.8**
MSM†	***155***	*66%*	**167.0††**
Non-MSM	***79***	*34%*	**3.8**
Women	**72**	**24%**	**3.2**
Total	***306***	***100%***	***7.0***

***HIV or AIDS at first diagnosis over the age of 13;*

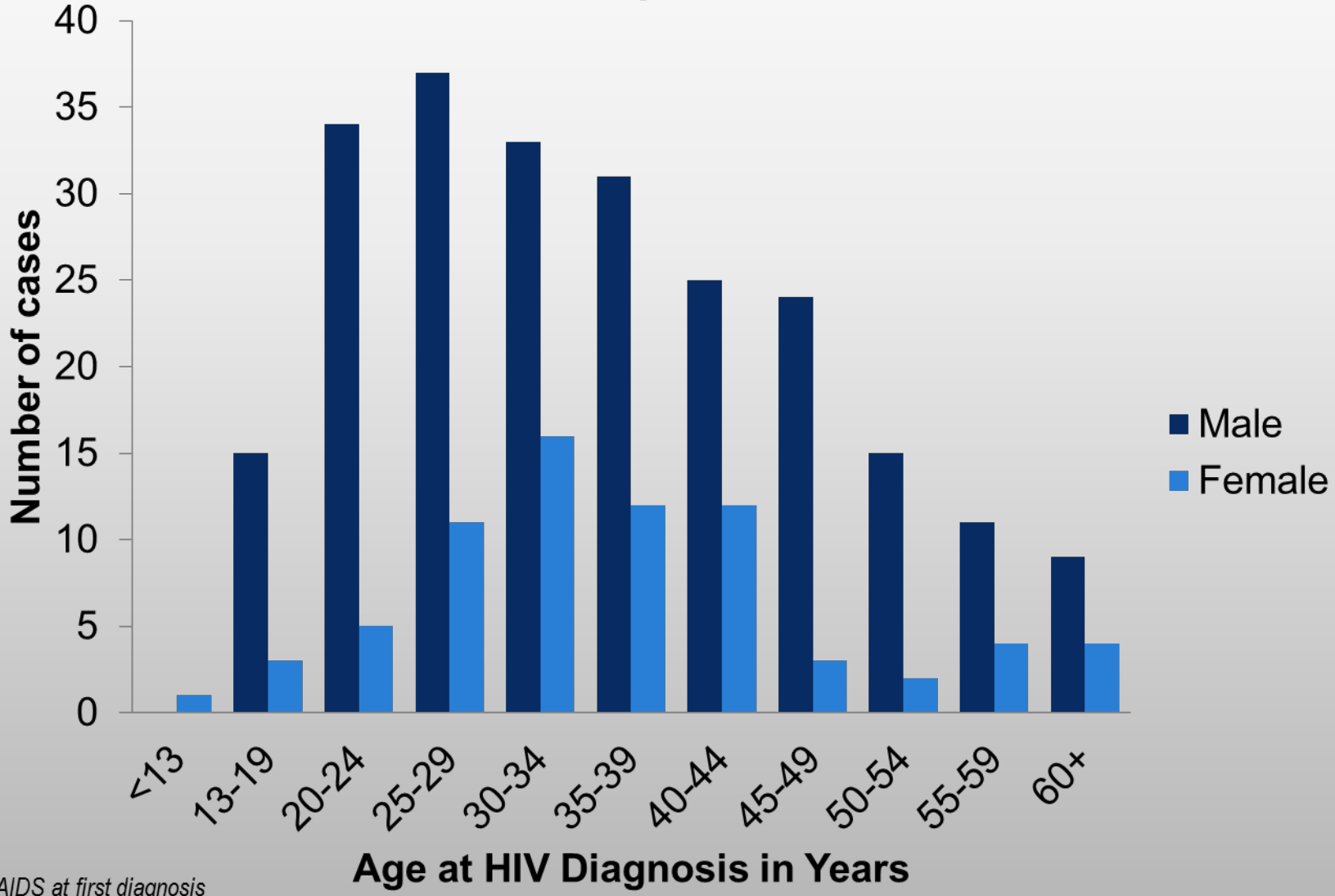
- *2010 U.S. Census Data for persons age 13 and over used for rate calculations.*

† "MSM" refers to both MSM and MSM/IDU.

†† Estimate of 92,788

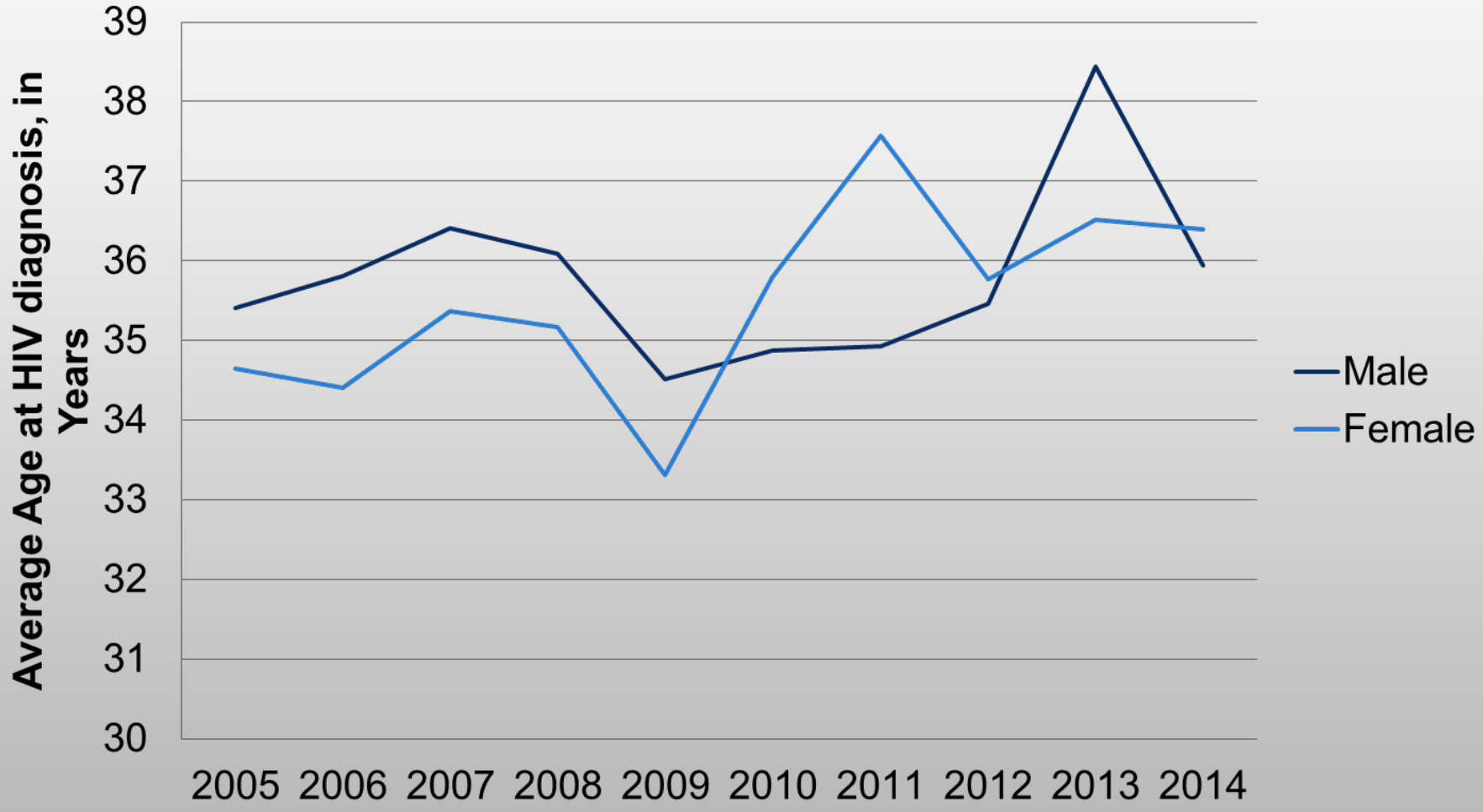
Age

Age at HIV Diagnosis* by Sex at Birth, 2014



* HIV or AIDS at first diagnosis

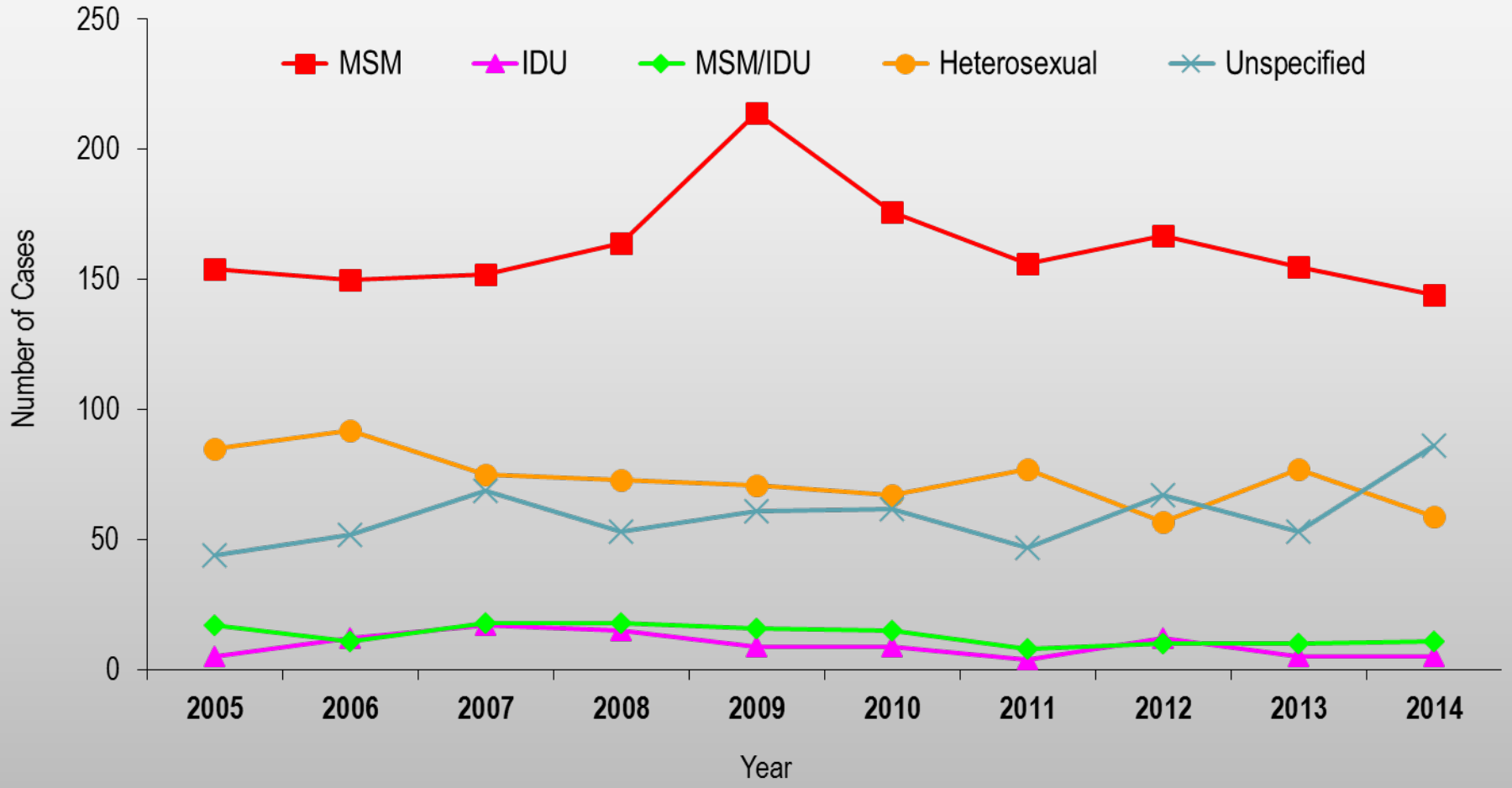
Average Age at HIV Diagnosis* by Sex at Birth, 2005-2014



* HIV or AIDS at first diagnosis

Mode of Exposure

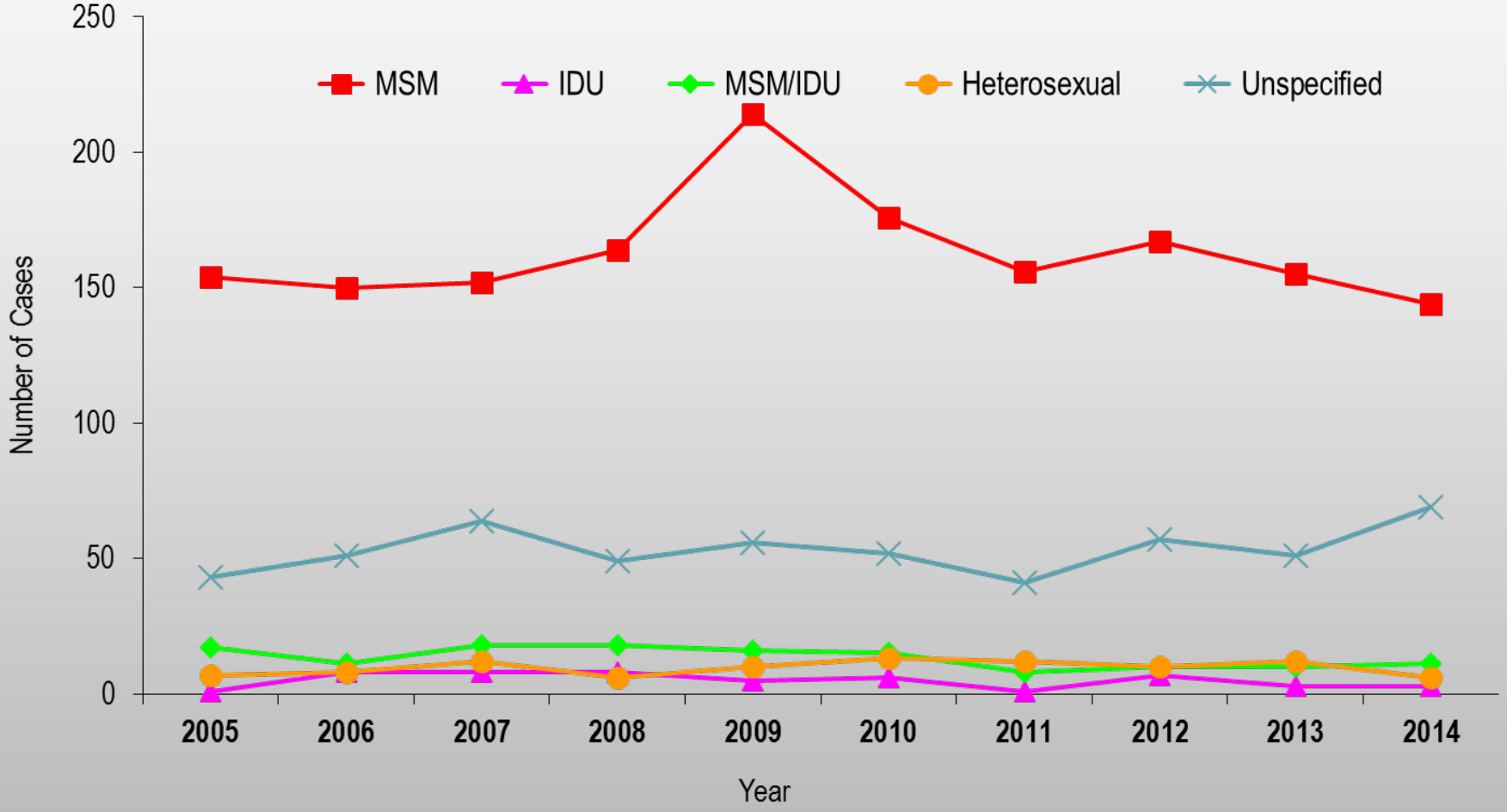
HIV Diagnoses* by Mode of Exposure and Year, 2005 - 2014



MSM = Men who have sex with men IDU = Injecting drug use Heterosexual = Heterosexual contact

* *HIV or AIDS at first diagnosis* Unspecified = No mode of exposure ascertained

HIV Diagnoses* Among Males by Mode of Exposure and Year, 2005 - 2014



MSM = Men who have sex with men IDU = Injecting drug use Heterosexual = Heterosexual contact

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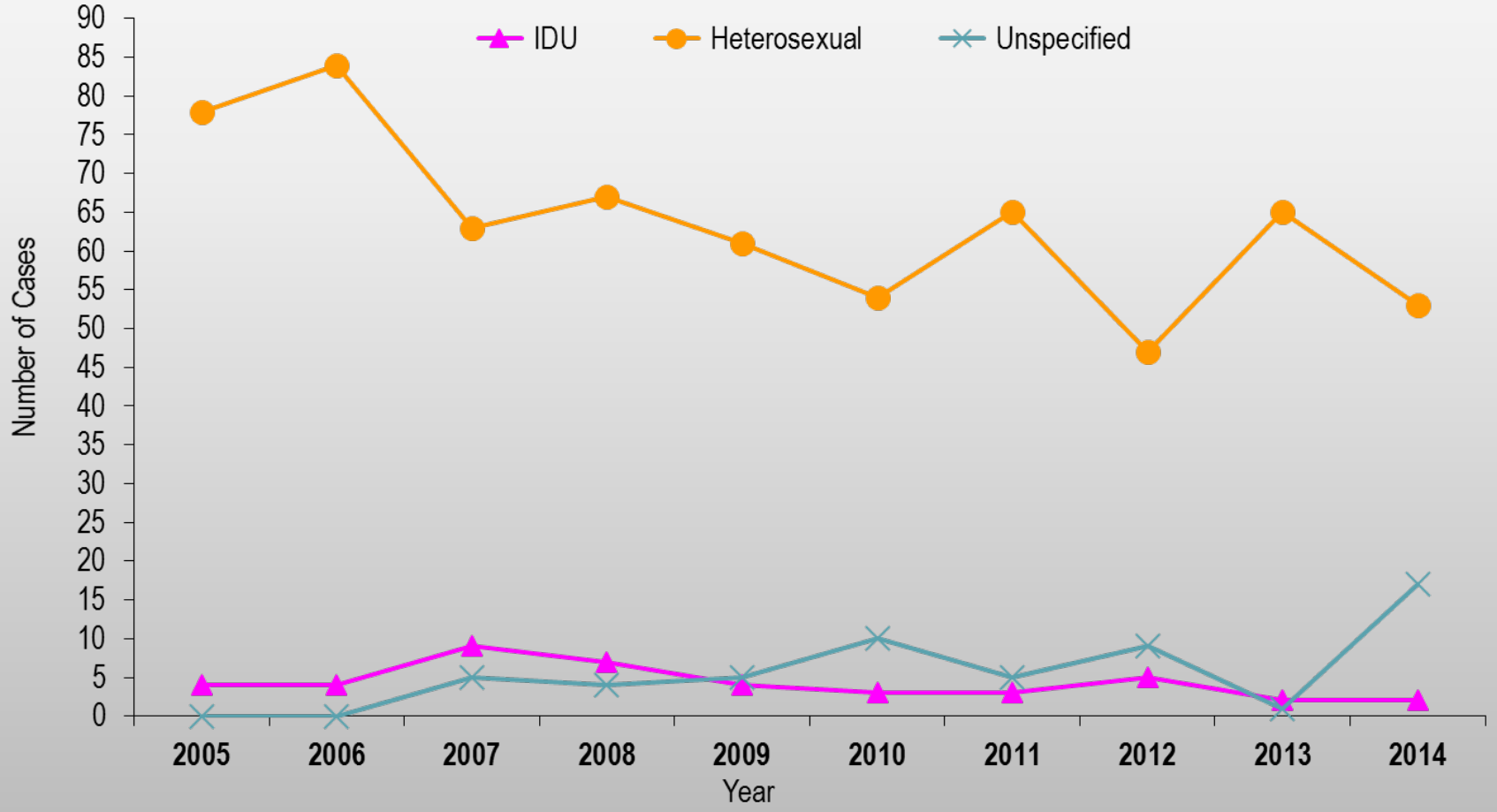
HIV Diagnoses* Among Females by Mode of Exposure and Year of Diagnosis, 2005 - 2014



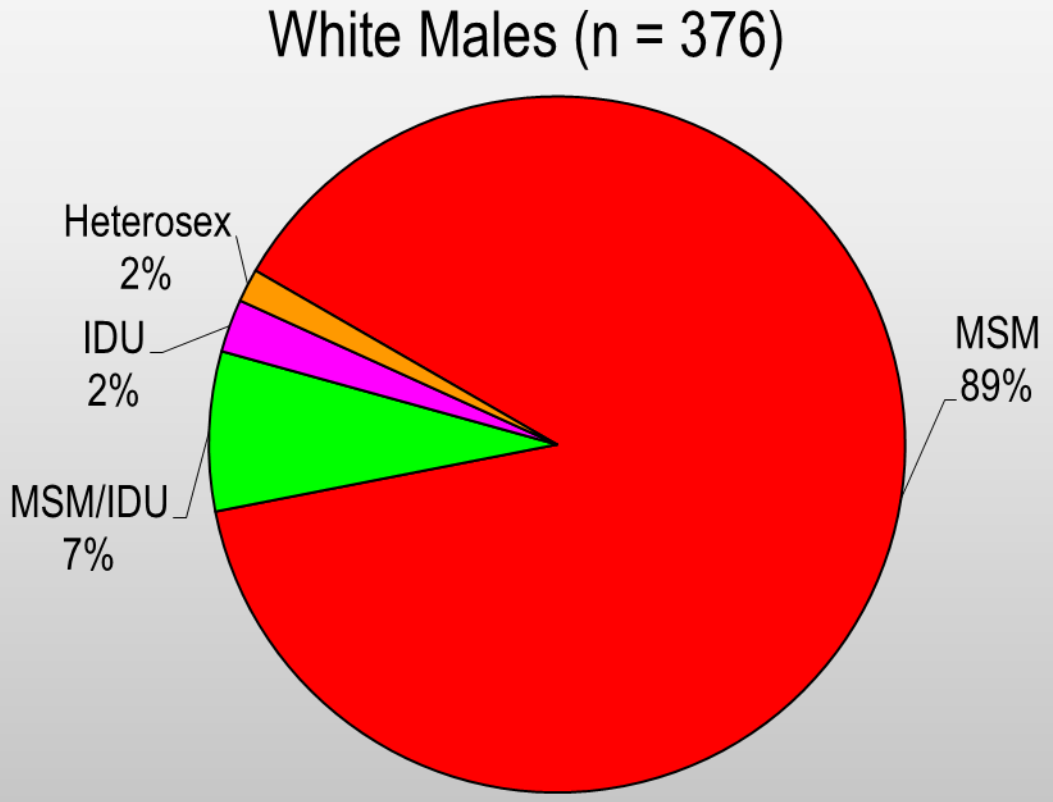
IDU = Injecting drug use Heterosexual = Heterosexual contact with HIV+ , bisexual, IDU, hemophiliac/blood project or organ transplant recipient, or with partner with unknown risk

Unspecified = No mode of exposure ascertained

** HIV or AIDS at first diagnosis*

HIV/AIDS in Minnesota: Annual Review

HIV Diagnoses* by Estimated Mode of Exposure† 2012–2014 combined

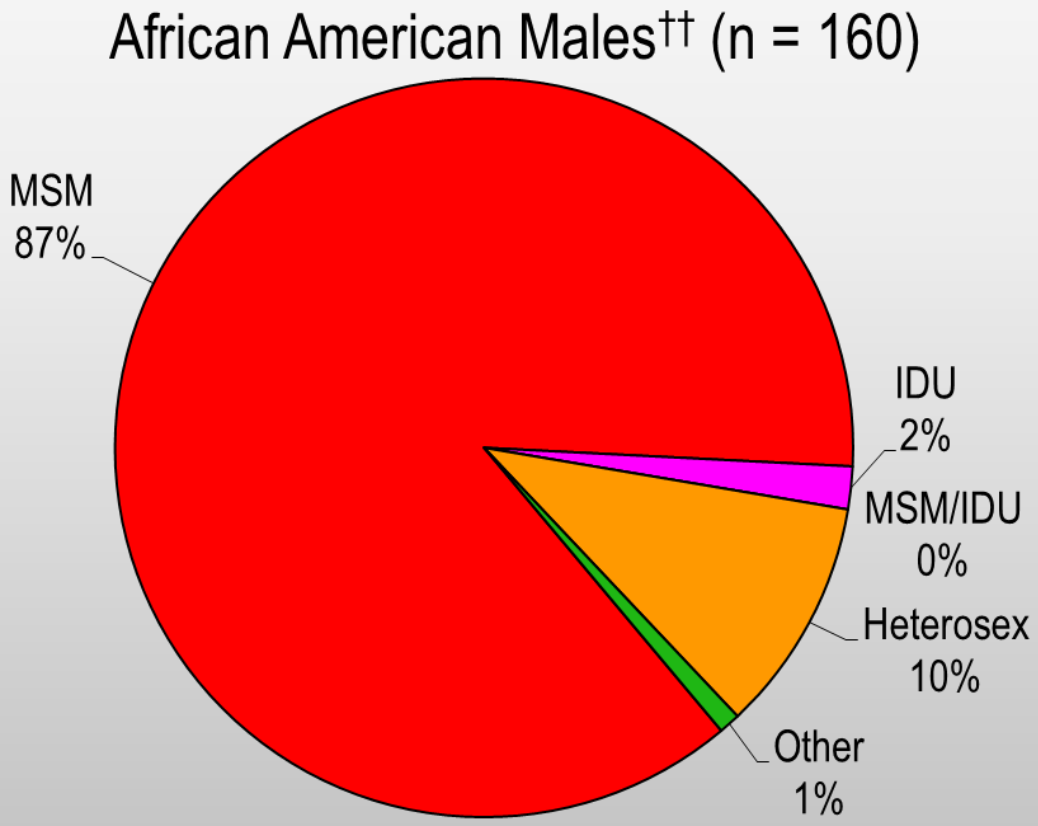


n = Number of persons MSM = Men who have sex with men IDU = Injecting drug use Heterosex = Heterosexual contact
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

* *HIV or AIDS at first diagnosis*

† Mode of Exposure proportions have been estimated using cases for 2012-2014 with known risk. For more detail see the HIV Surveillance Technical notes.

HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



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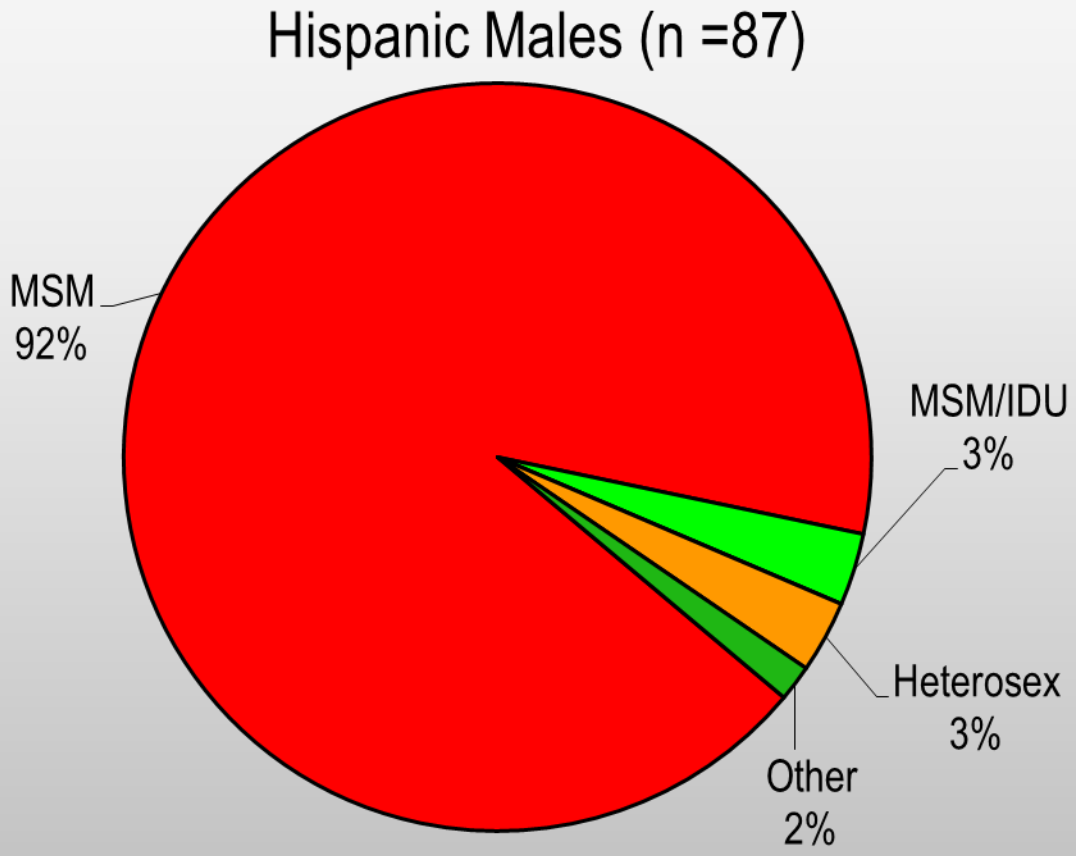
** HIV or AIDS at first diagnosis*

† Mode of Exposure proportions have been estimated using cases for 2012-2014 with known risk. For more detail see the HIV Surveillance Technical notes.

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

HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



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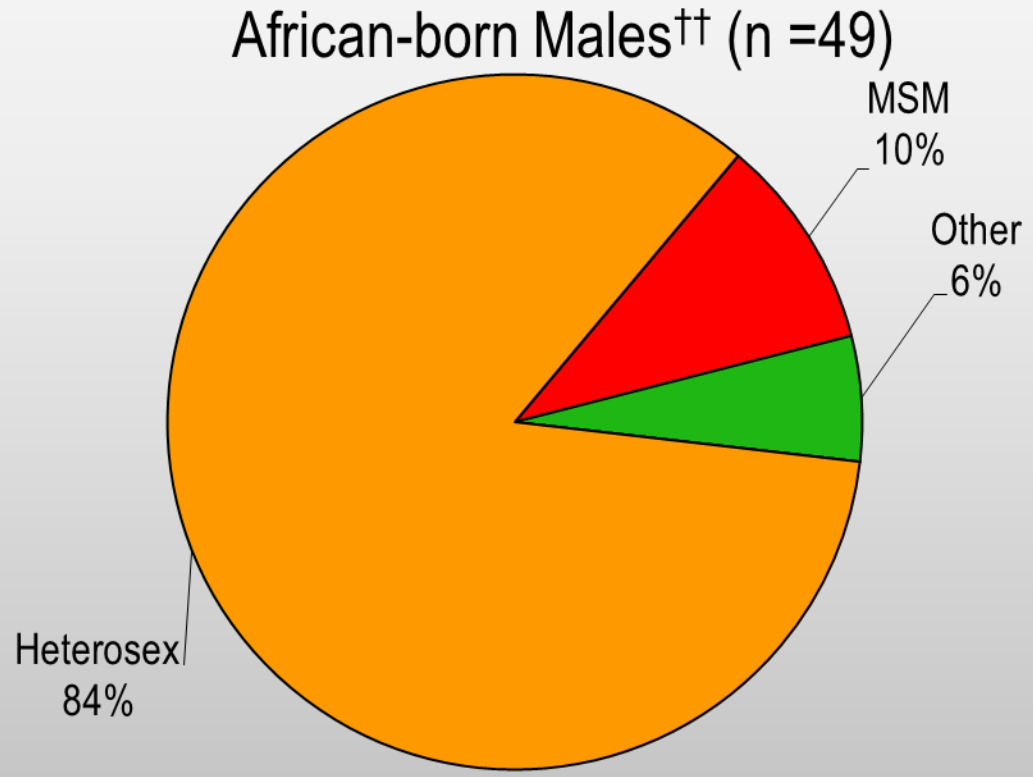
HIV Diagnoses* by Estimated Mode of Exposure†2012 - 2014 combined



MSM = Men who have sex with men Heterosex = Heterosexual contact Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

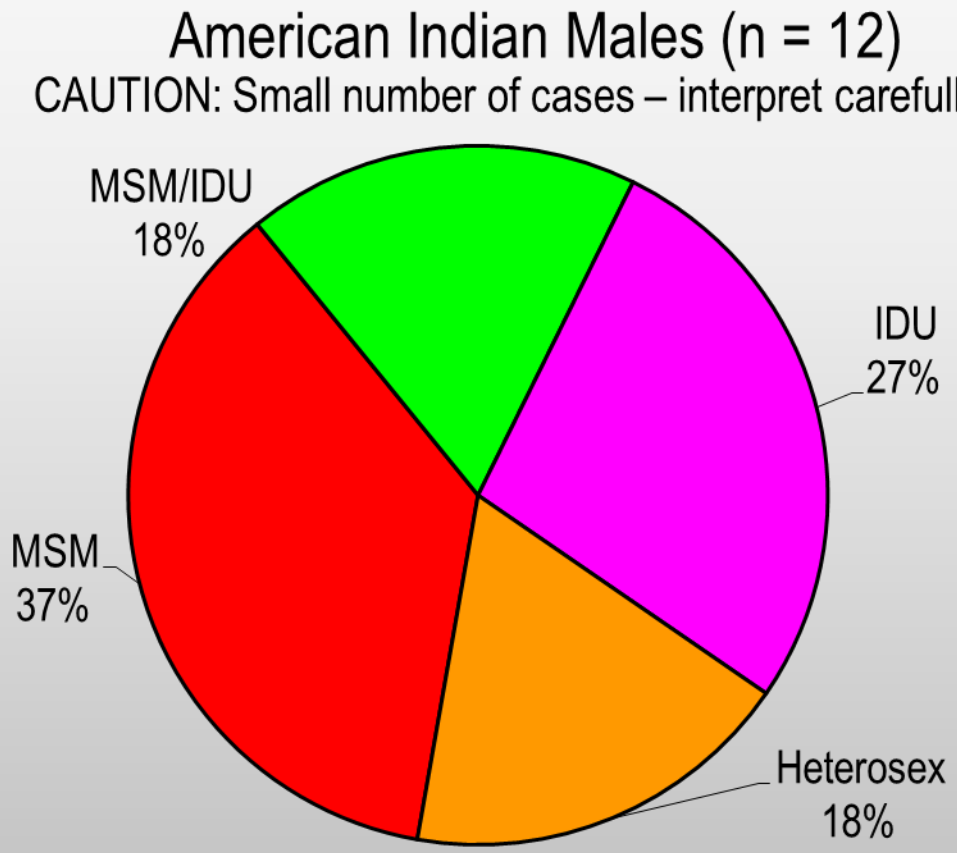
n = number of persons

* *HIV or AIDS at first diagnosis*

† Mode of Exposure has been estimated for cases with unknown risk using the following: 5% - MSM, 90% - Heterosexual, and 5%-Other. For more detail see the HIV Surveillance Technical notes.

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

HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



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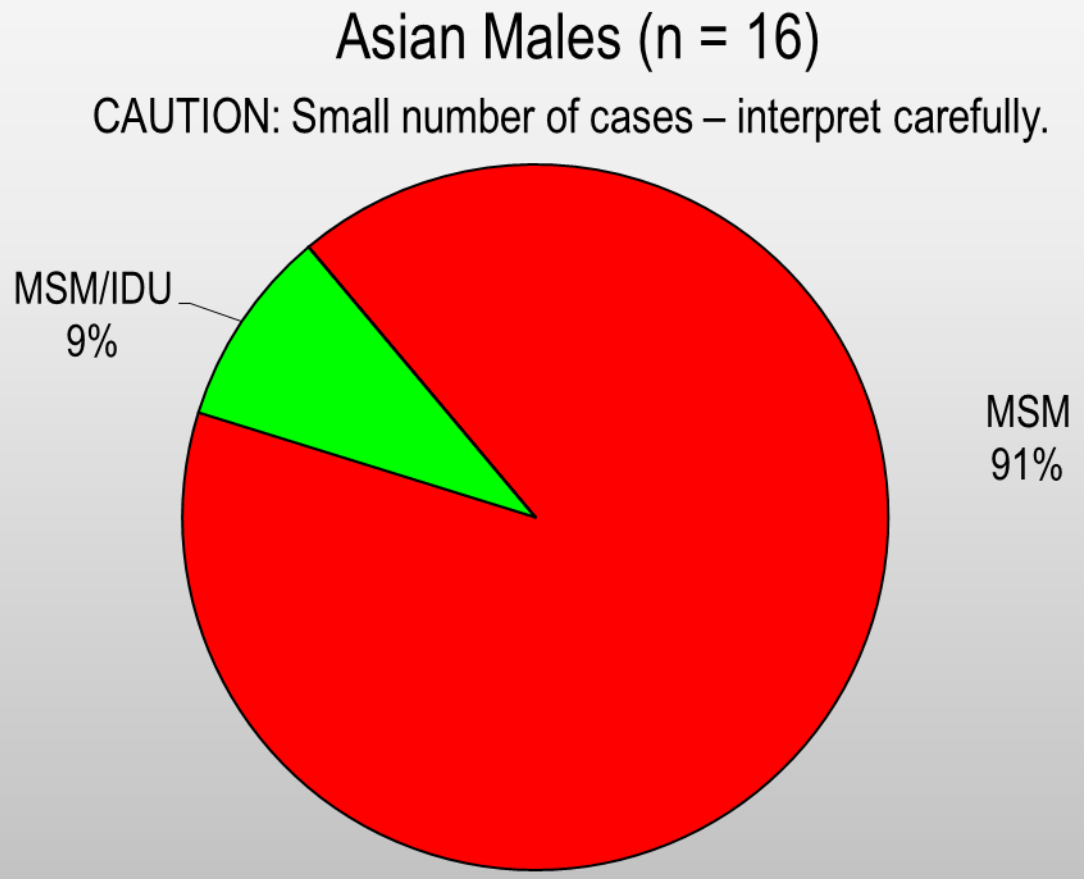
HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



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** HIV or AIDS at first diagnosis*

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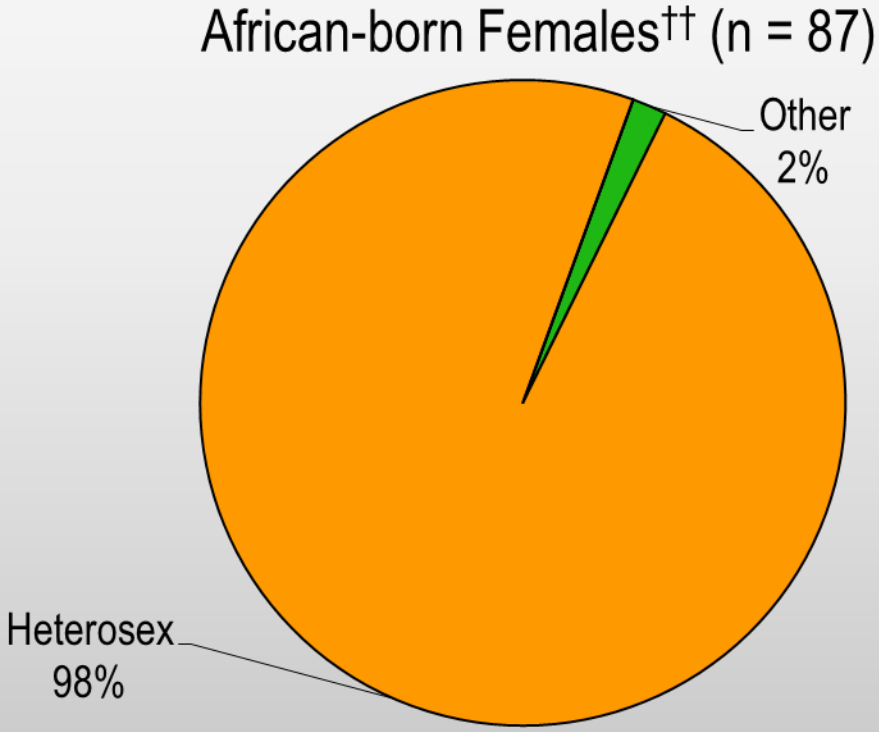
HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



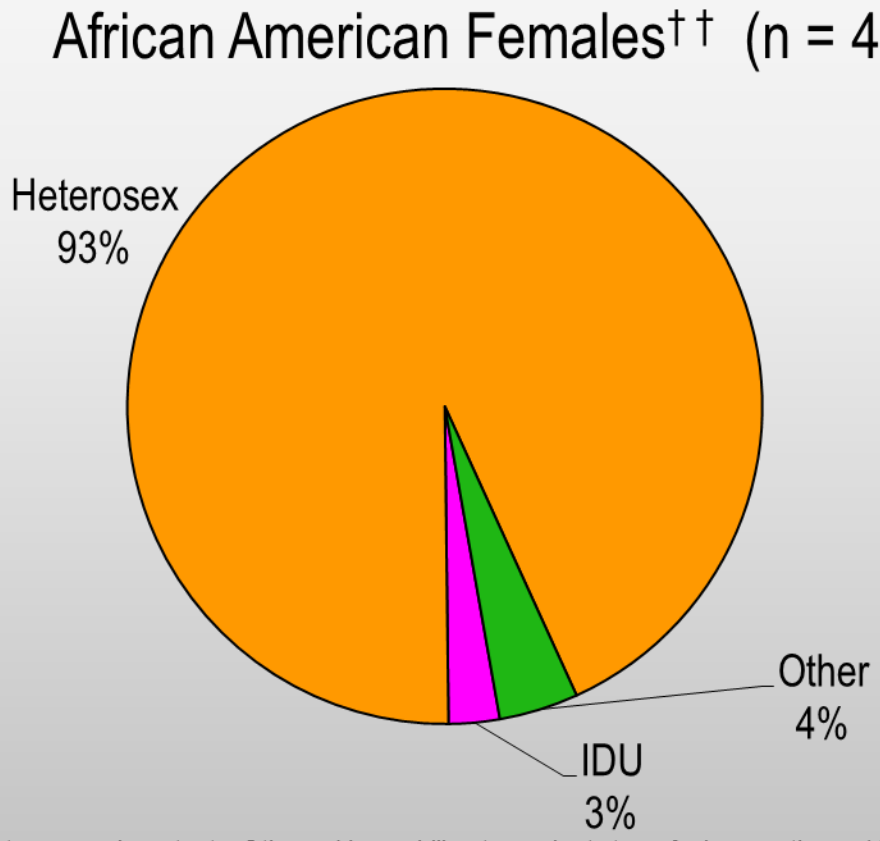
n = Number of persons Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk Heterosex = Heterosexual contact

* *HIV or AIDS at first diagnosis*

† Mode of Exposure has been estimated for cases with unknown risk using the following: 95% - Heterosexual and 5%-Other. For more detail see the HIV Surveillance Technical notes.

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

HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



IDU = Injecting drug use Heterosex = Heterosexual contact Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

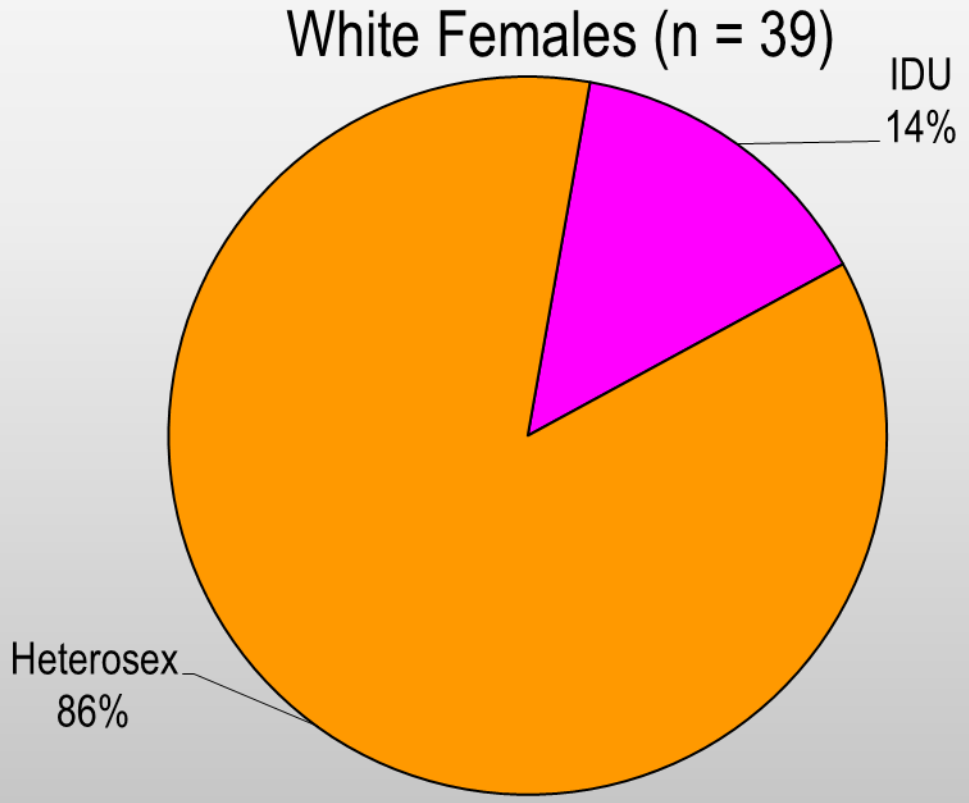
n = Number of persons

* *HIV or AIDS at first diagnosis*

† Mode of Exposure proportions have been estimated using cases for 2012-2014 with known risk. For more detail see the HIV Surveillance Technical notes.

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

HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



n = Number of persons IDU = Injecting drug use Heterosex = Heterosexual contact Other = Other risk, including perinatal

** HIV or AIDS at first diagnosis*

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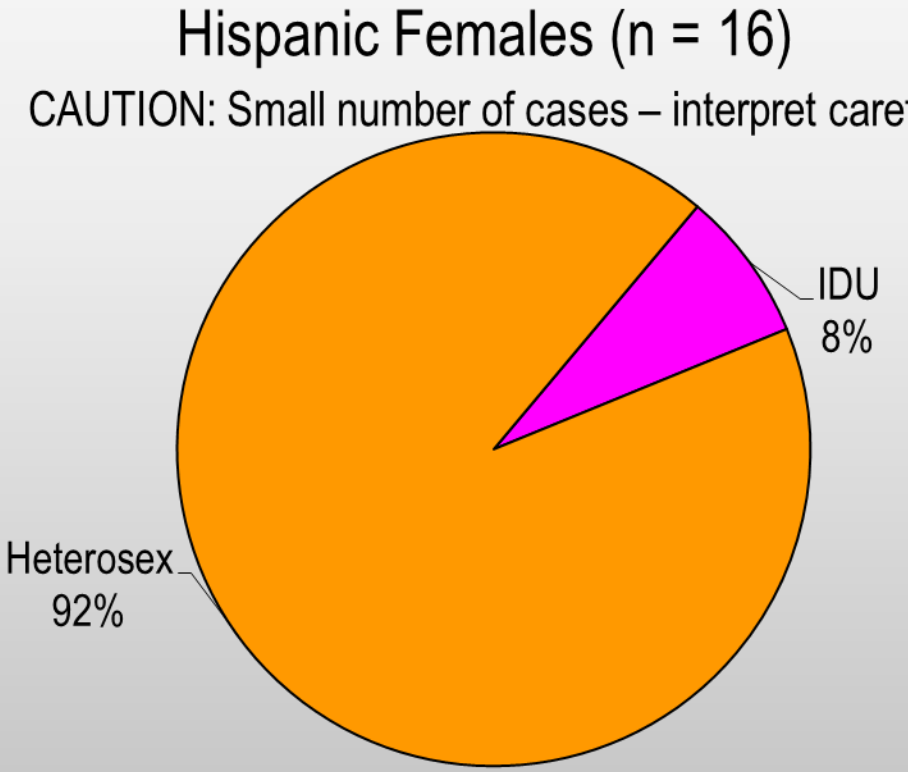
HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



IDU = Injecting drug use Heterosex = Heterosexual contact Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

n = Number of persons

* *HIV or AIDS at first diagnosis*

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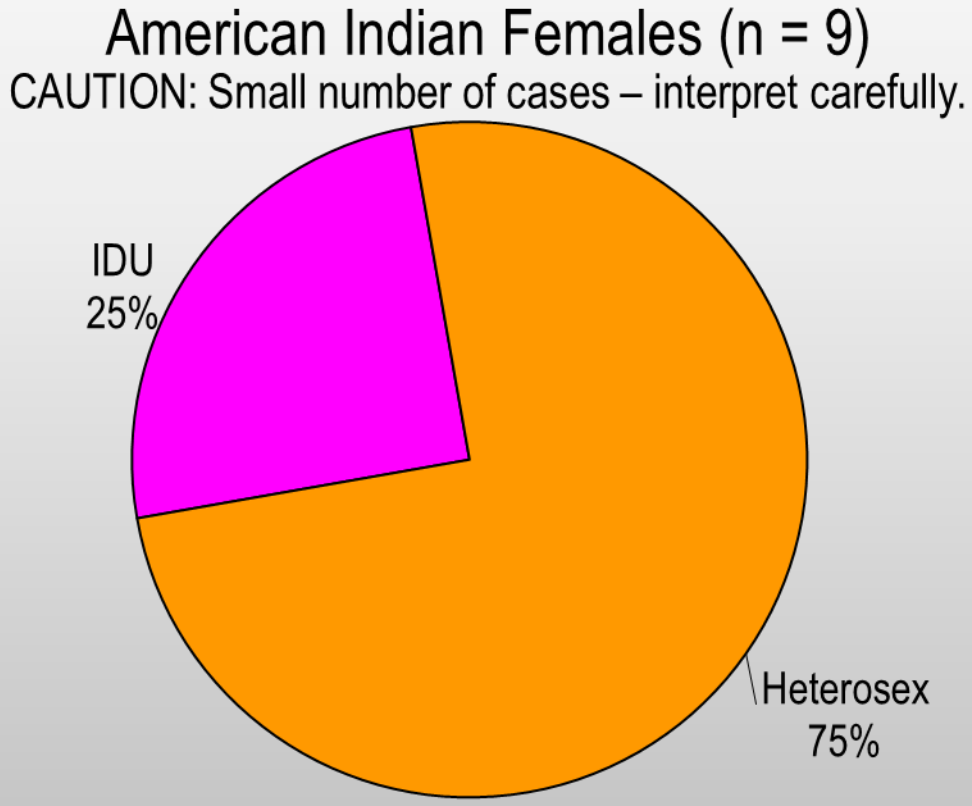
HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined



IDU = Injecting drug use Heterosex = Heterosexual contact Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

n = Number of persons

** HIV or AIDS at first diagnosis*

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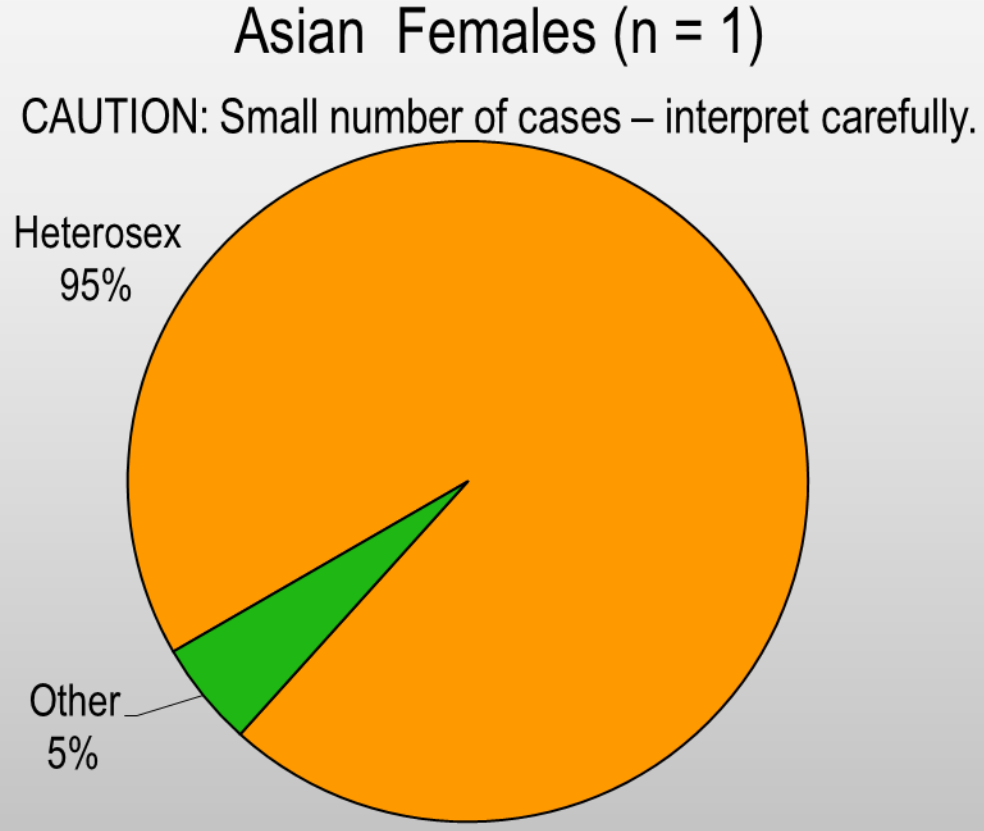
HIV Diagnoses* by Estimated Mode of Exposure† 2012 - 2014 combined

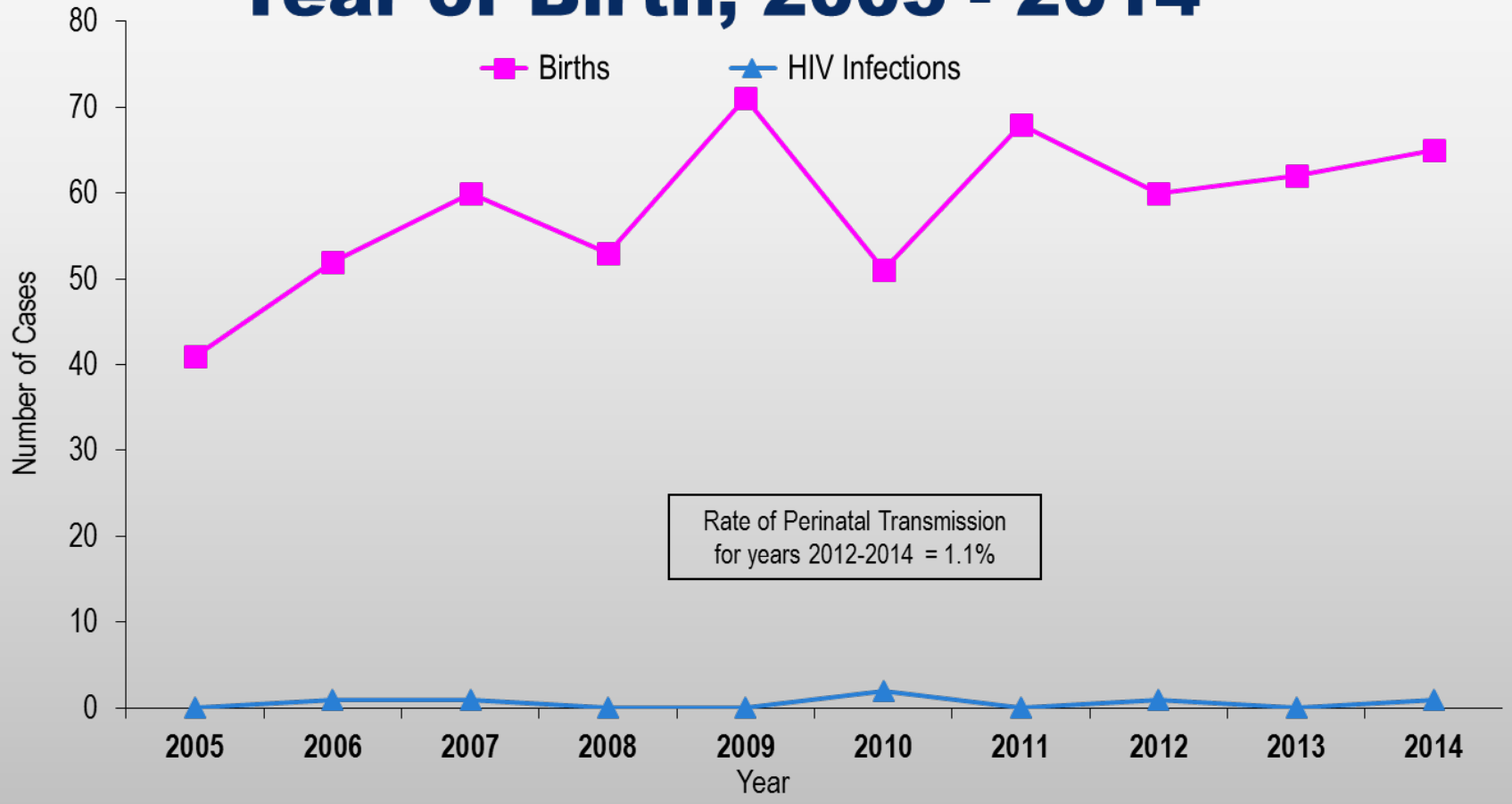


n = Number of persons Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk Heterosex = Heterosexual contact

* *HIV or AIDS at first diagnosis*

† Mode of Exposure has been estimated for cases with unknown risk using the following: 95% - Heterosexual and 5%-Other.
For more detail see the HIV Surveillance Technical notes.

Births to HIV-Infected Women and Number of Perinatally Acquired HIV Infections* by Year of Birth, 2005 - 2014



** HIV or AIDS at first diagnosis for a child exposed to HIV during mother's pregnancy, at birth, and/or during breastfeeding.*

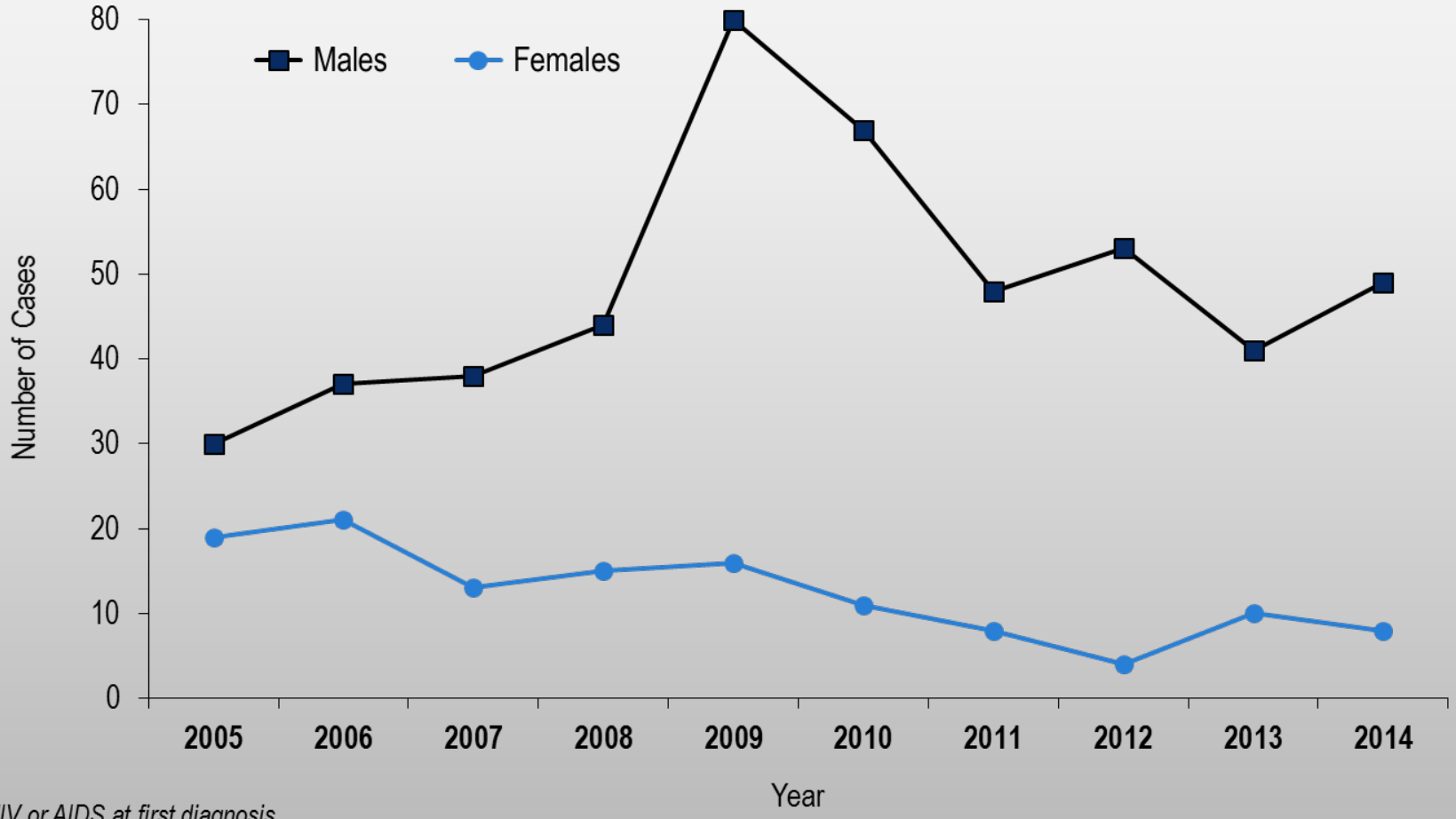
HIV/AIDS in Minnesota: Annual Review

Populations of Interest

Adolescents & Young Adults (Ages 13-24)*

* Case numbers are too small to present meaningful data separately for adolescents and young adults.

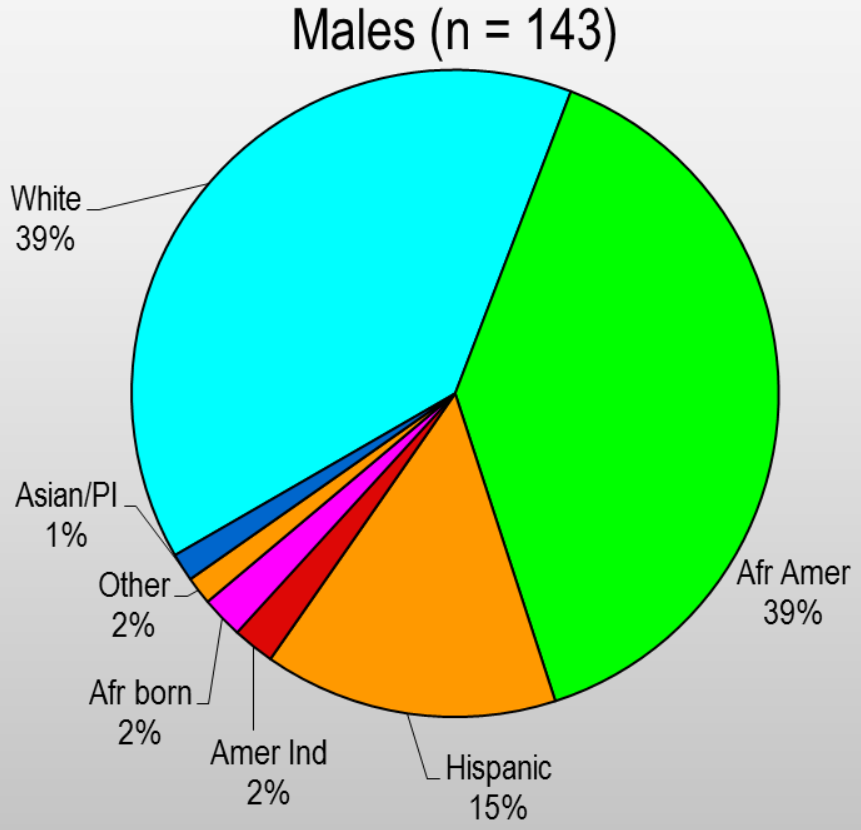
HIV Diagnoses* Among Adolescents and Young Adults† by Gender and Year, 2005 - 2014

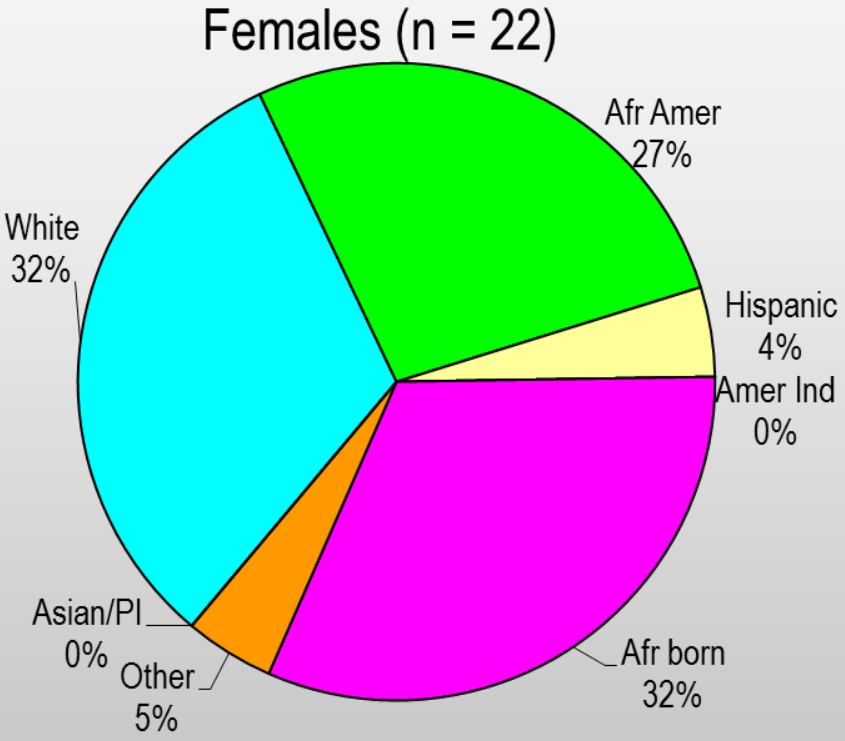


* *HIV or AIDS at first diagnosis*

† *Adolescents defined as 13-19 year-olds; Young Adults defined as 20-24 year-olds.*

HIV Diagnoses* Among Adolescents and Young Adults† by Gender and Race/Ethnicity, 2012 - 2014 Combined





* *HIV or AIDS at first diagnosis*

† *Adolescents defined as 13-19 year-olds; Young Adults defined as 20-24 year-olds.*

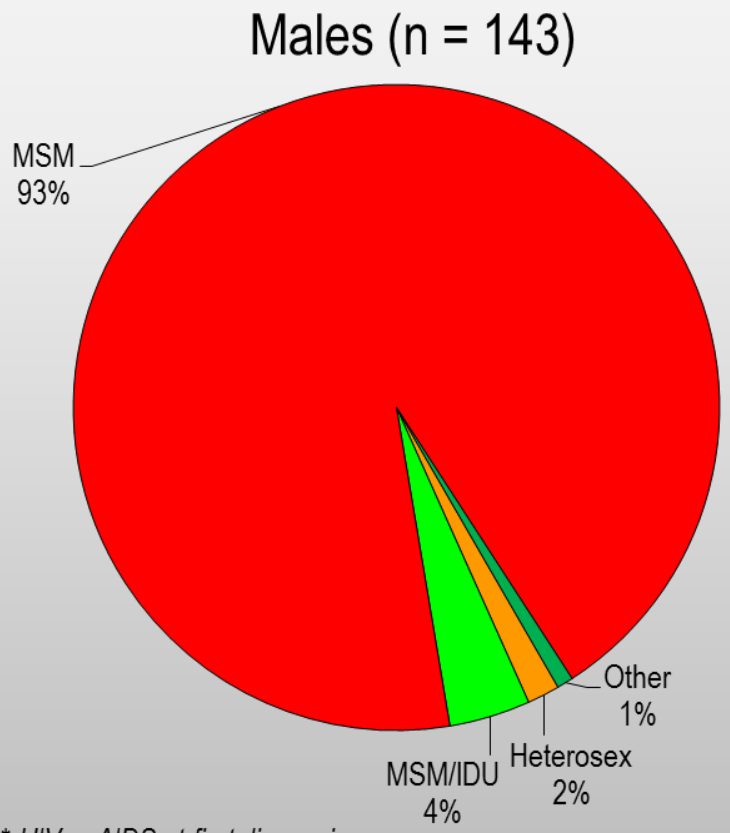
n = Number of persons Amer Ind = American Indian

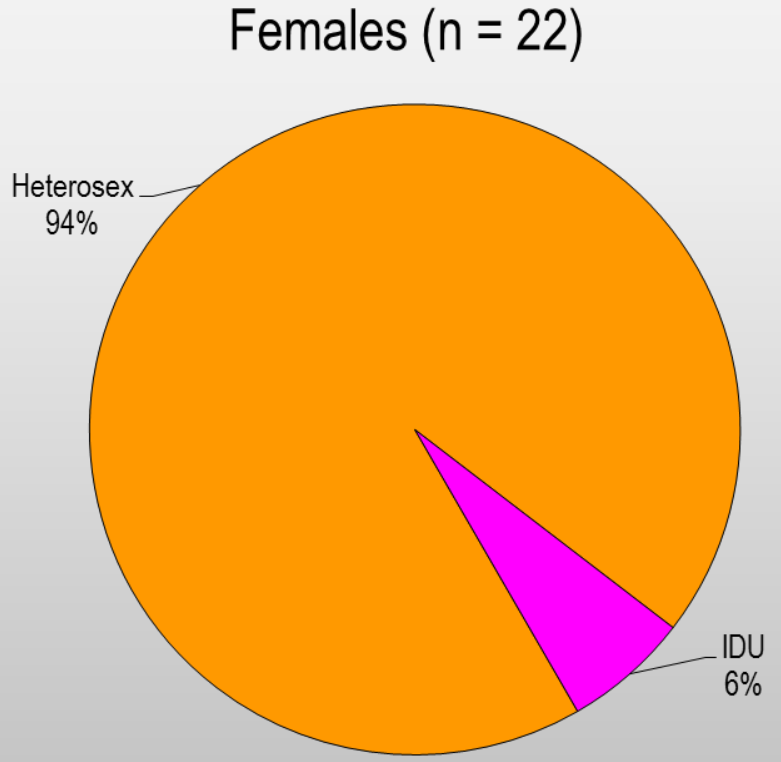
Afr Amer = African American (Black, not African-born persons)

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

Other = Multi-racial persons or persons with unknown race

HIV Diagnoses* Among Adolescents and Young Adults† by Gender and Estimated Exposure Group#, 2012- 2014 Combined





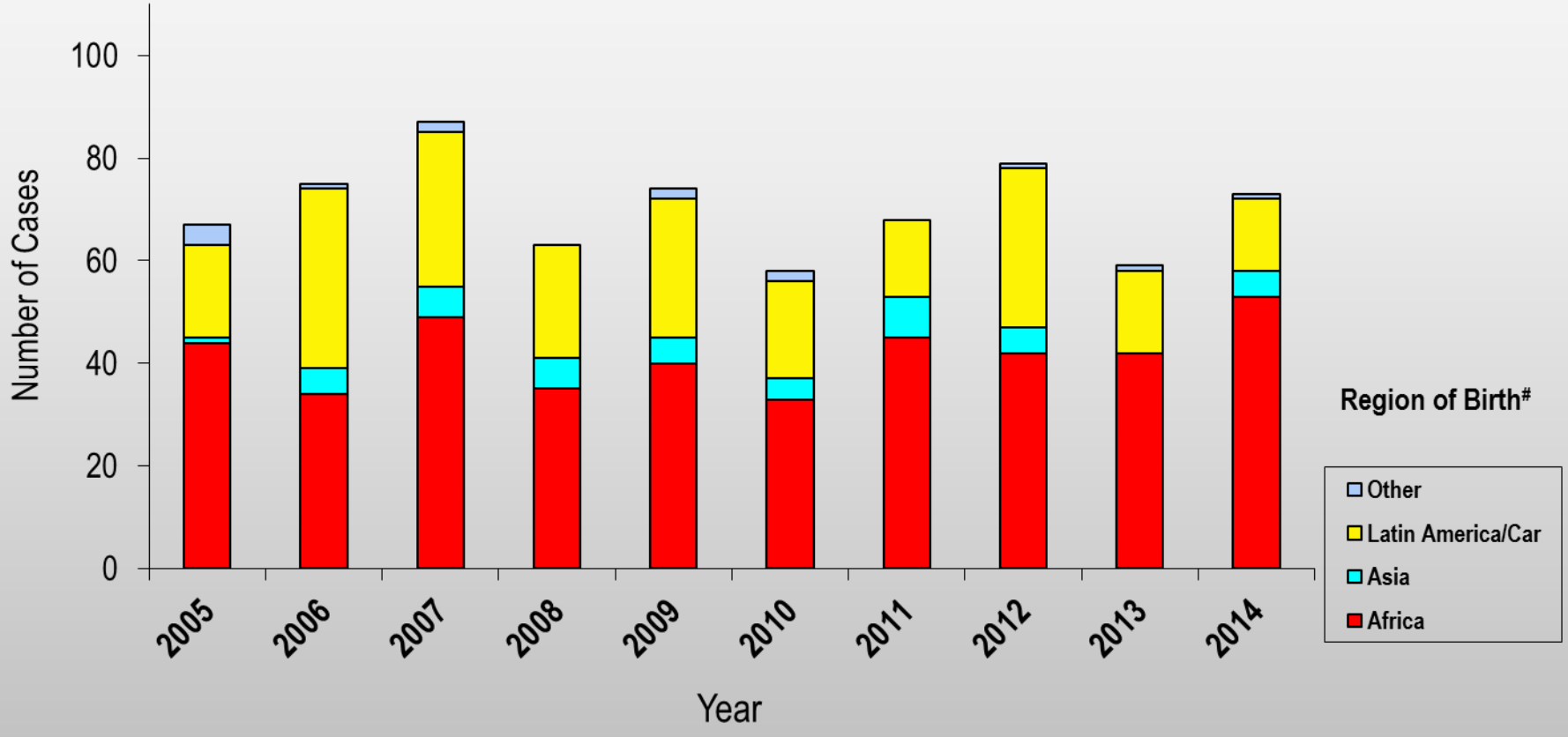
* *HIV or AIDS at first diagnosis*

† *Adolescents defined as 13-19 year-olds; Young Adults defined as 20-24 year-olds.*

Mode of Exposure proportions have been estimated using cases for 2012-2014 with known risk. For more detail see the HIV Surveillance Technical notes.

Foreign-born Cases

HIV Diagnoses* among Foreign-Born Persons† in Minnesota by Year and Region of Birth, 2005 - 2014

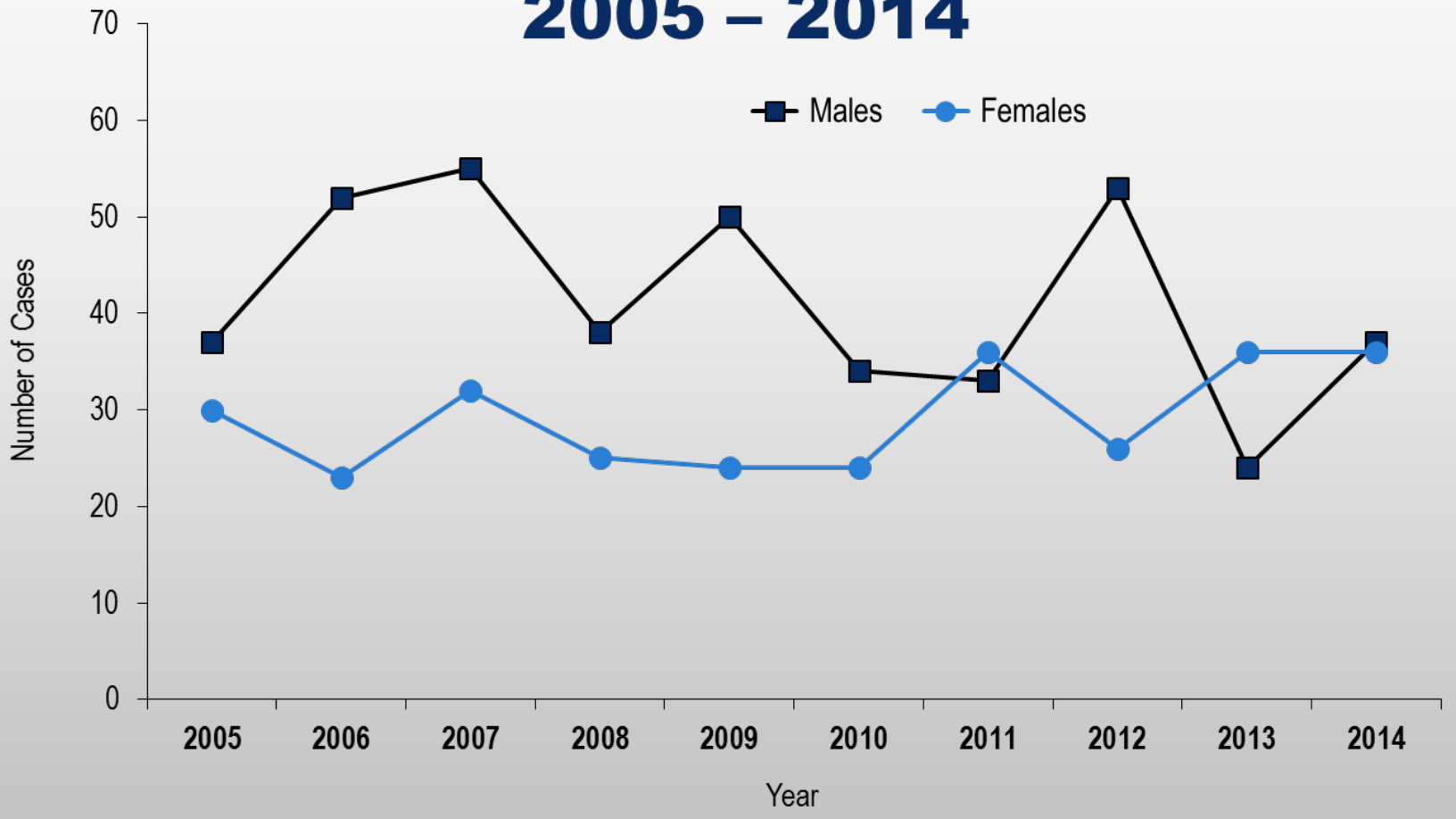


* *HIV or AIDS at first diagnosis*

† *Excludes persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.*

Latin America/Car includes Mexico and all Central, South American, and Caribbean countries.

HIV Diagnoses* Among Foreign-Born Persons† by Gender and Year, 2005 – 2014



HIV or AIDS at first diagnosis

†Excludes persons arriving in Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

Countries of Birth Among Foreign-Born Persons† Diagnosed with HIV*,Minnesota, 2014

- Liberia (n=21)
- Somalia (n=8)
- Ethiopia (n=7)
- Mexico (n=6)
- Kenya (n=3)
- Nigeria (n=3)
- Cameroon (n=2)
- Sudan (n=2)
- Cuba (n=2)
- Republic of S. Korea (n=2)
- Other^ (n=17)

** HIV or AIDS at first diagnosis*

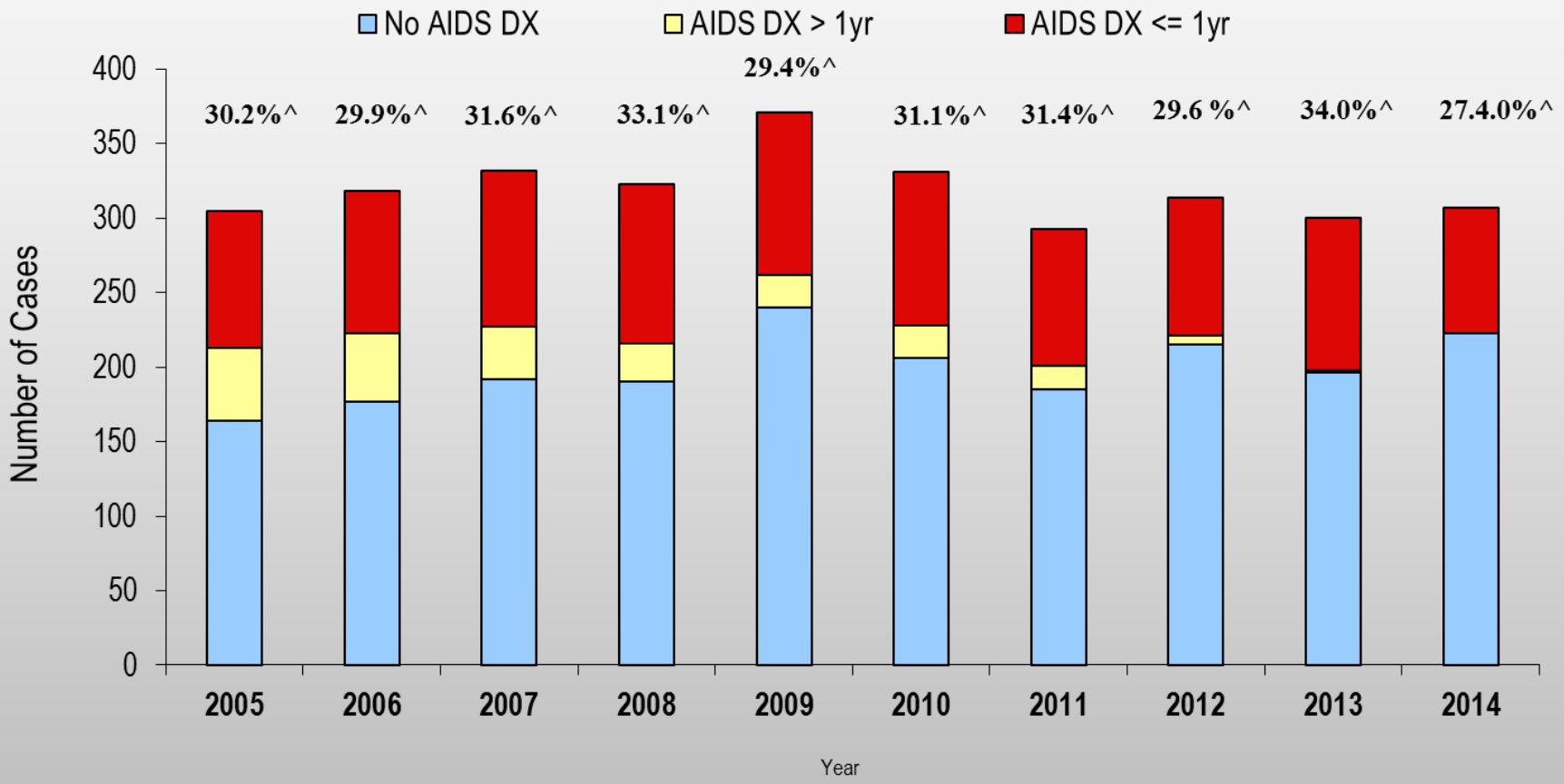
† Excludes persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

^ Includes 8 additional countries.

Late Testers

(AIDS Diagnosis within one year of initial HIV Diagnosis)

Time of Progression to AIDS for HIV Diagnoses in Minnesota*, 2005 - 2014†



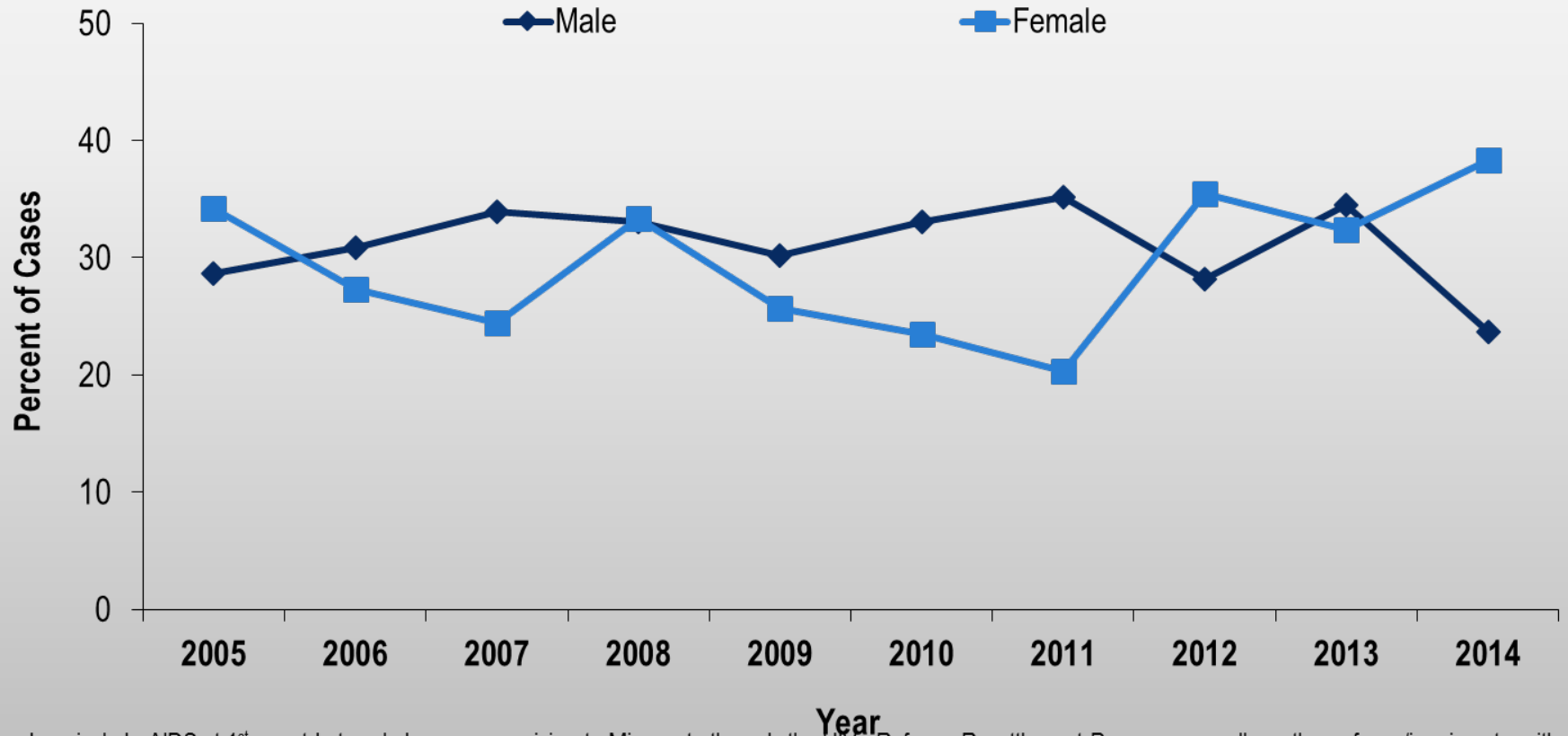
*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

^ *Percent of cases progressing to AIDS within one year of initial diagnosis with HIV*

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.

HIV/AIDS in Minnesota: Annual Review

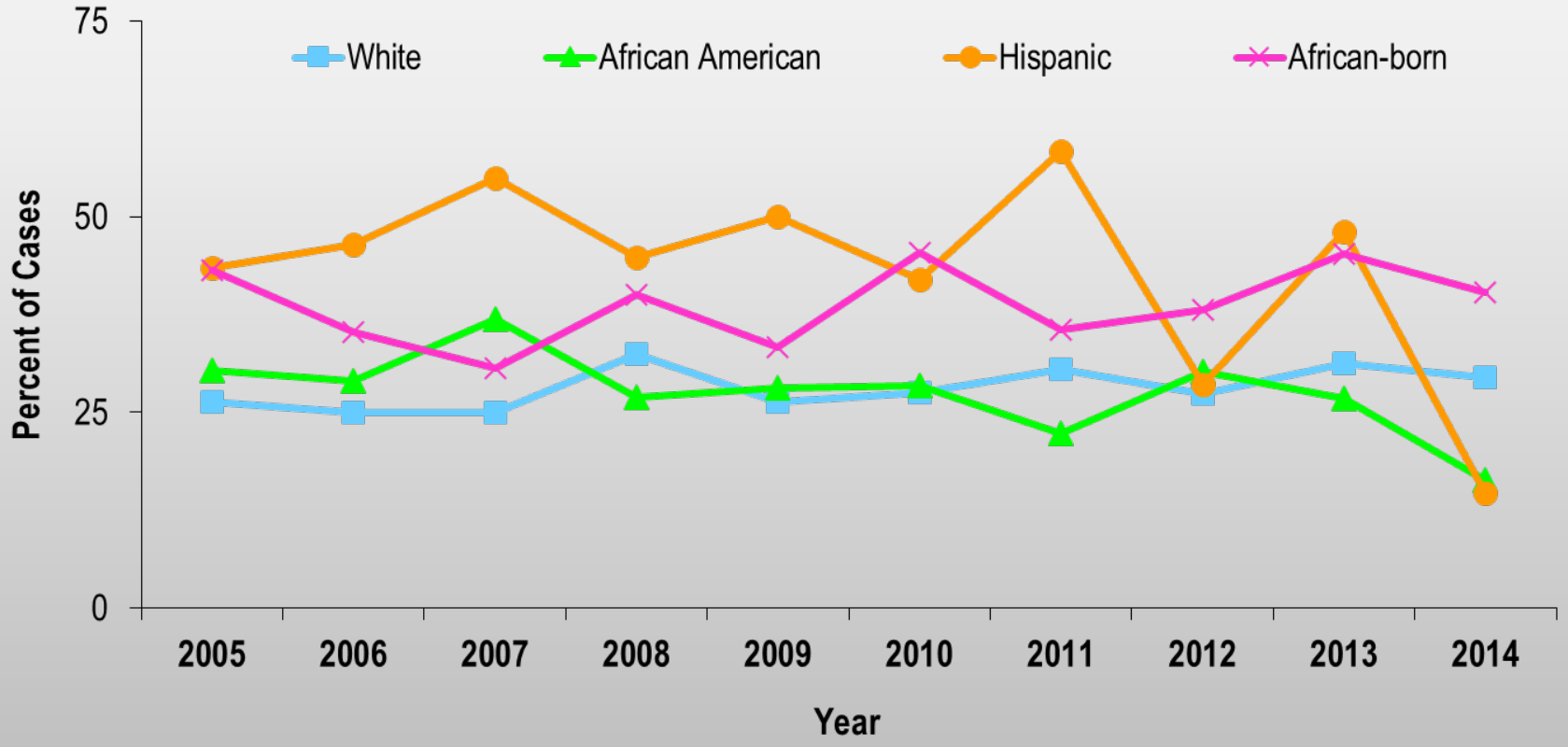
Progression to AIDS within 1 year of initial HIV Diagnosis* by Sex at Birth, 2005 - 2014†



*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.

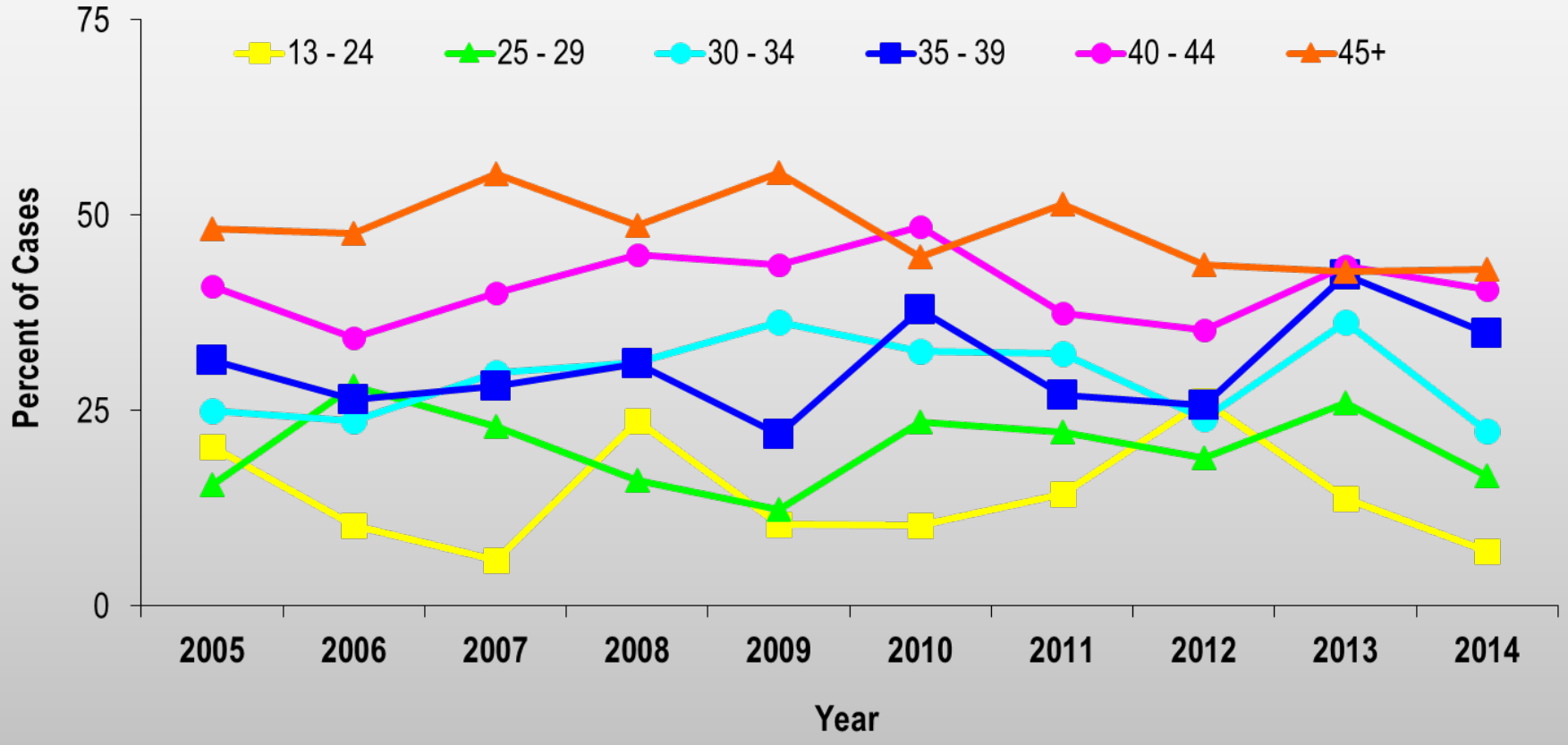
Progression to AIDS within 1 year of initial HIV Diagnoses* by Race/Ethnicity^, 2005 - 2014†



*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.
^Percentage not calculated if less than 10 cases diagnosed per year

Progression to AIDS within 1 year of initial HIV Diagnosis* by Age, 2005 - 2014†

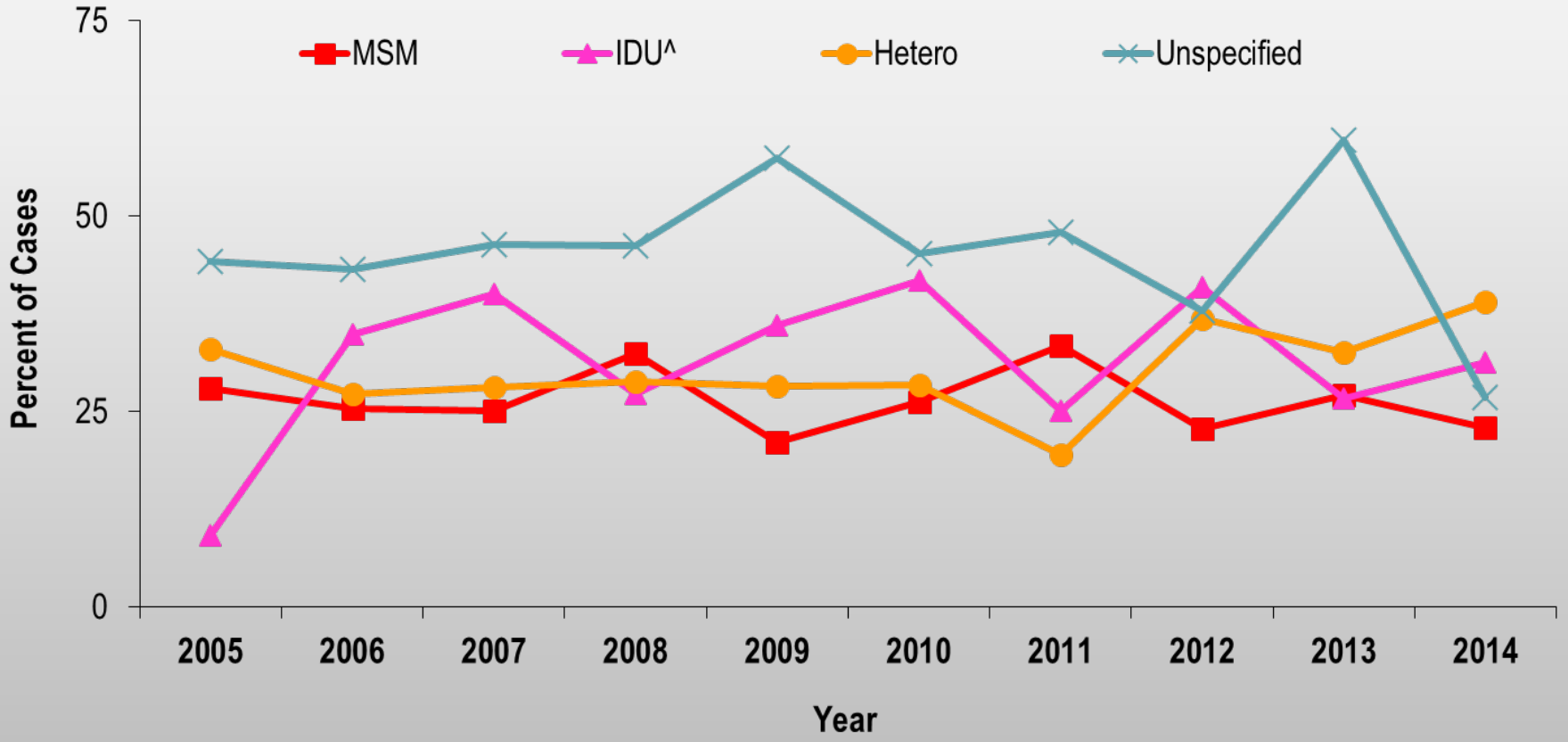


*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.

HIV/AIDS in Minnesota: Annual Review

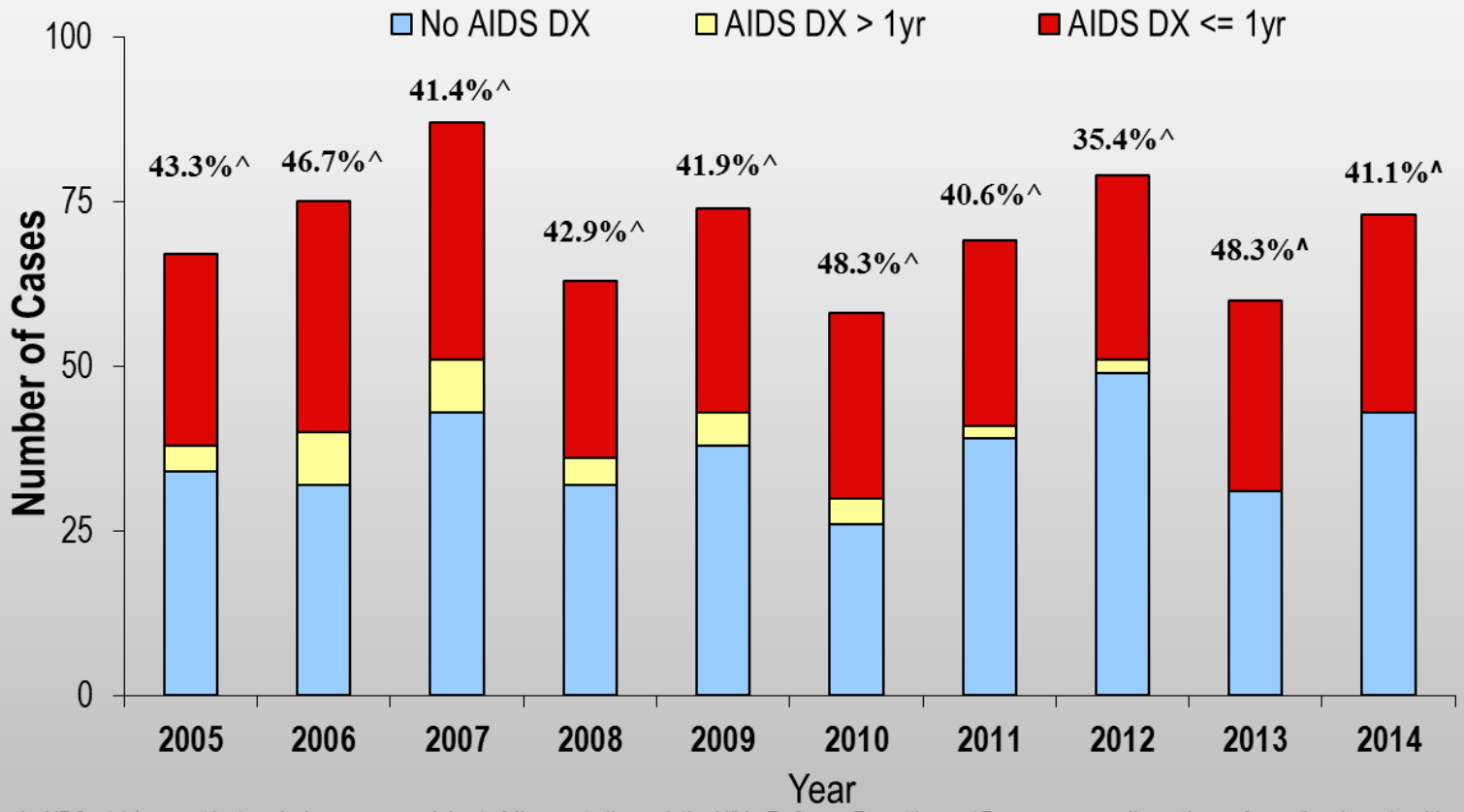
Progression to AIDS within 1 year of initial HIV Diagnosis* by Mode of Transmission, 2005 - 2014†



*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.
^Includes MSM/IDU

Time of Progression to AIDS for HIV Diagnoses* Among Foreign-Born Persons, Minnesota 2005 - 2014†



*Numbers include AIDS at 1st report but exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

^ Percent of cases progressing to AIDS within one year of initial diagnosis with HIV

† Numbers/Percent for cases diagnosed in 2014 only represents cases progressing to AIDS through April 8, 2015.

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Companion Text for the Slide Set: *Minnesota HIV Surveillance Report, 2014*

Overview

The *Minnesota HIV Surveillance Report, 2014* describes the occurrence of newly reported HIV diagnoses in Minnesota by person, place, and time through December 31, 2014. Such data provide information about where and among whom HIV transmission is likely occurring. This knowledge can in turn be used to help educate, target prevention efforts, plan for services, and develop policy.

Data Source

In Minnesota, laboratory-confirmed infections of human immunodeficiency virus (HIV) are monitored by the Minnesota Department of Health (MDH) through an active and passive surveillance system. State rules (Minnesota Rule 4605.7040) require both physicians and laboratories to report all cases of HIV infection (HIV or AIDS) directly to MDH (passive surveillance). Additionally, regular contact is maintained with several clinical sites to ensure completeness of reporting (active surveillance). In June 2011, an amendment to the communicable disease reporting rule was passed, requiring the report of all CD4 and viral load test results.

Data in this report include cases diagnosed with HIV infection[1] as of December 31, 2014 and reported to the MDH as of April 8, 2015. All data are displayed by earliest date of HIV diagnosis. Refer to the *HIV Surveillance Technical Notes* for a more detailed description of data inclusion and exclusion criteria.

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 infection diagnoses may be due to one of these factors, or due to actual changes in HIV/AIDS occurrence.

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

The data presented in this report are not adjusted for reporting delays. Thus, the case number presented may change from year to year. However, the number of cases diagnosed within a calendar year changes relatively little after two years have passed.

National Context

Compared with the rest of the nation, Minnesota is considered to be a low to moderate HIV/AIDS incidence state. In 2013, state-specific HIV infection diagnosis rates ranged from 2.5 per 100,000 persons in Vermont to 43.7 per 100,000 persons in Maryland with an overall national rate of 18.0 per 100,000 persons. Minnesota had the 17th lowest HIV infection diagnosis rate (7.0 HIV infections reported per 100,000 persons[2]). Compared with other states in the Midwest, Minnesota has a moderate rate of HIV diagnosis. In 2013, state-specific AIDS diagnosis rates ranged from 0.7 per 100,000 persons in Vermont to 21.7 per 100,000 persons in Maryland. Minnesota had the 14th lowest AIDS rate (3.2 AIDS cases reported per 100,000 persons[3]). Compared with states in the Midwest region, Minnesota has a moderate AIDS rate.

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, 2014, a cumulative total of 10, 718 cases of HIV infection have been reported among Minnesota residents.[4] Of these 10,718 cases, 3,638 (34%) are known to be deceased through correspondence with the reporting source, other health departments, review of death certificates, active surveillance, and matches with the National Death Index and Social Security Death Master File.

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[2] Centers for Disease Control and Prevention. HIV/AIDS Statistics and Surveillance Slide Sets http://www.cdc.gov/hiv/topics/surveillance/resources/slides/general/index.htm accessed April 16, 2014, Slide 13

[3] Centers for Disease Control and Prevention. HIV/AIDS Statistics and Surveillance Slide Sets http://www.cdc.gov/hiv/topics/surveillance/resources/slides/general/index.htm accessed April 16, 2014, Slide 29

[4] 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, 1990s-2014

The annual number of new HIV and AIDS cases increased steadily from the beginning of the epidemic to the early 1990s. 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. These treatments have been shown to be effective at preventing transmission of HIV. Over the past decade, the number of HIV/AIDS cases diagnosed has remained relatively stable with an average of 319 cases diagnosed each year. By the end of 2014, an estimated 7,988 persons with HIV/AIDS were assumed to be living in Minnesota.[5]

New HIV Diagnoses in Minnesota

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

In 2014, 307 new HIV diagnoses were reported in Minnesota. This represents a 2% increase from 2013 when 300 diagnoses were reported.

New HIV Diagnoses by Geography

Historically, about 90% of new HIV infections diagnosed in Minnesota have occurred in Minneapolis, St. Paul and the surrounding seven-county metropolitan area. This has changed slightly over time, and currently about 86% of new diagnoses occur in the metropolitan area surrounding Minneapolis/St. Paul. Additionally, although HIV infection is more common in communities with higher population densities and greater poverty, HIV or AIDS was diagnosed in 30 counties in Minnesota in 2014.

Overall, of the 307 HIV diagnoses in Minnesota in 2014, 40% were among residents of suburban seven-county metro area, 32% were residents of Minneapolis and

[5] 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.

14% were residents of St. Paul and Greater Minnesota at the time of diagnosis. However, the geographic distribution of cases differs by gender. For example, 52% of female cases resided in the suburban seven-county metro area compared to only 36% of male cases. Whereas 35% of male cases resided in Minneapolis at the time of diagnosis, compared to only 23% of females.

New HIV Diagnoses by Gender & Race/Ethnicity[6]

Since the beginning of the epidemic, males have accounted for a majority of new HIV diagnoses per year. In 2014 numbers of new cases among males increased slightly from 2013 by two diagnoses while the number of newly infected female cases increased by 7% as compared to 2013.

The most recent data illustrate that men and women of color continue to be disproportionately affected by HIV/AIDS. People of color account for 15% of Minnesota's population, yet account for 52% (162/307) of the cases diagnosed in 2014. Men of color make up approximately 17% of the male population and 44% of the infections diagnosed among men in 2014. White, non-Hispanic men make up approximately 83% of the male population in Minnesota and 52% of the new HIV infections diagnosed among men in 2014. Similarly for females, women of color make up approximately 13% of the female population and 79% of the new infections among women. White, non-Hispanic women make up approximately 83% of the female population and 19% of new infections among women in 2014.[7]

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.

Trends in the annual number of new HIV infections diagnosed among males differ by racial/ethnic group. White males account for the largest number of new infections, but the proportion of cases that white males account for has decreased over

[6] Black race was broken down into African-born and African American (Black, not African-born). The numbers exclude persons arriving through the HIV-Positive Refugee Resettlement Program and other refugee/immigrants with an HIV diagnosis prior to arrival.
[7] Population estimates based on U.S. Census 2010 data.

time. In 2014, white males accounted for 52% of the new HIV diagnoses among men, with 122 diagnoses. During the past decade, the number of cases among African-American males has fluctuated from year to year, with 45 new HIV diagnoses in 2014. This represents a 22% decrease among African-American males from 2013 to 2014.

The annual number of HIV infections diagnosed among Hispanic and African-born males has remained relatively stable, with fluctuation from year to year. An increase in Hispanic males was observed in 2014, from 23 cases in 2013 to 28 in 2014, representing an increase of 22%. Twenty African-born males were diagnosed with HIV in 2014; this is an increase of 122% from 2013 when 9 cases were diagnosed.

Similarly, trends in the annual number of HIV infections diagnosed among females differ by racial/ethnic group. In 2014 women of color white women accounted for 80% of the new diagnoses in Minnesota, with 58 new cases while white women accounted for 19% of new diagnoses (14 cases).

Since 2005, the annual number of new infections diagnosed among African American females has decreased overall. In 2014 there were 16 cases diagnosed among African American women, compared to 13 in 2013. The number of diagnoses among African-born women has been increasing over the past decade. In 2014 the number of new cases among African-born women was 32, accounting for 44% of all new diagnoses among women. The annual number of new infections diagnosed among Hispanic, American Indian, Asian, and multi-racial females continues to be quite small (10 cases or fewer per year for each of these groups).

Beginning in 2012, MDH began estimating the number of MSM living in Minnesota. Men who have sex with Men have the highest rate of HIV infection than any other sub-category. In 2014, the estimated rate of HIV infection among MSM was 167.0 per 100,000 population. This is more than 40 times higher than the rate among non-MSM men (3.8 per 100,000 population). It's important to note that MSM contains cases from all racial/ethnic categories and therefore cannot be directly compared to the rates by race/ethnicity. For more information on how this was estimated, see the *HIV Surveillance Technical Notes.*

Age at Diagnosis

In 2014, 37% of all male cases diagnosed with HIV were under the age of 30, compared to 27% of females diagnosed in this age group. The average age at diagnosis among males in 2014 decreased to 36 years compared to an average of 38 years old in 2013. The average age at diagnosis among women was also 36 years in 2014.

New HIV Diagnoses by Mode of Exposure

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

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. In 2014, MSM accounted for 47% of all new infections (62% among males) with 144 cases diagnosed. On a much smaller scale, the numbers of male cases attributed to IDU and MSM/IDU as well as heterosexual contact have remained somewhat stable over the past decade. The number of cases without a specified risk has increased overall for the past decade, accounting for 29% of male cases in 2014.

Throughout the epidemic, heterosexual contact has been the predominant mode of HIV exposure reported among females accounting for 73% of female cases in 2014. IDU is the second most common known mode of transmission, and accounted for 3% of cases among women in 2014. Unspecified risk represented 24% of female cases in 2014.

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 2012 and 2014, MSM or MSM/IDU accounted for an estimated 96% of cases among white males, 95% of cases among Hispanic males, 87% of cases among African American males, and 10% of cases among African-born males. IDU was estimated as a risk in 2% of white male and African American male cases diagnosed during 2012-2014. The number of cases among Asian and American Indian men during the years 2012-2014 was insufficient to make generalizations regarding risk (less than 20 cases in each group). There were no cases attributed to IDU alone among Hispanic and African-born males during this same time period.

Heterosexual contact accounted for an estimated 98% of cases among African-born females, 93% of African American females, and 86% of white females between 2012 and 2014.

IDU was estimated as a risk for 14% of cases among white, and 3% among African American women. No cases were attributed to IDU among African-born females during this same time period. The small number of cases in 2012-2014 among Hispanic, Asian, and American Indian women (less than 20 cases in each group) is insufficient to make generalizations regarding risk.

Mother-to-Child HIV Transmission

The ability to interrupt the transmission of HIV from mother to child via antiretroviral therapy and appropriate perinatal care is an important accomplishment in the history of the HIV/AIDS epidemic. Newborn HIV infection rates range from 25-30% without antiretroviral therapy, but decrease to 1-2% with appropriate medical intervention.

For the past decade the number of births to HIV-infected women increased steadily from 41 in 2005 to 65 births in 2014. The rate of transmission has decreased from 15% between 1994 and 1996 to 1.1% in the past three years, with one HIV+ baby born to HIV+ mother in Minnesota in 2014.

The rate of transmission in Minnesota between 1982 and 1994 (before widespread use of zidovudine[8] 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.

POPULATIONS OF INTEREST

New HIV Diagnoses among Adolescents and Young Adults[9], 1990-2014

Many people are infected with HIV for years before they actually seek testing and become aware of their HIV status as seen in the number of new cases diagnosed as AIDS at first report. This phenomenon especially affects the observed case counts for younger

[8] A common antiretroviral drug.

[9] 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.

age groups. As a result, the reported number of HIV infections among youth[8] (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 2014 19% (57/307) of new HIV infection diagnoses were among adolescents and young adults. Just like overall trends, trends among youth differ by gender and race. Since 2005, the number of new cases among young males has been increasing steadily, a few cases per year. However, in 2009 the number of cases increased dramatically by 82% compared to 2008, to 80 cases, the highest seen since 1986. In 2014, the number of increased from 41 in 2013 to 49. Of these 49 new cases among adolescent and young adult men, 21 (43%) were known MSM of color. Since 2005, the number of cases among young males has increased by about 63%.

Unlike young men, the annual number of new HIV infections diagnosed among young women has remained relatively consistent over time. In 2014 there were 8 cases diagnosed among young women, this accounts for a 20% decrease from the ten cases diagnosed in 2013. Females accounted for 14% (8/57) of new HIV infections diagnosed among adolescents and young adults in 2014.

Overall, young women accounted for 11% (8/73) of new infections among females and young males accounted for 21% (49/237) of new infections among males in 2014.

Similar to the overall HIV/AIDS epidemic, persons of color account for a disproportionate number of new HIV infections among adolescents and young adults. Among young men, white accounted for 39% of new HIV infections diagnosed between 2012 and 2014, African American accounted for 39%, and Hispanic 15%. American Indian, African-born, and Asian/Pacific Islander made up 2%, 2%, and 1% of the remaining cases, respectively. Among young women, white accounted for 32%, African American 27%, African-born 32%, Hispanic 4%, and persons with multiple or unknown race accounted 5% of the new infections diagnosed during the same time period.

Men having sex with men (MSM) was the predominant mode of HIV exposure among adolescent and young adult males, accounting for an estimated 93% of the new HIV infections diagnosed between 2012 and 2014, while the joint risk of MSM and

injecting drug use (IDU) accounted for an estimated 4% of the cases in the same time period. Heterosexual sex accounted for an estimated 2% of cases. Heterosexual contact accounted for an estimated 94% of new HIV infections diagnosed among adolescent and young adult females between 2012 and 2014 while IDU accounted for an estimated 6%.

New HIV Infections among Foreign-born Persons

The number of new HIV infections diagnosed among foreign-born persons in Minnesota has steadily increased from 20 cases in 1990 to 73 cases in 2014. This increase has been largely driven by the increase of cases among African-born persons from 8 cases in 1990 to 53 cases in 2014, as well as, persons from Mexico, Central and South America from 6 cases in 1990 to 14 cases in 2014. Among new HIV infections diagnosed in 2014, 24% were among foreign-born persons. Based on 2010-2012 American Community Survey data, foreign-born persons make up 7% of the total Minnesota population and are, therefore, disproportionately affected by HIV[10]. Among African-born this disparity is even more evident, while African-born persons make up just over 1% of the Minnesota population they accounted for 17% of new HIV infections in 2014.

In 2014, the number of foreign-born males increased to 37 diagnoses from 24 in 2013 (54% increase). However, the number of foreign-born females diagnosed with HIV remained the same in 2014 at 36 cases. Females made up 49% of all foreign-born cases newly diagnosed with HIV in Minnesota. Foreign-born females accounted for a much greater percentage of all females diagnosed cases (49%) than did foreign-born cases among males (16%).

Four countries (Liberia, Somalia, Ethiopia, and Mexico) accounted for a majority (58%) of new infections among foreign-born persons, however there are 18 countries represented among the 73 new infections in 2014.

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

Since 2005, approximately one third of all new HIV infection cases diagnosed in Minnesota have either been AIDS at first diagnosis, or have progressed to an AIDS

[10] Based on 2010-2012 American Community Survey 3-year estimates, the Minnesota State Demographic Center estimates that there are 390,110 foreign-born persons, including 77,557 African-born persons are living in Minnesota out of a total population of 5,303,925. Because there are many reasons foreign-born persons may not be included in the census count (e.g. difficulties with verbal or written English), these numbers are likely an underestimate of the actual size of the foreign-born population living in Minnesota.

diagnosis within one year of initial diagnosis with HIV (non-AIDS) infection. As with other characteristics of the HIV epidemic in Minnesota, the proportion of late testers varies by demographic characteristics. The most significant differences occur by race/ethnicity, with the proportion of late testers in 2014 among African-born (40%) and whites (29%) being higher than that among Hispanic (15%) and African Americans (16%). Similar data for American Indians and Asian/Pacific Islanders in a single year had fewer than 10 cases and are considered not stable. Differences by age are as expected with the percentage of late testers increasing with age at time of diagnosis. In 2014[11], 7% of those diagnosed between the ages of 13 and 24 were late testers compared to 43% of those 45 years and older. Finally, the percentage of late testers is also higher among foreign-born cases compared to other cases. In 2014, 41% of foreign-born cases were late testers compared to 30% of US-born cases.

[11] Percentage of late testers for 2014 includes only those progressing to AIDS through January 2015. As such, this percentage is likely to increase as additional reports are made to the MDH.

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NEW HIV DIAGNOSES 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 rules[1]. Active surveillance conducted by MDH staff involves routine visits and correspondence with select HIV clinical facilities to ensure completeness of reporting and accuracy of the data.

Factors that impact the completeness and accuracy of HIV/AIDS surveillance data include: availability and targeting of HIV testing services, test-seeking behaviors of HIV-infected individuals, compliance with case reporting, and timeliness of case reporting. 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. Additionally, on January 4, 2010 the U.S. travel ban on HIV+ visitors and immigrants was lifted. Persons now testing positive for the first time in Minnesota after arriving from their native country will no longer be assigned the status of 'immigrant', as compared to those who were diagnosed pre-2010 during obligatory immigrant physical examinations. Finally, an amendment to the communicable disease reporting rule was passed in June 2011, requiring the report of all CD4 and Viral Load test results.

[1] Minnesota Rule 4605.7040
[2] MMWR 1992;41[no.RR-17]:1-19

New HIV Diagnoses

New HIV diagnoses 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 diagnosis are displayed by year of earliest HIV diagnosis. The number of new HIV diagnoses 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. Vital status information is updated by monthly visits to select reporting facilities, correspondence with other health departments, annual death certificate reviews, and periodic matches with the National Death Index and Social Security Death Master File. "AIDS deaths" refers to all deaths among AIDS cases regardless of the cause of death. "All deaths" refers to all deaths among HIV/AIDS cases regardless of the cause of death.

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 while subsequent reports display the data 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/AIDS is approximately 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, HIV-infected refugees who resettled in Minnesota as part of the HIV-Positive Refugee Resettlement Program, and other refugees/immigrants with an HIV diagnosis prior to their arrival in Minnesota. However, refugees in the HIV-Positive Refugee Resettlement Program, as well as, other refugees/immigrants diagnosed with AIDS subsequent to their arrival in the U.S. are included in the number of new AIDS cases.

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.

[3] Incubation period is the time between initial infection with the virus and the development of disease symptoms.

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 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 and are not necessarily applicable at the state or local level. Speculation regarding the distribution of risk behaviors among those with unspecified risk is difficult, especially in men, for who 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. Each year, estimation is done by using the risk distribution for cases diagnosed in the most recent three-year period with known risk by race and gender and applying it to those with unspecified risk of the same race and gender, for example to estimate risk in 2014, we would use cases diagnosed between 2012 and 2014. For females an additional step was added to the process. If females reported sex with males but did not report injecting drug use or receipt of blood products, then she was placed in a new category named "Heterosexual – with unknown risk". The same was not done for males given the high level of stigma associated with male-to-male sex in certain communities.

When applying the proportions from those with known risk to those with unspecified risk there were two exceptions to the method, African-born cases and

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

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.

MSM Estimate

In 2012 MDH began estimating the population of MSM in Minnesota. This estimate generates a denominator for the most commonly reported risk factor in Minnesota and allows for the calculation of a rate of infection and rate of prevalence among those in the risk group. Estimation is done each year using the most recently available census data for men over the age of 13 and using the model by on Laumann et al[5] where 9% of the urban population, 4% of the suburban population and 1% of the rural population are estimated to be MSM.

$$\text{MSM}_{\text{state i}} = (\text{rural pop}_{\text{state i}} \times 0{:}01\%) + (\text{suburban pop}_{\text{state i}} \times 0{:}04\%) + (\text{urban pop}_{\text{state i}} \times 0{:}09\%)$$

After consulting with stakeholders, it was agreed that it was appropriate to assign urban/suburban/rural designation based on the unique geography of Minnesota. The counties of Hennepin and Ramsey are assigned as urban, the counties of Anoka, Carver, Dakota, Scott and Washington along with the cities of Rochester, St. Cloud and Duluth are assigned as suburban, and the remaining areas were are assigned as rural. In 2014, this method utilized 2010 census data and produced an estimate of the MSM population in Minnesota to be 92,788. Overall, this represents 4.3% of the adolescent and adult male population in Minnesota.

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.

[5] Laumann EO, Gagnon JH, Michael RT, et al. The social organization of sexuality: sexual practices in the United States, chapter 8. Chicago: University of Chicago Press; 1994

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).

Routine Interstate Duplicate Review (RIDR)

The Minnesota Department of Health (MDH) continues to participate in RIDR. RIDR 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. RIDR was the second such de-duplication initiative by CDC. The first initiative, IDEP, looked at cases reported through December 31, 2001. RIDR is now an ongoing activity that all states are expected to undertake. CDC will release a RIDR report every 6 months which will affect the ownership of Minnesota cases. While the Surveillance staff will always inquire about previous diagnosis and will check with CDC to determine if the case has been previously reported, it is possible that cases we believe to have been initially diagnosed in Minnesota were in fact diagnosed in another state. Ongoing participation in this initiative will allow for proper attribution of incident and prevalent cases in Minnesota.

Table 1. Number of New Cases and Rates (per 100,000 persons) of HIV Diagnoses, HIV (non-AIDS), & AIDS[I] Minnesota, 1982-2014

Year	HIV Diagnosis[III]		HIV (non-AIDS)[III]		AIDS[IV]	
	Cases	Rate	Cases	Rate	Cases	Rate
1982-1999	*6,063*	--	*5,054*	--	*5,352*	--
2000	282	5.7	219	4.5	173	3.5
2001	283	5.7	232	4.7	145	2.9
2002	308	6.1	249	5.0	176	3.5
2003	279	5.5	226	4.5	194	3.8
2004	309	6.1	241	4.7	246	4.8
2005	305	6.0	246	4.8	217	4.2
2006	318	6.2	272	5.3	196	3.8
2007	332	6.4	265	5.1	190	3.6
2008	323	6.2	250	4.8	202	3.8
2009	371	7.0	282	5.3	190	3.6
2010	331	6.2	248	4.7	181	3.4
2011	293	5.5	220	4.1	188	3.5
2012	314	5.9	236	4.4	203	3.8
2013	300	5.7	216	4.1	160	3.0
2014	307	5.8	235	4.4	160	3.0
Cumulative Total[II]	*10,718*	*202.1*	*8,691*	*163.9*	*8,173*	*154.1*

[I] HIV Diagnosis = New cases of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis) diagnosed within a given calendar year. HIV (non-AIDS) = New cases of HIV diagnosis (excluding AIDS at first diagnosis) diagnosed within a given calendar year. AIDS = All new cases of AIDS diagnosed within a given calendar year, including AIDS at first diagnosis.

[II] The cumulative rate is calculated by dividing the cumulative number of cases by the estimated current state population and multiplying by 100,000. Rates for individual calendar years were calculated using 2010 U.S. Census population data (2010-2013), 2000 U.S. Census population data for 2000, and U.S. Census intercensal population estimates released in September 2011 were used for years 2001-2009.

[III]Numbers and rates exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program, as well as refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota

[IV] Numbers and rates include refugees in the HIV-Positive Refugee Resettlement Program, as well as other refugee/immigrants diagnosed with AIDS subsequent to their arrival in the U.S.

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).

Table 2. Number of Cases and Rates (per 100,000 persons) of HIV Diagnosis by Residence, Age, and Gender[I] -- Minnesota, 2014

Group	Males		Females		*Total*		*HIV*
	Cases	%	Cases	%	*Cases*	*%*	*Infection Rate*
Residence[II]							
Minneapolis	80	34%	17	23%	*97*	*32%*	*25.4*
St. Paul	36	15%	8	11%	*44*	*14%*	*15.4*
Suburban	85	36%	38	52%	*123*	*40%*	*5.6*
Greater Minnesota	33	14%	10	14%	*43*	*14%*	*1.8*
Total	*234*	*100%*	*73*	*100%*	*307*	*100%*	*5.9*
Age							
<13 yrs	0	0%	1	1%	*1*	*0%*	*0.1*
13-19 yrs	15	6%	3	4%	*18*	*6%*	*3.5*
20-24 yrs	34	15%	5	7%	*39*	*13%*	*11.0*
25-29 yrs	37	16%	11	15%	*48*	*16%*	*12.9*
30-34 yrs	33	14%	16	22%	*49*	*16%*	*14.3*
35-39 yrs	31	13%	12	16%	*43*	*14%*	*13.1*
40-44 yrs	25	11%	12	16%	*37*	*12%*	*10.5*
45-49 yrs	24	10%	3	4%	*27*	*9%*	*6.6*
50-54 yrs	15	6%	2	3%	*17*	*6%*	*4.2*
55-59 yrs	11	5%	4	5%	*15*	*5%*	*4.3*
60+ yrs	9	4%	4	5%	*13*	*4%*	*1.4*
Total	*234*	*100%*	*73*	*100%*	*307*	*100%*	*5.8*
StateTotals	*234*		*73*		*307*		*5.8*

[I] HIV Diagnosis includes all new cases of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2014.

[II] Residence at time of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis).

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, as well as refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota. State prisoners are included (4 diagnoses in 2014).

Rates calculated using U.S. Census 2010 data. Percentages may not add to 100 due to rounding

Table 3. Number of Cases and Rates (per 100,000 persons) of HIV Diagnosis by Race/Ethnicity & Mode of Exposure[I] -- Minnesota, 2014

	Males			Females			*Total*		
Group	**Cases**	**%**	***Rate*** [IV]	**Cases**	**%**	***Rate*** [IV]	***Cases***	***%***	***Rate*** [III]
Race/Ethnicity									
White, non-Hispanic	122	52%	*5.6*	14	19%	*0.6*	*136*	*44%*	*3.1*
Black[II], African-American	45	19%	X	16	22%	X	*61*	*20%*	*31.8*
Black[II], African-born	20	9%	X	32	44%	X	*52*	*17%*	*67.0*
Hispanic	28	12%	*21.2*	6	8%	*5.1*	*34*	*11%*	*13.6*
American Indian	2	1%	*6.6*	3	4%	#	*5*	*2%*	*9.0*
Asian/PI	9	4%	*8.6*	1	1%	#	*10*	*3%*	*4.7*
Other[II]	8	3%	X	1	1%	X	*9*	*3%*	*X*
Total	*234*	*100%*	*8.9*	*73*	*100%*	*2.7*	*307*	*100%*	*5.8*
Mode of Exposure									
MSM	144	62%	X	--	--	X	*144*	*47%*	X
IDU	3	1%	X	2	3%	X	*5*	*2%*	X
MSM/IDU	11	5%	X	--	--	X	*11*	*4%*	X
Heterosexual (Total)	(6)	3%	X	(53)	73%	X	*(59)*	*19%*	X
with IDU	*1*	--	X	*0*	--	X	*2*	--	X
with Bisexual Male	*0*	--	X	*1*	--	X	*1*	--	X
with Hemophiliac/other	*1*	--	X	*0*	--	X	*0*	--	X
with HIV+	*4*	--	X	*10*	--	X	*14*	--	X
Hetero, unknown risk[V]	*0*	--	X	*42*	--	X	*42*	--	X
Perinatal	1	0%	X	1	1%	X	*2*	1%	X
Other	0	0%	X	0	0%	X	*0*	0%	*X*
Unspecified	45	19%	X	10	14%	X	*55*	18%	*X*
No Interview, Unspecified	24	10%	X	7	10%	X	*31*	10%	*X*
Total	*234*	*100%*	*8.9*	*73*	*100%*	*2.7*	*307*	*100%*	*5.8*

[I] HIV Diagnosis includes all new cases of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2014.

[II] African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere). The Black, African-American population is non-Hispanic. "Other" includes multi-racial persons and persons with unknown race.

[III] Rates calculated using U.S. Census 2010 data. The population estimate for African-born persons was calculated by the Minnesota State Demographic Center . The population estimate for Black, African-American persons (191,584) was calculated by subtracting the U.S. Census estimate for African-born persons (77,557) from the total Black, non-Hispanic population (269,141). Note that this assumes that all African-born persons are Black (as opposed to another race).

[IV] U.S. Census 2010 data necessary to calculate race-specific rates by gender are not available for all subpopulations, and/or numbers are too small to calculate reliable rates.

Numbers exclude federal and private prisoners and refugees in the HIV-Positive Refugee Resettlement Program, as well as, refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

[V] Hetero, unknown risk - Females who were interviewed and whose only risk is heterosexual contact but who were not able to provide information on the sexual partner's risk.

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, Unspecified = Cases who refused to be, could not be or have not yet been interviewed.

Percentages may not add to 100 due to rounding.

Table 4. Number of Cases and Rates (per 100,000 persons) of HIV Diagnosis by County of Residence[I] -- Minnesota, 2014		
County[II]	**HIV Diagnosis Cases**	**HIV Diagnosis Rate[III]**
Aitkin	1	-
Anoka	22	6.6
Becker	0	-
Beltrami	0	-
Benton	1	-
Big Stone	0	-
Blue Earth	4	-
Brown	0	-
Carlton	1	-
Carver	3	-
Cass	0	-
Chippewa	1	-
Chisago	0	-
Clay	0	-
Clearwater	0	-
Cook	0	-
Cottonwood	0	-
Crow Wing	0	-
Dakota	22	5.5
Dodge	0	-
Douglas	0	-
Faribault	0	-
Fillmore	0	-
Freeborn	0	-
Goodhue	0	-
Grant	0	-
Hennepin	157	13.6
Houston	0	-
Hubbard	1	-
Isanti	3	-
Itasca	0	-
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	0	-
Marshall	0	-
Martin	0	-
Meeker	1	-
Mille Lacs	1	-
Morrison	0	-
Mower	5	12.8
Murray	1	-
Nicollet	2	-
Nobles	1	-
Norman	0	-
Olmsted	2	-
Otter Tail	0	-
Pennington	0	-
Pine	0	-
Pipestone	0	-
Polk	0	-
Pope	0	-
Ramsey	52	10.2
Red Lake	0	-
Redwood	0	-
Renville	1	-
Rice	3	-
Rock	0	-
Roseau	0	-
St. Louis	3	-
Scott	5	3.8
Sherburne	4	-
Sibley	0	-
Stearns	3	-
Steele	1	-
Stevens	0	-
Swift	1	-
Todd	0	-
Traverse	0	-
Wabasha	0	-
Wadena	0	-
Waseca	1	-
Washington	3	-
Watonwan	0	-
Wilkin	0	-
Winona	1	-
Wright	0	-
Yellow Medicine	0	-
State Total	*307*	*5.8*

[I] HIV Diagnosis includes all new cases of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis) among Minnesota residents in 2014.

[II] Residence at time of HIV diagnosis (both HIV (non-AIDS) and AIDS at first diagnosis).

[III] Rates calculated using U.S. Census 2010 data. 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, as well as, refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota. HIV infection was diagnosed among four state prisoners during 2014 (State correctional facilities are located in the following counties: Anoka, Carlton, Chisago, Goodhue, Itasca, Rice, Scott, Sherburne, and Washington).

Perinatal HIV Exposure[I]

Table 5a. Number of Births to HIV-Infected Women[II] by Year of Child's Birth and Mother's Race/Ethnicity, Minnesota 1982-2014

Year(s)	Race/Ethnicity of Mother							*Total*	Foreign-born Mothers[IV]	
	White	Black, African-American[III]	Black, African-born[III]	Hispanic	American Indian	Asian/PI	Multi-racial		Number	(% of total in time period)
1982-1999	84	68	10	9	14	4	2	*191*	20	10%
2000	12	10	7	2	1	1	0	*33*	9	27%
2001	1	20	12	1	2	0	1	*37*	15	41%
2002	9	6	13	3	2	0	3	*36*	14	39%
2003	5	14	18	6	1	1	2	*47*	21	45%
2004	7	13	22	3	2	1	1	*49*	24	49%
2005	7	7	21	3	0	2	1	*41*	25	61%
2006	7	14	21	6	1	1	2	*52*	27	52%
2007^	16	12	24	2	2	1	2	*60*	29	48%
2008	3	11	27	6	0	3	3	*53*	34	64%
2009	16	13	34	4	1	2	1	*71*	39	55%
2010^	7	14	22	2	2	1	3	*51*	23	45%
2011^	10	10	28	9	4	1	3	*68*	35	51%
2012^	14	11	26	3	2	0	3	*60*	32	53%
2013^	8	12	32	4	4	1	1	*62*	34	55%
2014^	5	8	41	4	1	2	3	*65*	45	69%
Cumulative Total	211	243	358	67	39	21	31	976	426	44%

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.

[I] Exposure of child to HIV during pregnancy, at birth, and/or during breastfeeding.

[II] HIV-infected women may or may not have progressed to an AIDS diagnosis.

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

[IV] Mothers' places of birth include: Africa (231), Asia/Pacific Islands (16), Latin America/Caribbean (28), and Europe (2).

Perinatal HIV Transmission[I]

Table 5b. Number of Perinatally-Acquired HIV/AIDS Cases by Year of Child's Birth and Mother's Race/Ethnicity, Minnesota 1982-2014

Year(s)	Race/Ethnicity of Mother							*Total*	Foreign-born Mothers[III]	
	White	Black, African-American[II]	Black, African-born[II]	Hispanic	American Indian	Asian/PI	Multi-racial		Number	(% of total in time period)
1982-1999	18	5	3	3	2	2	0	*33*	6	18%
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%
2003	0	0	1	0	0	0	0	*1*	1	100%
2004	0	0	0	0	0	0	0	*0*	0	-
2005	0	0	0	0	0	0	0	*0*	0	-
2006	0	0	1	0	0	0	0	*1*	1	100%
2007	0	0	1	0	0	0	0	*1*	1	100%
2008	0	0	0	0	0	0	0	*0*	0	-
2009	0	0	0	0	0	0	0	*0*	0	-
2010	0	0	2	0	0	0	0	*2*	2	100%
2011	0	0	0	0	0	0	0	*0*	0	-
2012	1	0	0	0	0	0	0	*1*	1	100%
2013	0	0	0	0	0	0	0	*0*	0	-
2014	0	1	0	0	0	0	0	*1*	0	0%
Cumulative Total	19	7	8	4	2	2	0	*42*	13	31%
Rate of Transmission 2012 - 2014	3.7%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.9%	--
Cumulative Rate of Transmission[IV]	9.0%	2.9%	2.2%	6.0%	5.1%	--	--	4.3%	3.1%	--

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.

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

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

[III] Mothers' places of birth include: Africa (8), Asia/Pacific Islands (2), Latin America/Caribbean (2), Europe (1).

[IV] 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 AND MORTALITY REPORT, 2014

Minnesota Department of Health HIV/AIDS Surveillance System

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, 2014 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 2014 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 (number of state prisoners believed to be living with HIV/AIDS = 119).

- Data analyses for new infections exclude persons arriving to Minnesota through the HIV+ Refugee Resettlement Program (number of primary HIV+ refugees in this program living in MN as of December 31, 2014= 169), as well as, other refugees/immigrants reporting a positive test prior to their arrival in Minnesota (n=167).

- 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
  - Data do not include HIV-infected persons who have only tested anonymously
  - Case numbers for the most recent years may be undercounted due to delays in reporting
  - Reporting of living cases that were not initially diagnosed in Minnesota is known to be incomplete

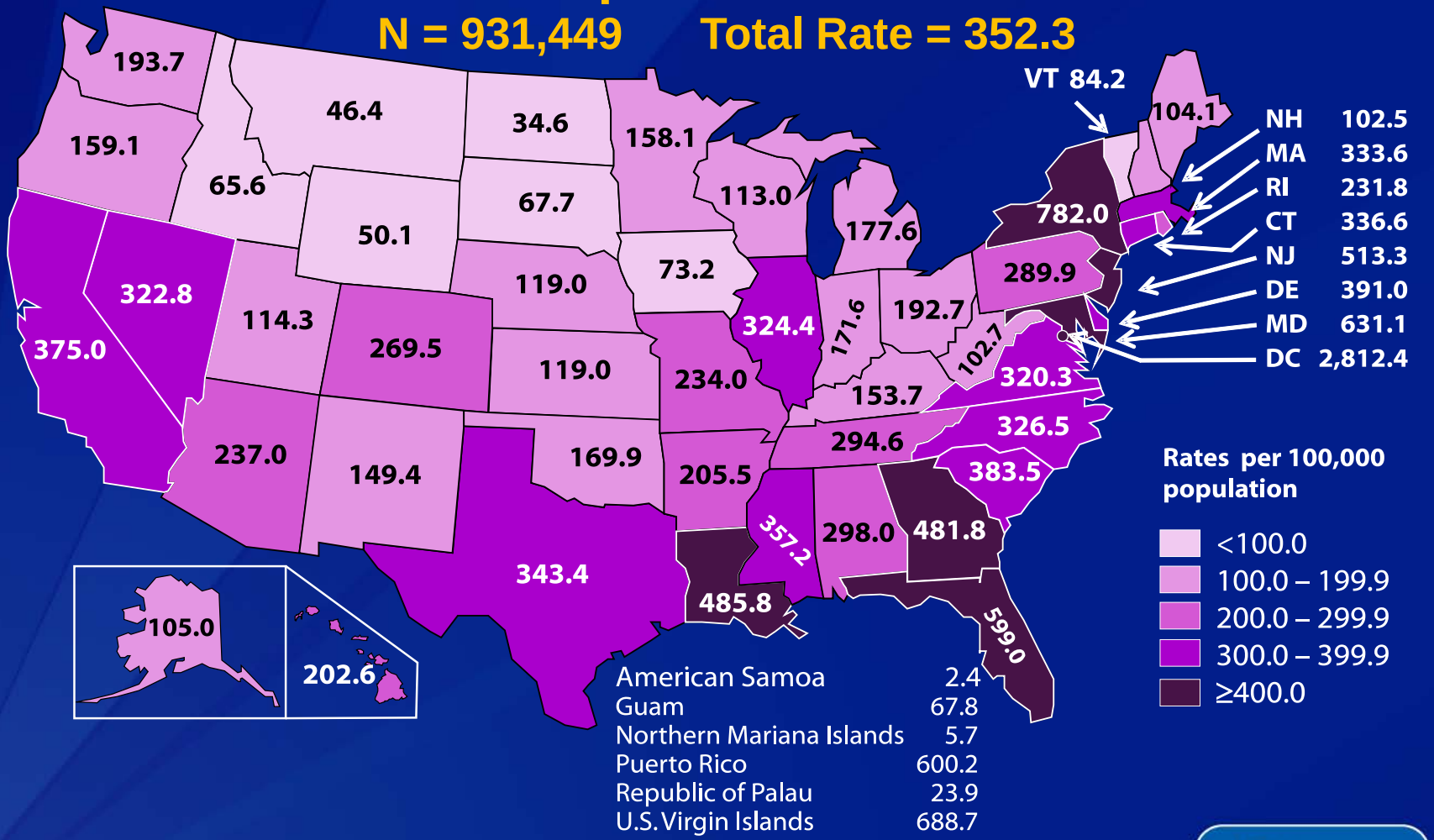
Introduction (III)

- 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
  - Active surveillance (monthly)
  - Death certificate reviews (annually)
  - Birth certificate reviews (annually, women only)

National Context

Rates of Adults and Adolescents Living with Diagnosed HIV Infection, Year-end 2012—United States and 6 Dependent Areas

N = 931,449 Total Rate = 352.3

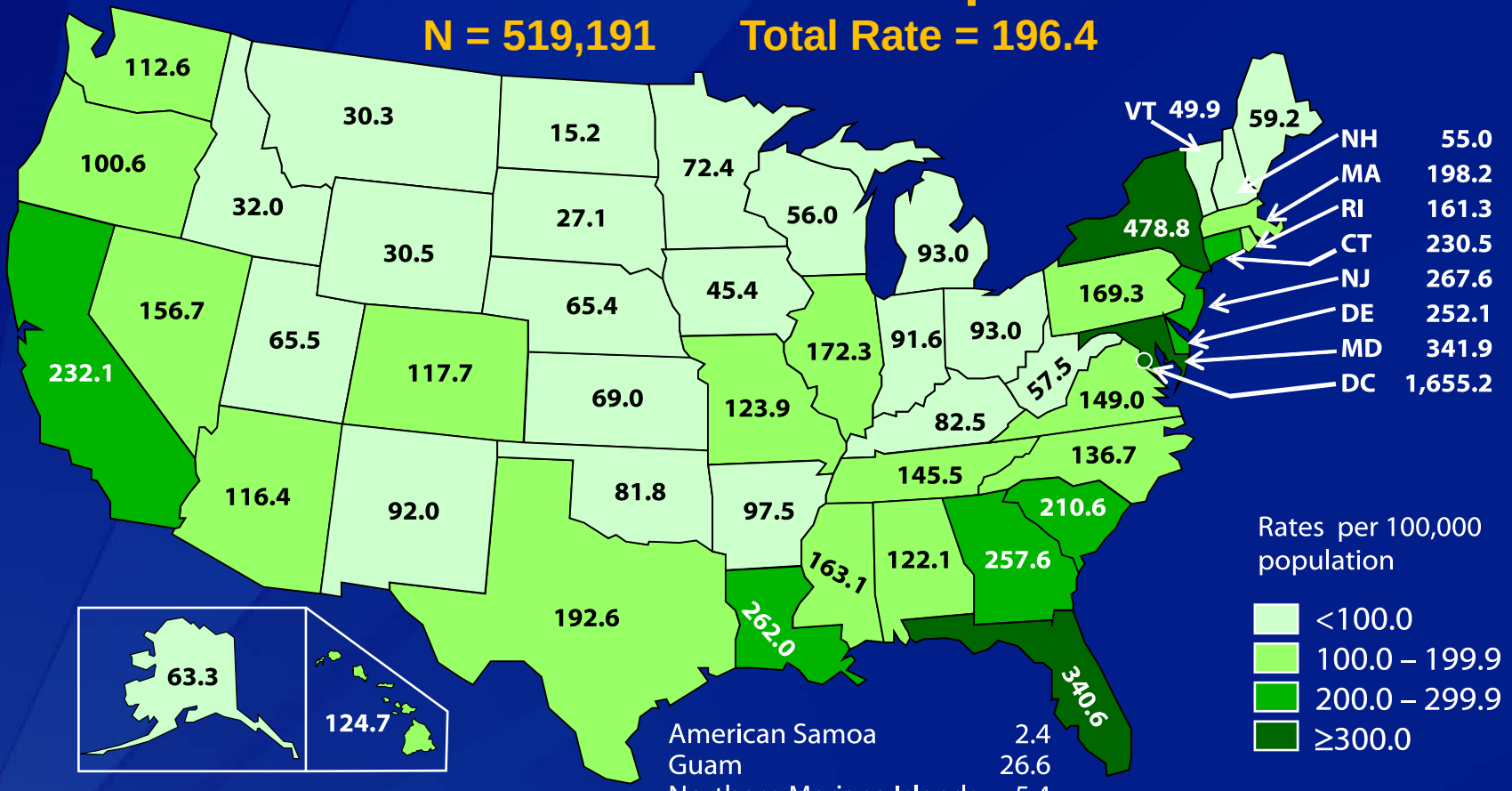


American Samoa	2.4
Guam	67.8
Northern Mariana Islands	5.7
Puerto Rico	600.2
Republic of Palau	23.9
U.S. Virgin Islands	688.7

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Rates of Adults and Adolescents Living with Diagnosed HIV Infection Ever Classified as Stage 3 (AIDS), Year-end 2012—United States and 6 Dependent Areas

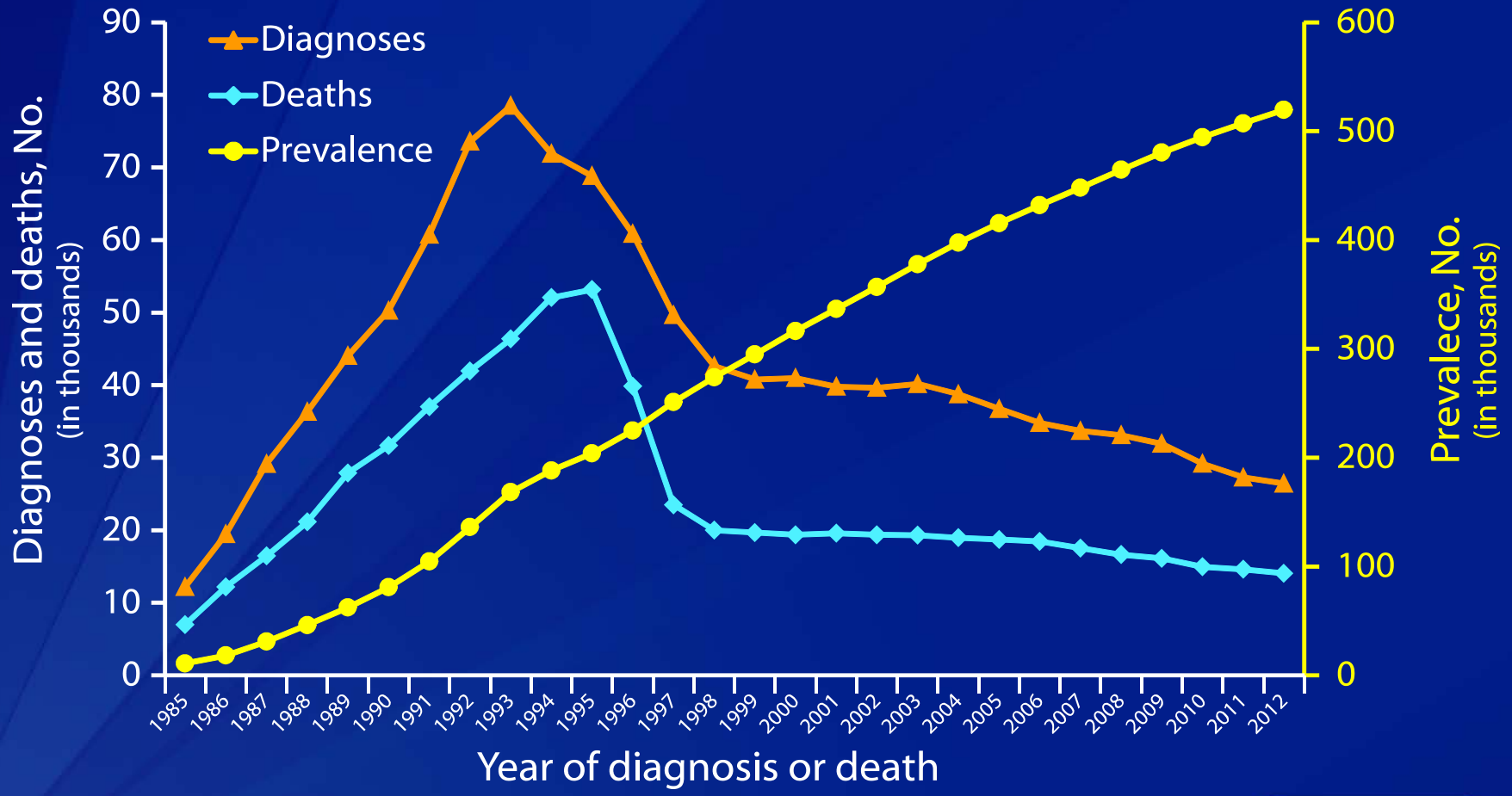
N = 519,191 Total Rate = 196.4



American Samoa	2.4
Guam	26.6
Northern Mariana Islands	5.4
Puerto Rico	334.7
Republic of Palau	5.6
U.S. Virgin Islands	375.9

Note. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Stage 3 (AIDS) Classifications, Deaths, and Persons Living with HIV Infection Ever Classified as Stage 3 (AIDS)
1985–2012—United States and 6 Dependent Areas



Note. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting. Deaths of persons with HIV infection, stage 3 (AIDS) may be due to any cause.

Persons Living with HIV/AIDS in Minnesota

Estimated Number of Persons Living with HIV/AIDS in Minnesota

- As of December 31, 2014, 7,988* persons are assumed alive and living in Minnesota with HIV/AIDS
  - 4,221 living with HIV infection (non-AIDS)
  - 3,767 living with AIDS

- This number includes 1,794 persons who were first reported with HIV or AIDS elsewhere and subsequently moved to Minnesota

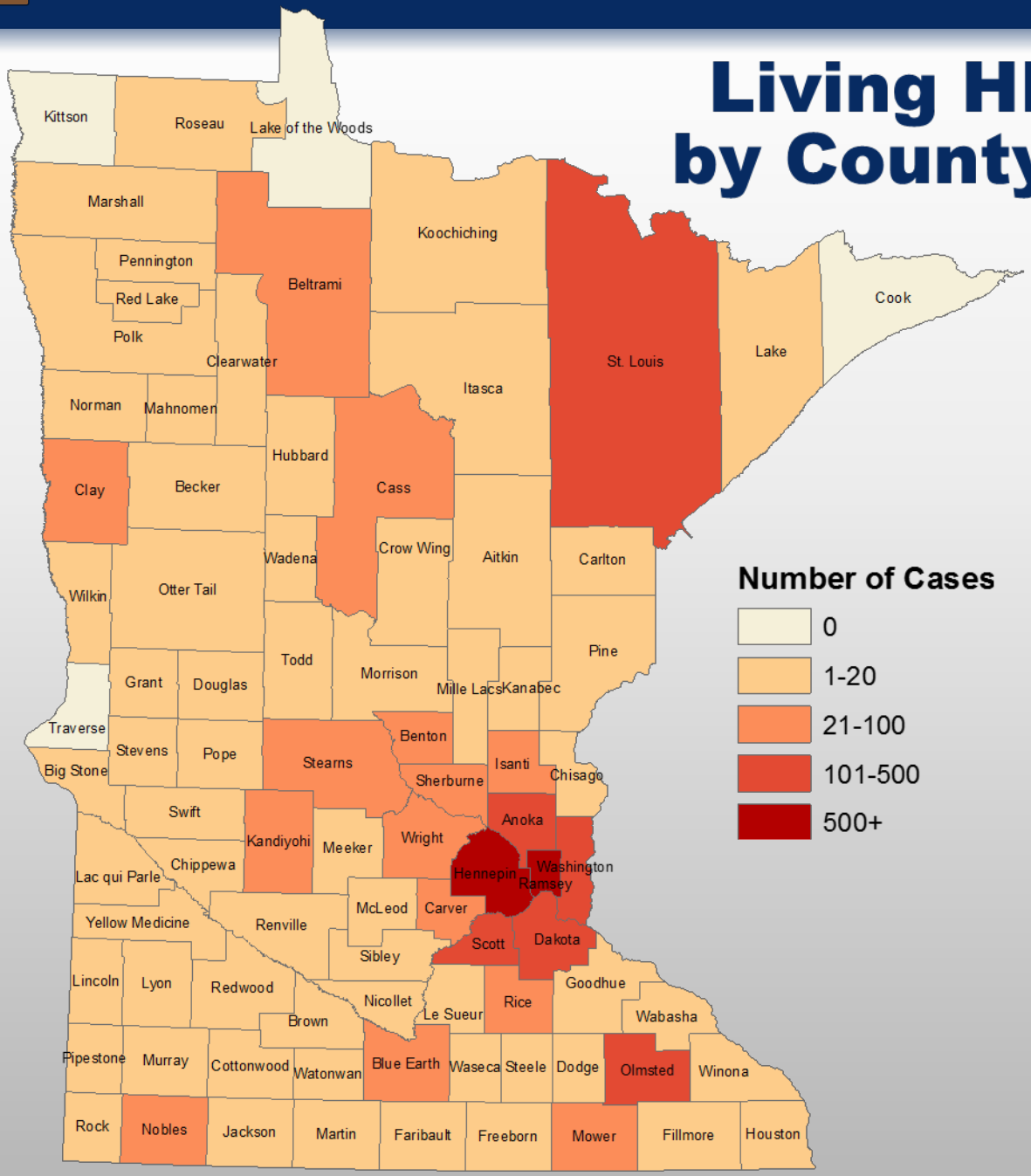
- This number excludes 1,228 persons who were first reported with HIV or AIDS in Minnesota and subsequently moved out of the state

** This number includes persons who reported Minnesota as their current state of residence, regardless of residence at time of diagnosis. Includes state prisoners and refugees arriving through the HIV+ Refugee Resettlement Program, as well as HIV+ refugee/immigrants arriving through other programs.*

Data Source: Minnesota HIV/AIDS Surveillance System

Place

Living HIV/AIDS Cases by County of Residence, 2014



Number of Cases

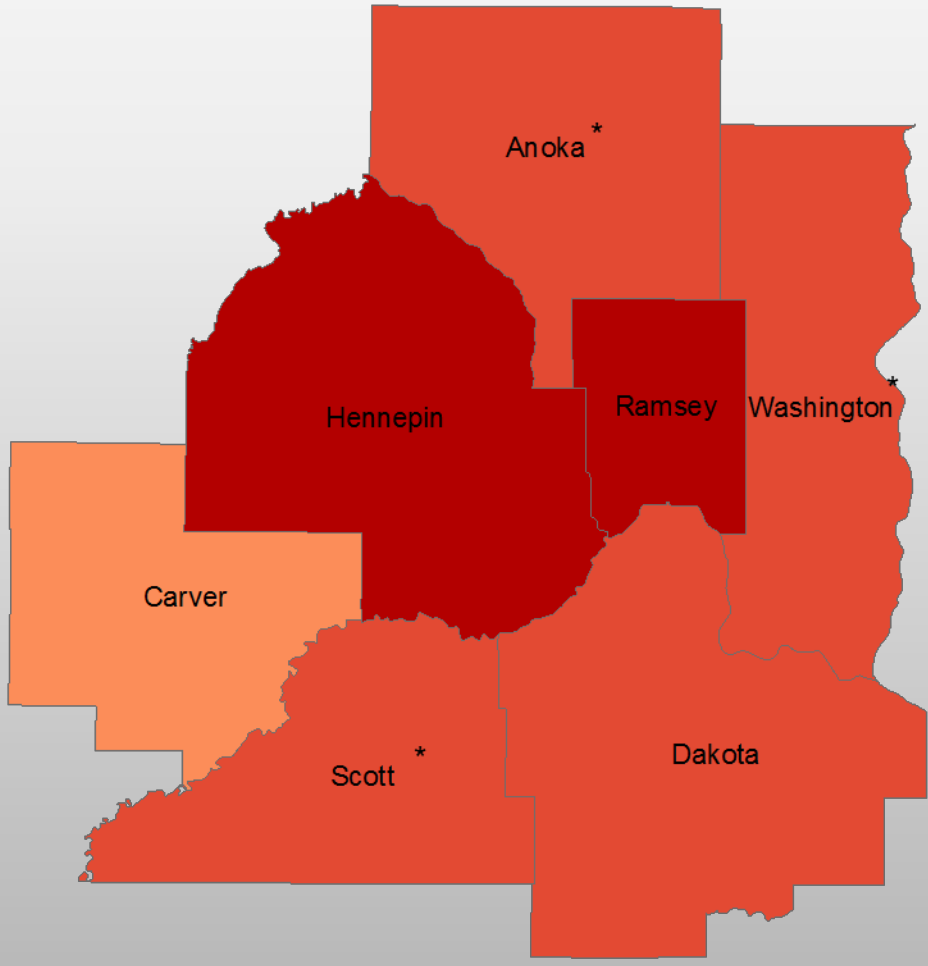
- 0
- 1-20
- 21-100
- 101-500
- 500+

City of Minneapolis – 3,064
City of St. Paul – 1,077
Suburban# – 2,558
Greater Minnesota – 1,261

Total number = 7,960
(28 people missing residence information)

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

Map of Metro Area Living HIV/AIDS Cases by County of Residence, 2014



Number of Cases

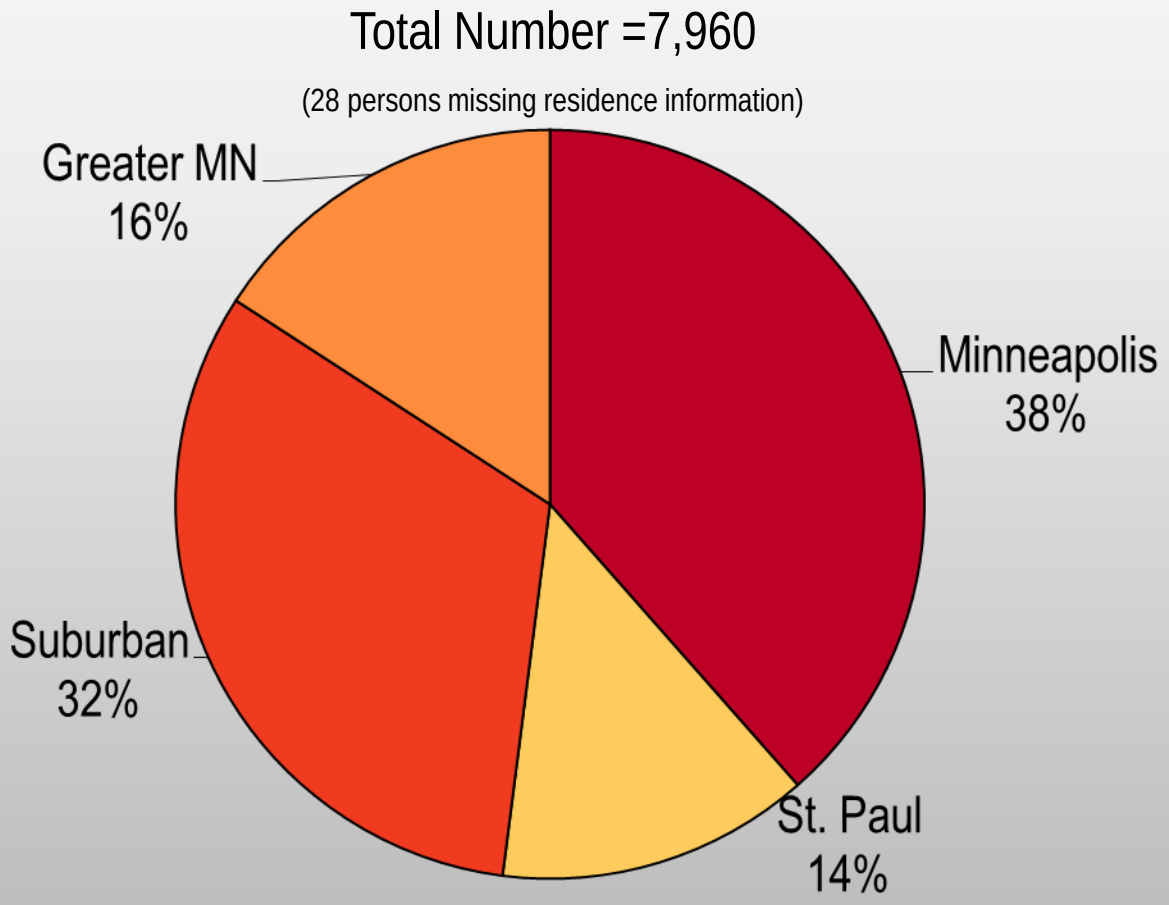
- 0
- 1-20
- 21-100
- 101-500
- 500+

City of Minneapolis – 3,064
City of St. Paul – 1,077
Suburban# – 2,558
Total number (Metro only) = 6,699

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

* Counties in which a state correctional facility is located.

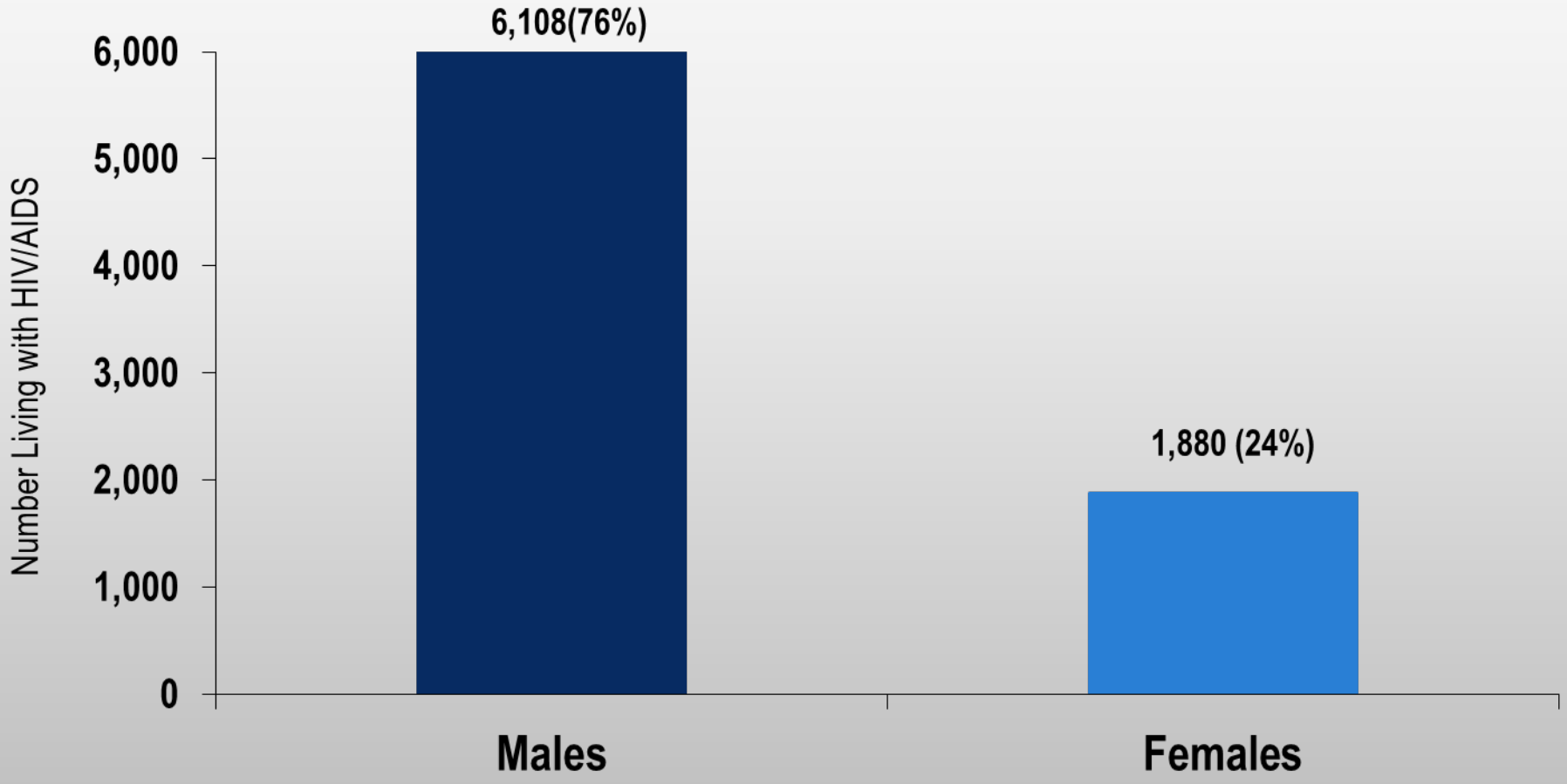
Persons Living with HIV/AIDS in Minnesota by Current Residence, 2014



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.

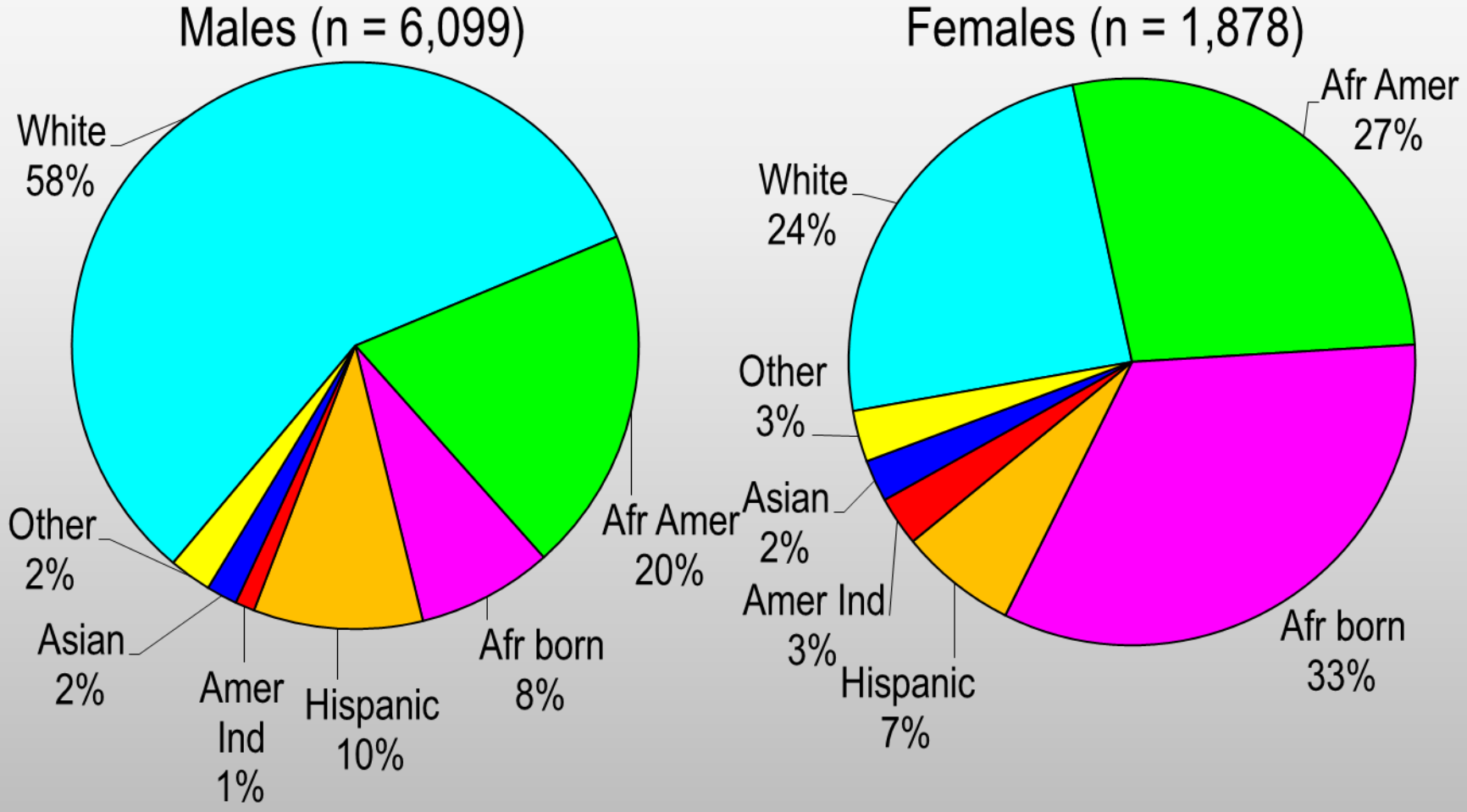
Gender and Race/Ethnicity

Persons Living with HIV/AIDS in Minnesota by Gender, 2014



HIV/AIDS in Minnesota: Annual Review

Persons Living with HIV/AIDS in Minnesota by Gender and Race/Ethnicity, 2014



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

Afr born = African-born (Black, African-born persons) Amer Ind = American Indian

Other = Multi-racial persons or persons with unknown race

Number of Cases and Rates (per 100,000 persons) of Persons Living with HIV/AIDS by Race/Ethnicity† – Minnesota, 2014

Race/Ethnicity	*Cases*	*%*	*Rate*
White, non-Hispanic	**3,977**	**50%**	**90.3**
Black, African-American	**1,719**	**22%**	**873.2**
Black, African-born	**1,100**	**14%**	**1418.3††**
Hispanic	**716**	**9%**	**286.1**
American Indian	**121**	**2%**	**198.6**
Asian/Pacific Islander	**153**	**2%**	**70.7**
Other^	**202**	**3%**	**X**
Total	***7,988***	***100%***	***150.6***

†† Estimate of 77,557 Source: 2010-2012 American Community Survey. Additional calculations by the State Demographic Center.

^ Other = Multi-racial persons or persons with unknown race

Census Data used for rate calculations.

† "African-born" refers to Blacks who reported an African country of birth; "African American" refers to all other Blacks..

Number of Cases and Rates (per 100,000 persons) of Adults and Adolescents* Living with HIV/AIDS by Gender/Risk†, Minnesota, 2014

Gender/Risk	*Cases*	*%*	*Rate*
Men (Total)	**(6,046)**	**77%**	**279.8**
MSM†	***4,451***	*74%*	**4,797.0††**
Non-MSM	***1,595***	*26%*	**77.1**
Women	**1,812**	**23%**	**81.6**
Total	***7,858***	***100%***	***179.3***

†† *Estimate of 92,788*

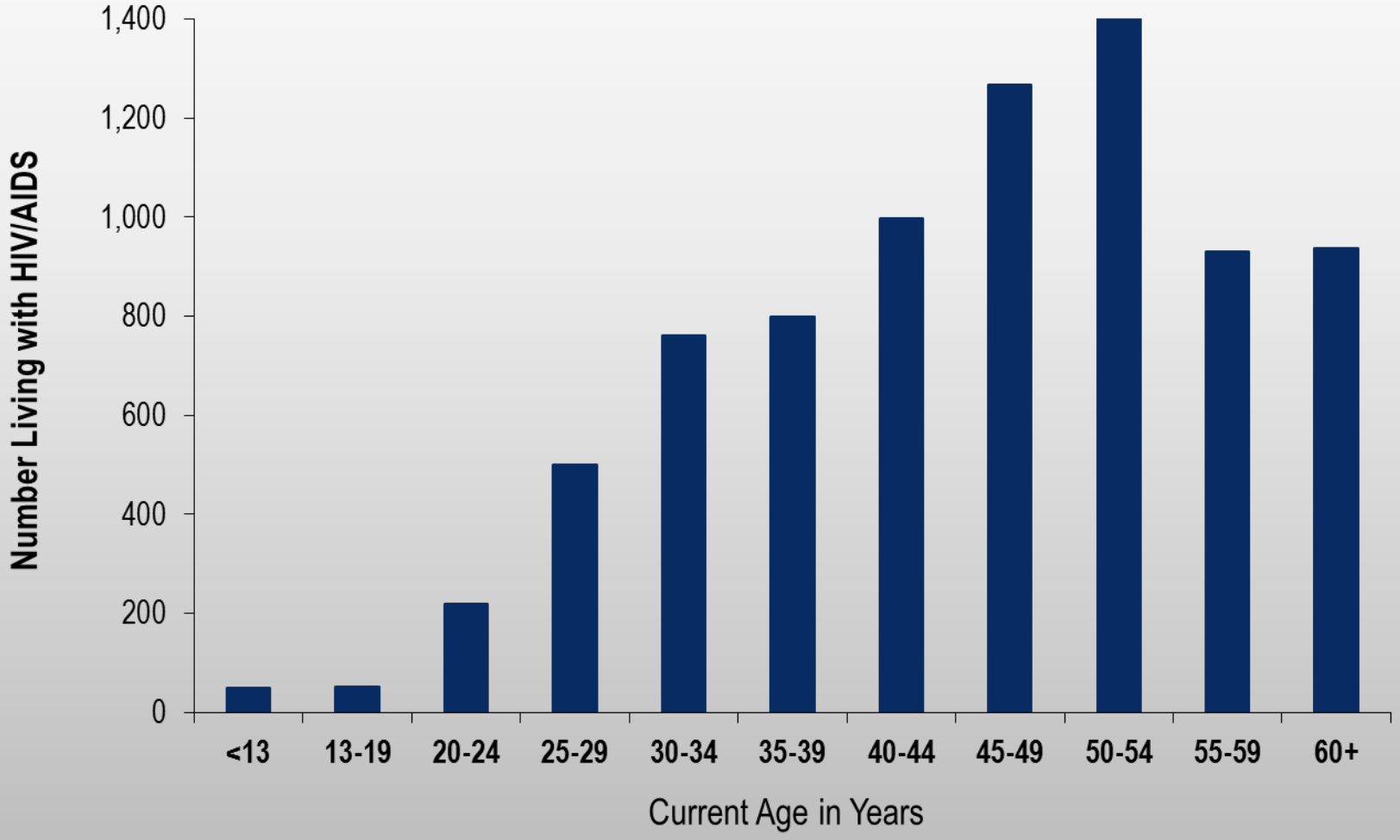
**HIV or AIDS at first diagnosis age 13 and older;*

- *2010 U.S. Census Data for persons age 13 and over used for rate calculations.*

† *"MSM" refers to both MSM and MSM/IDU.*

Age

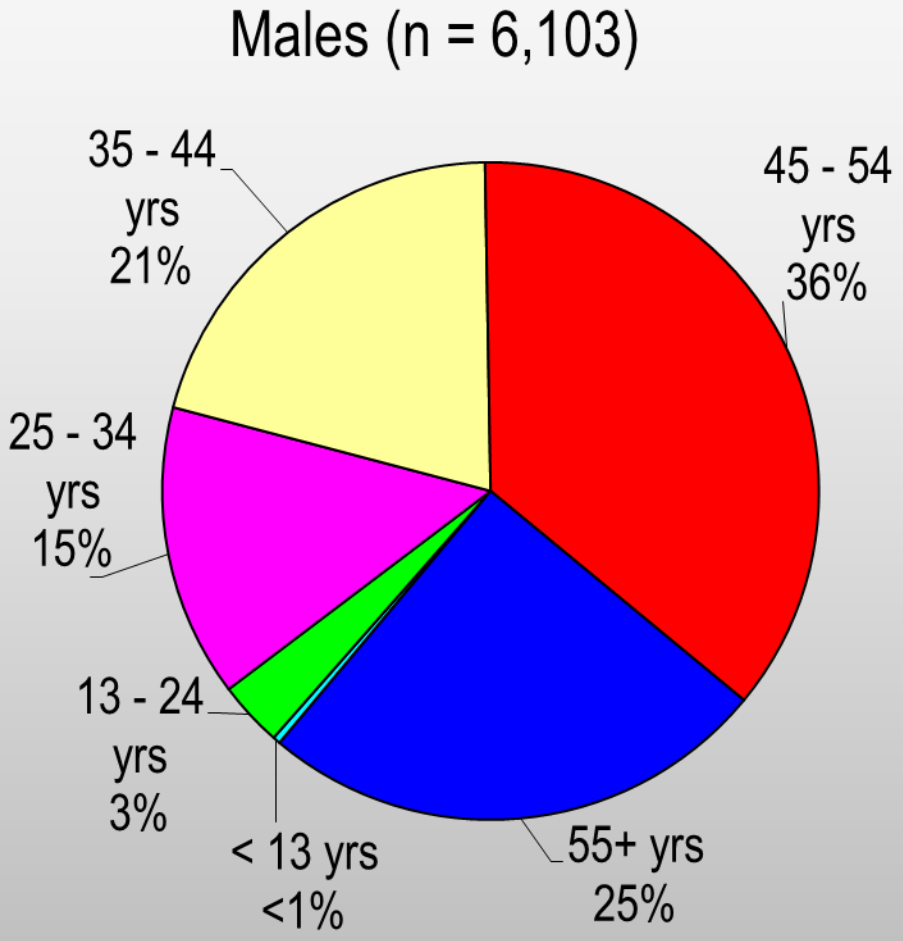
Persons Living with HIV/AIDS in Minnesota by Age Group†, 2014

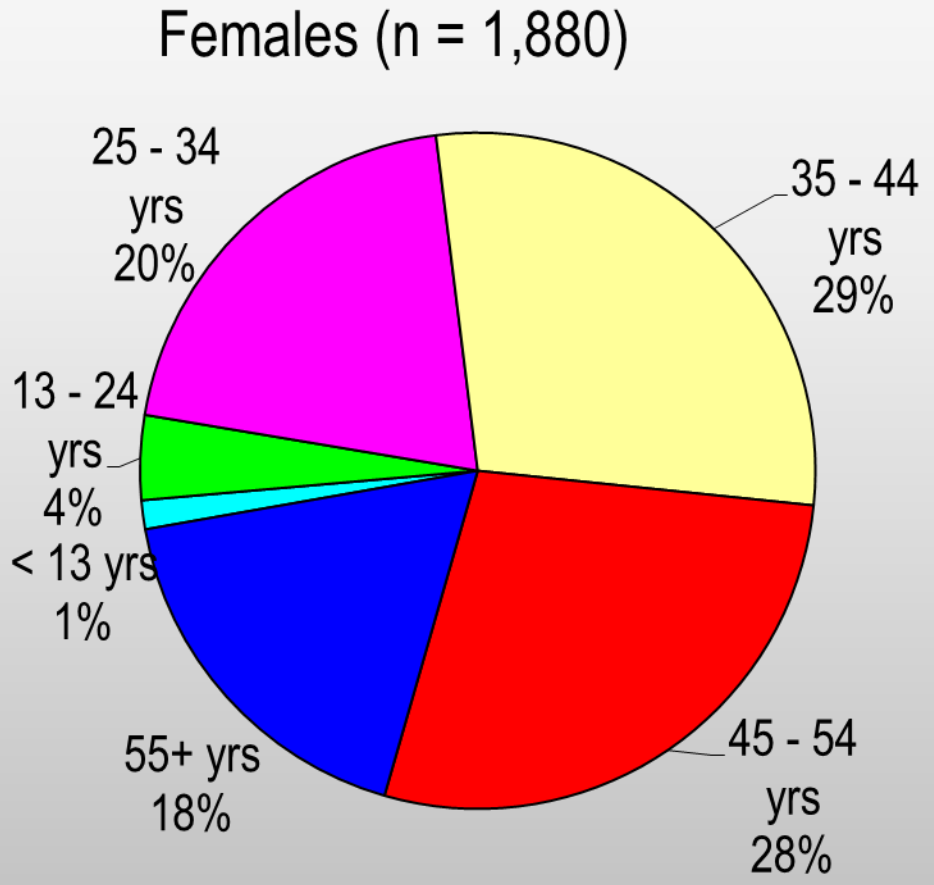


†Age missing for 5 persons living with HIV/AIDS

HIV/AIDS in Minnesota: Annual Review

Persons Living with HIV/AIDS in Minnesota by Age† and Gender, 2014





n = Number of persons

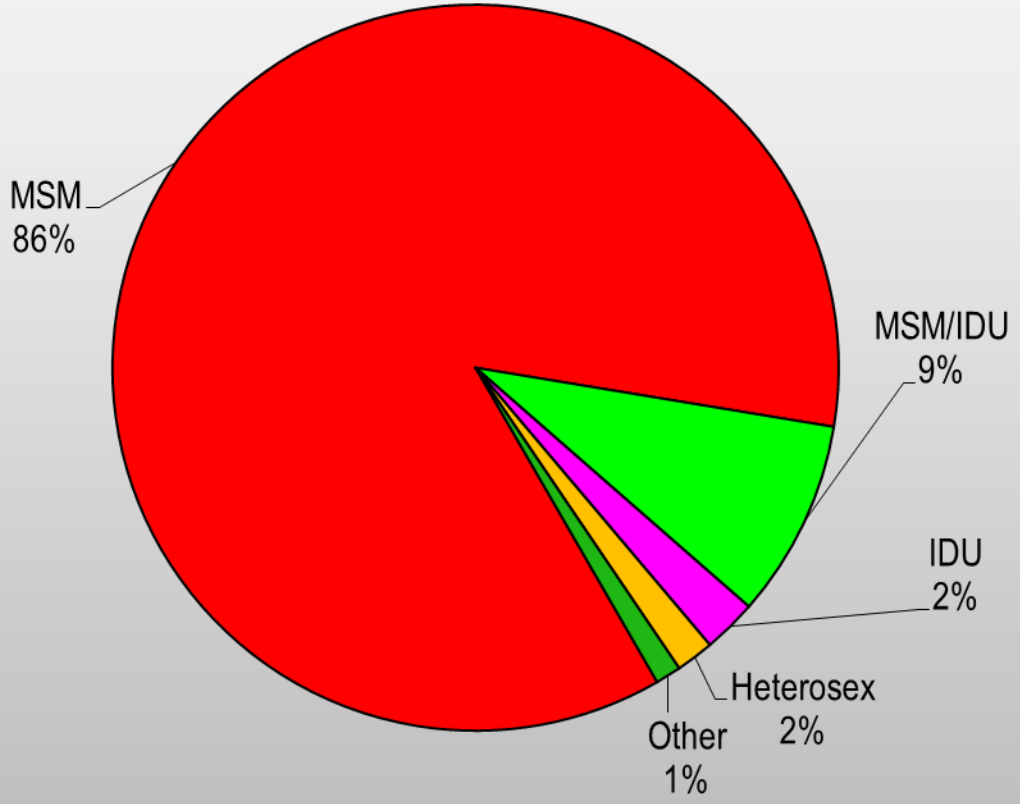
† Age missing for 5 people .

Data Source: Minnesota HIV/AIDS Surveillance System

Mode of Exposure

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

White Males (n = 3,532)



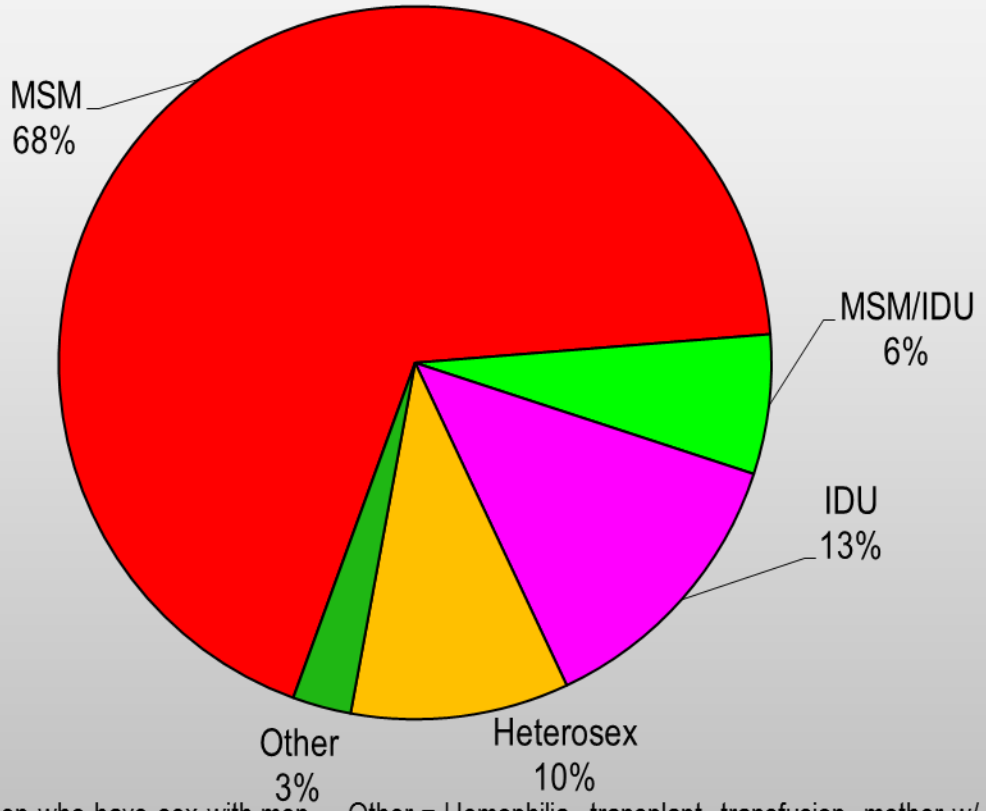
n = Number of persons
IDU = Injecting drug use
MSM = Men who have sex with men
Heterosex = Heterosexual contact
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

†Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

African American Males†† (n = 1,204)



n = Number of persons MSM = Men who have sex with men Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

IDU = Injecting drug use Heterosex = Heterosexual contact

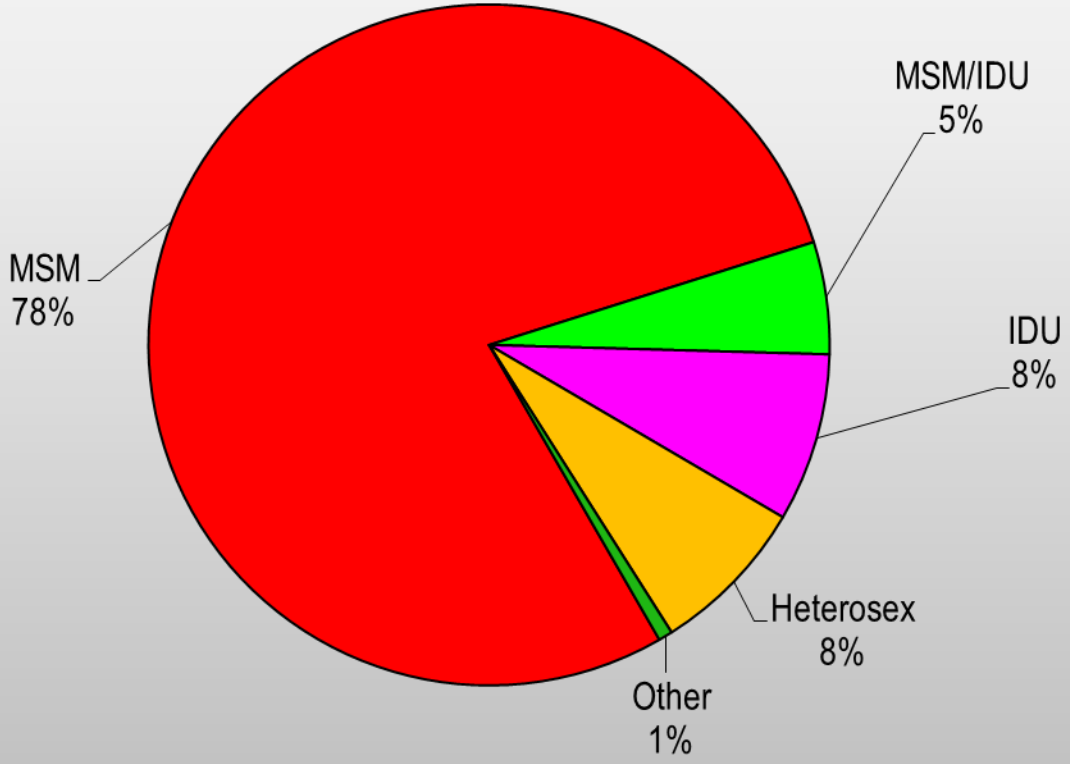
† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

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

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

Hispanic Males (n = 590)

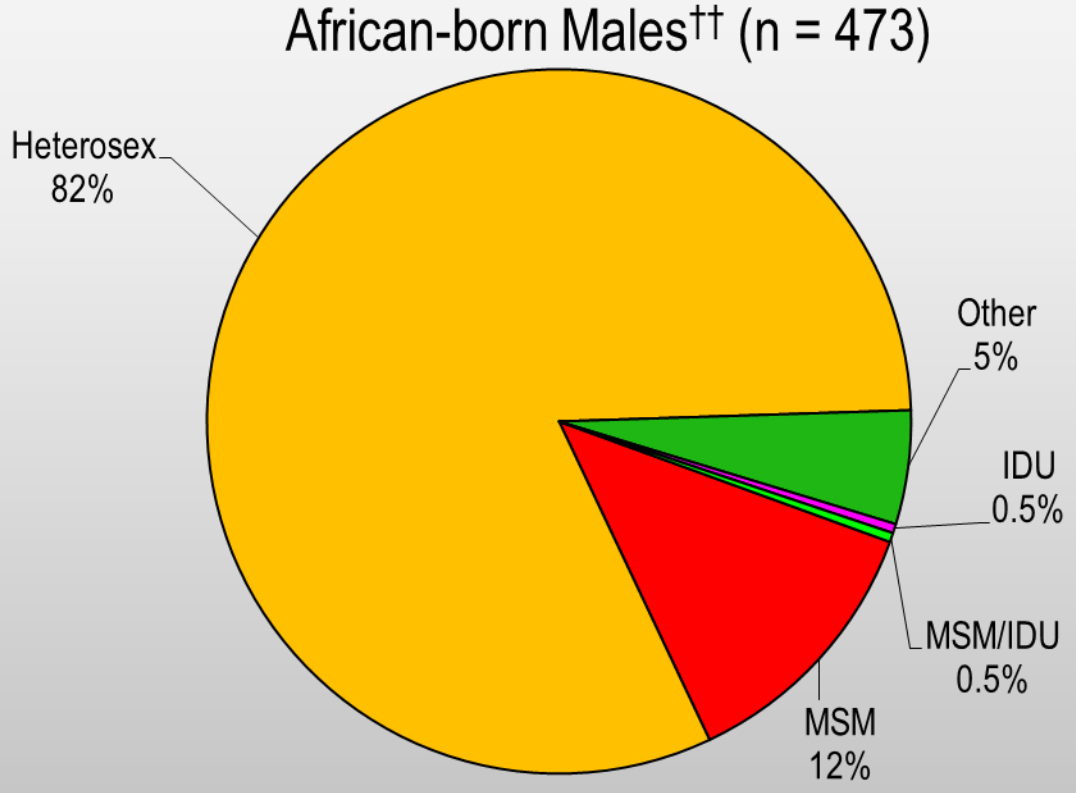


n = Number of persons MSM = Men who have sex with men Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
IDU = Injecting drug use Heterosex = Heterosexual contact

†Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



n = Number of persons MSM = Men who have sex with men Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
Heterosex = Heterosexual contact

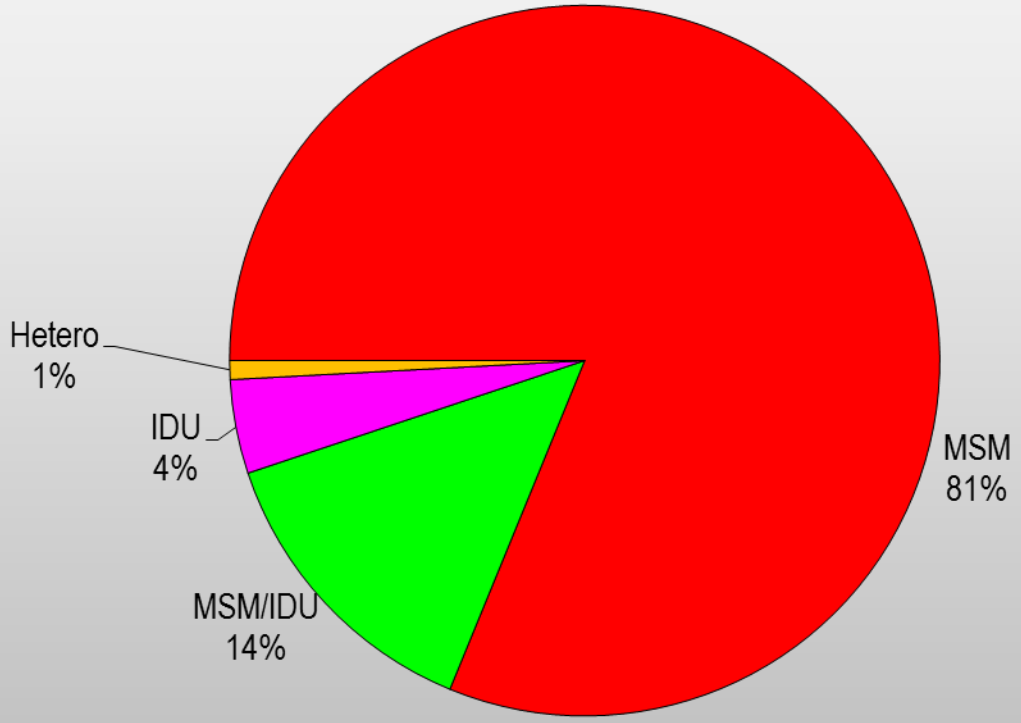
† Mode of Exposure has been estimated using the following breakdown: 5% - MSM, 90% - Heterosex, and 5% - Other.
For additional detail see the HIV Prevalence & Mortality Technical Notes.

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

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

Multi-racial Males (n = 129)

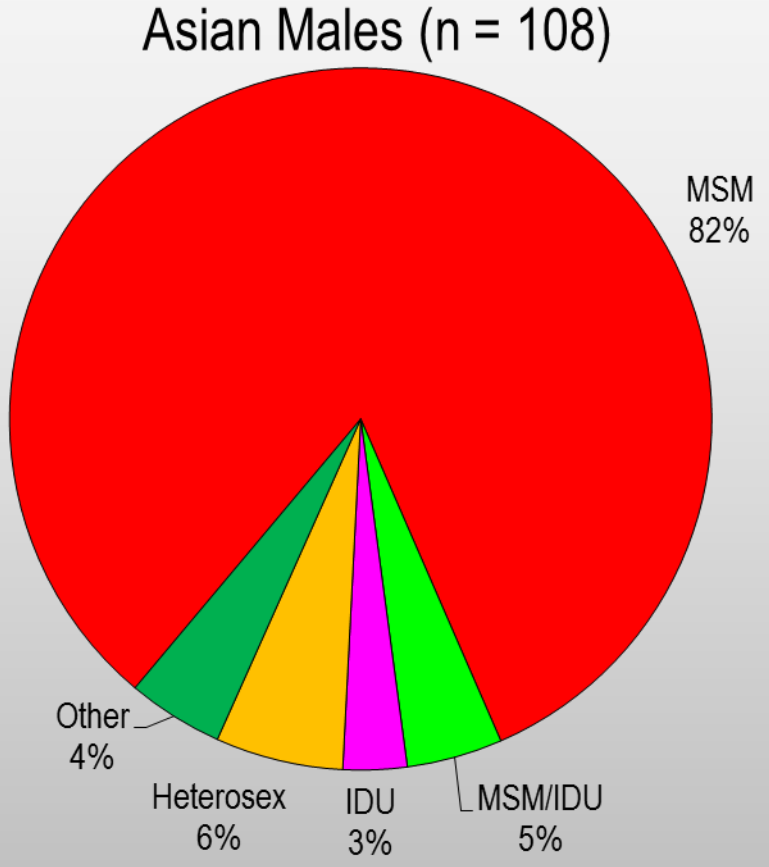


n = Number of persons
MSM = Men who have sex with men
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk
IDU = Injecting drug use
Heterosex = Heterosexual contact

†Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



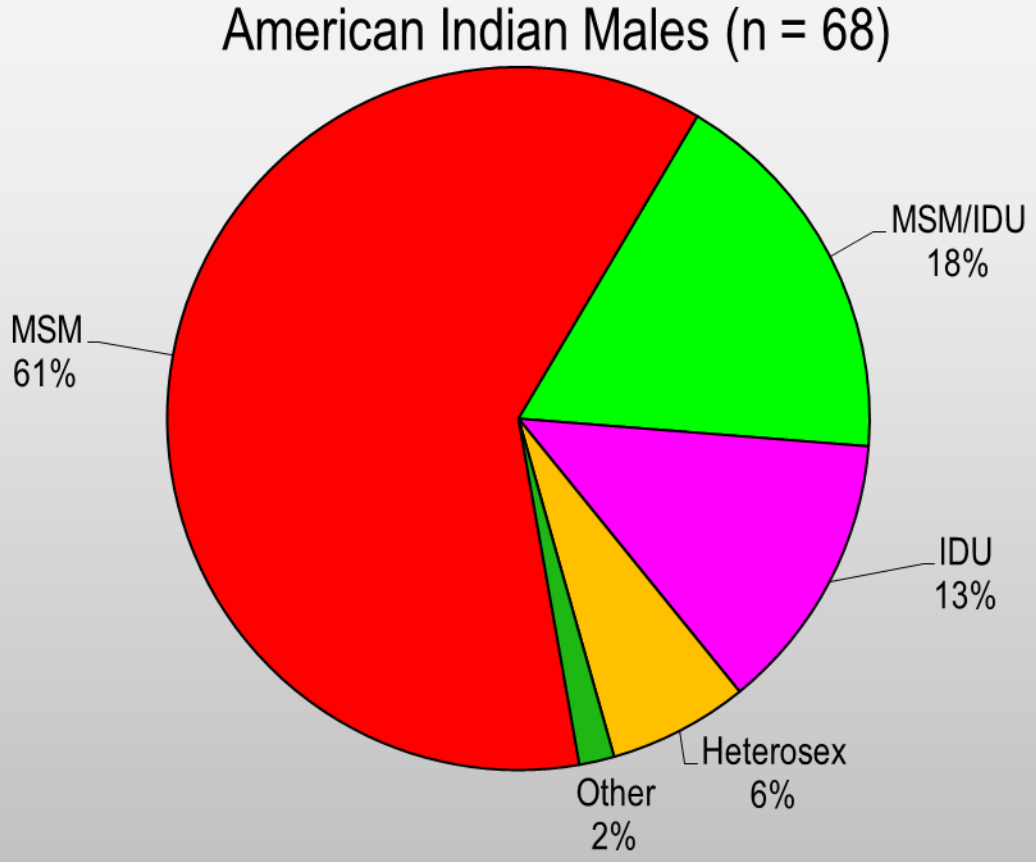
n = Number of persons MSM = Men who have sex with men Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

IDU = Injecting drug use Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Males Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



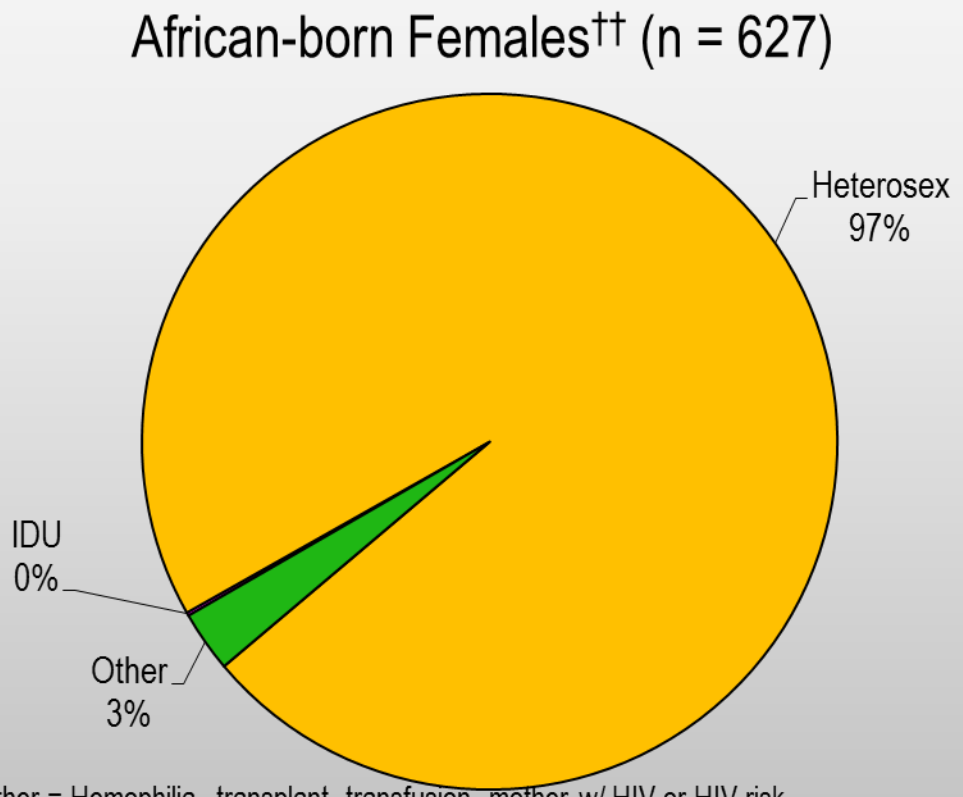
n = Number of persons MSM = Men who have sex with men Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

IDU = Injecting drug use Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



n = Number of persons

IDU = Injecting drug use

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

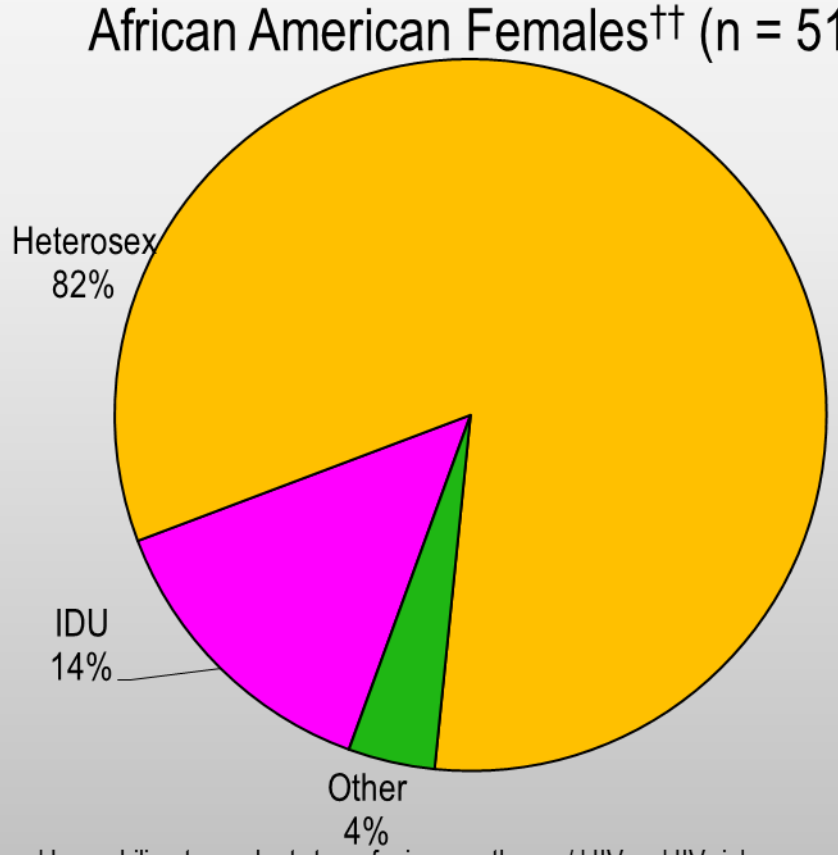
Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using the following proportions: 95% - Heterosexual, 5% - Other. For additional detail see the HIV Prevalence & Mortality Technical Notes.

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

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



n = Number of persons

IDU = Injecting drug use

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

Heterosex = Heterosexual contact

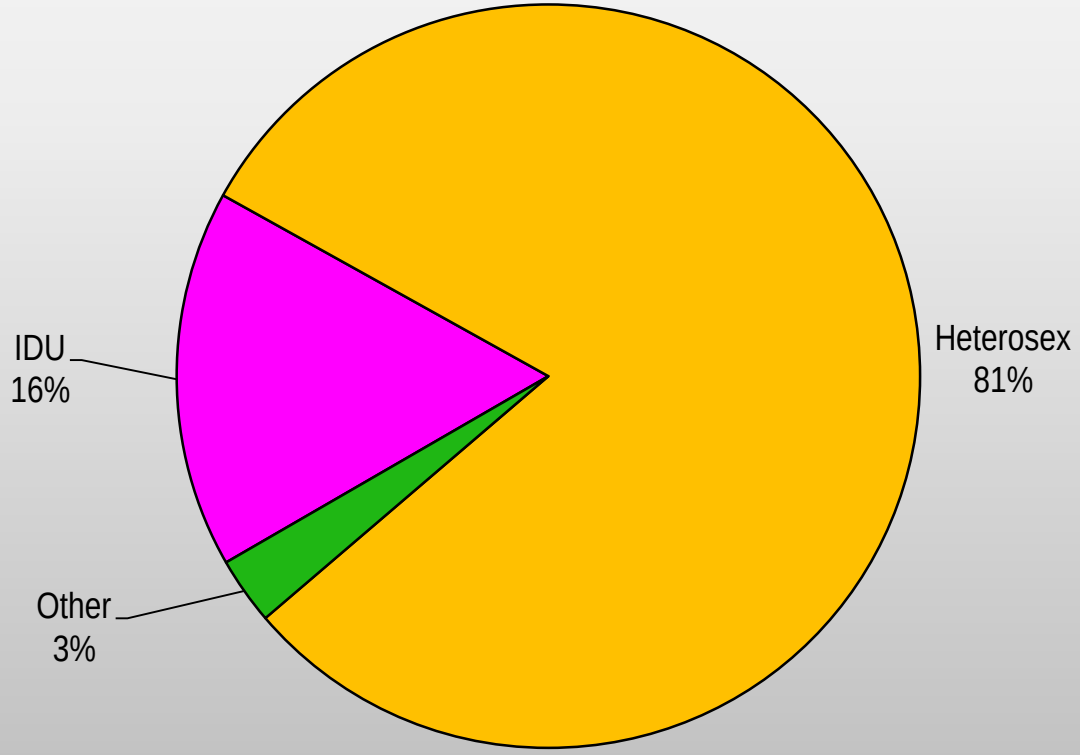
† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

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

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

White Females (n = 459)



n = Number of persons

IDU = Injecting drug use

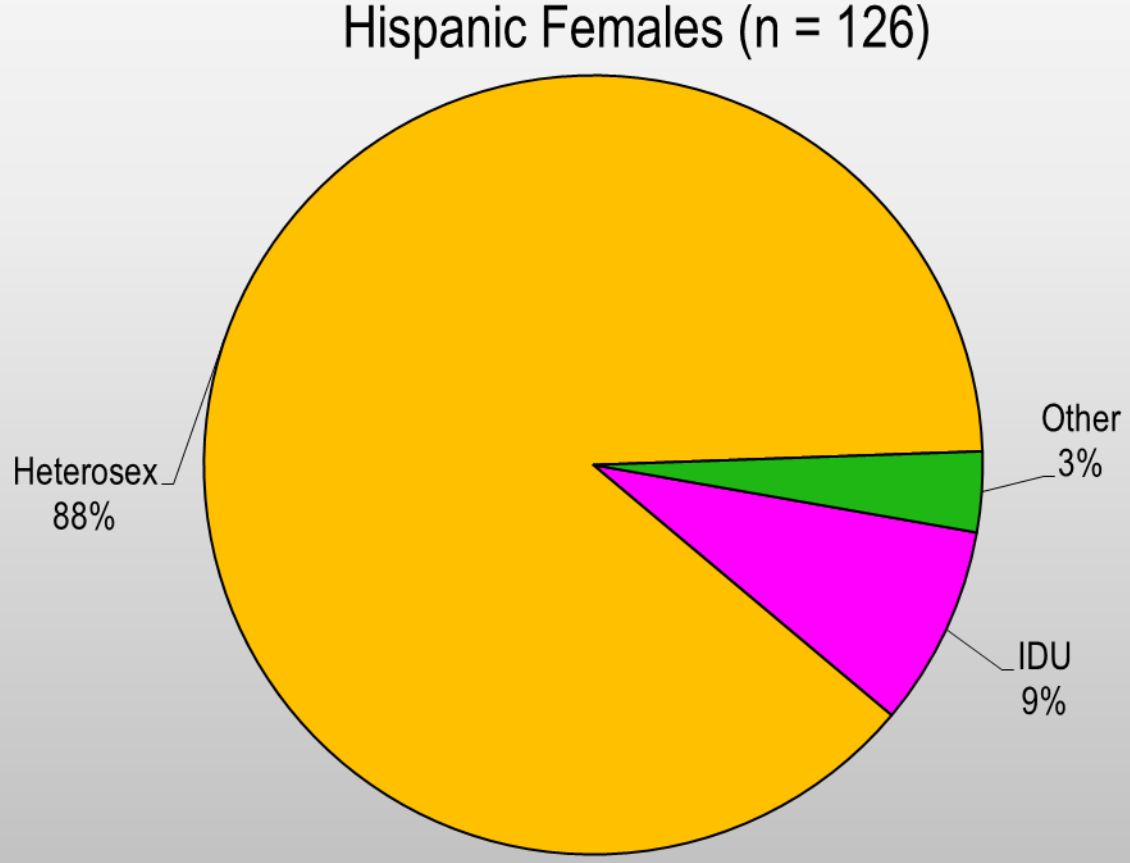
Other = Hemophilia, transplant, transfusion, mother w/ HIV or HIV risk

Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014



n = Number of persons

IDU = Injecting drug use

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

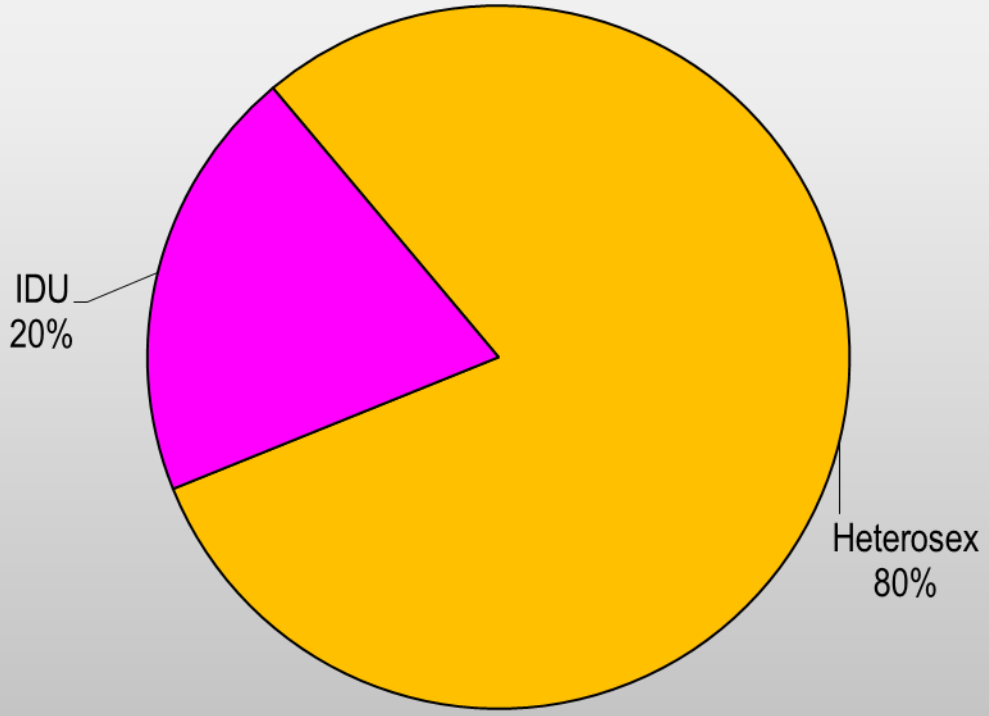
Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

American Indian Females (n = 53)



n = Number of persons

IDU = Injecting drug use

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

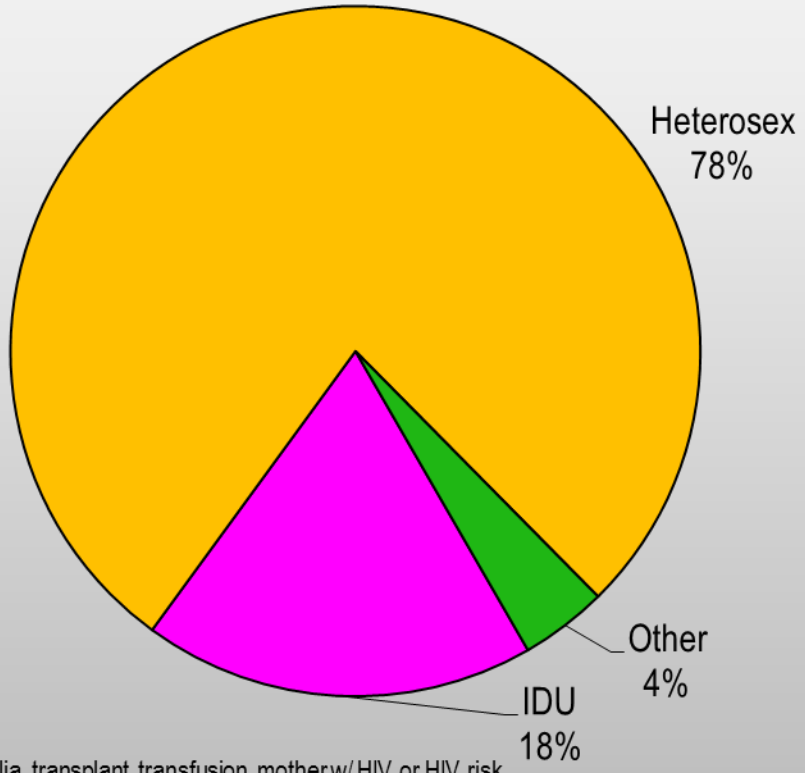
Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using prevalent cases with known risk. For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

Multi-racial Females (n = 51)



n = Number of persons

IDU = Injecting drug use

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

Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using the following proportions: 95%- Heterosexual, 5%- Other.

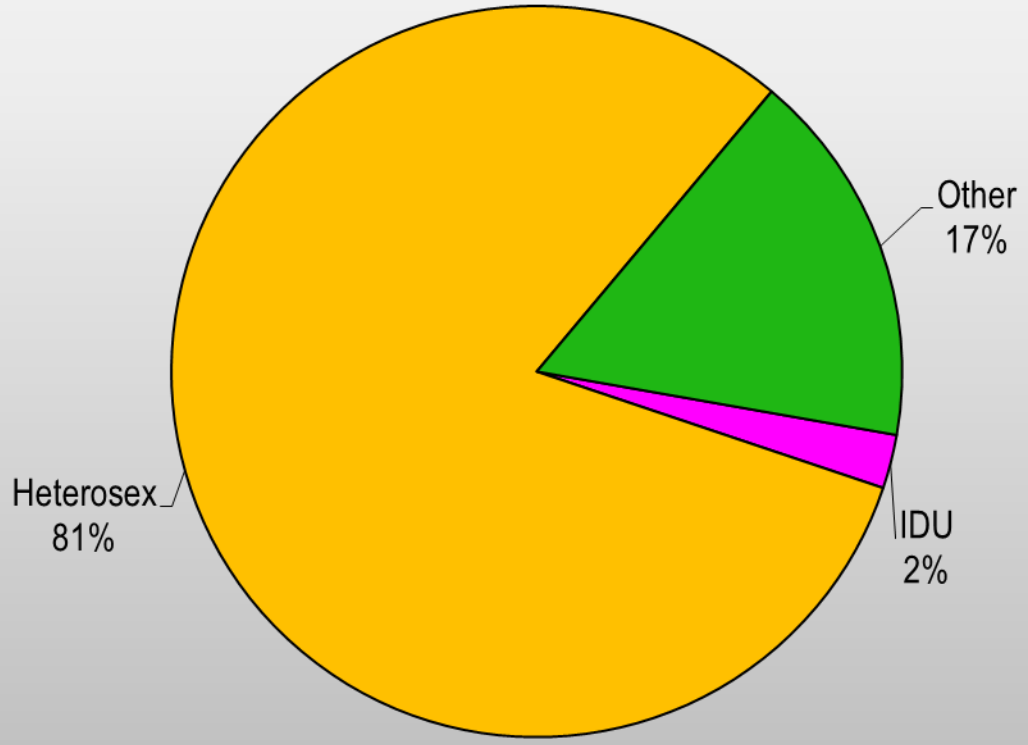
For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Females Living with HIV/AIDS in Minnesota by Estimated Mode of Exposure†, 2014

Asian Females (n = 45)

CAUTION: Small number of cases – interpret carefully.



n = Number of persons

IDU = Injecting drug use

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

Heterosex = Heterosexual contact

† Mode of Exposure has been estimated using the following proportions: 95%- Heterosexual, 5%- Other.

For additional detail see the HIV Prevalence & Mortality Technical Notes.

Data Source: Minnesota HIV/AIDS Surveillance System

Populations of Interest

HIV and Hepatitis B, C co-infection

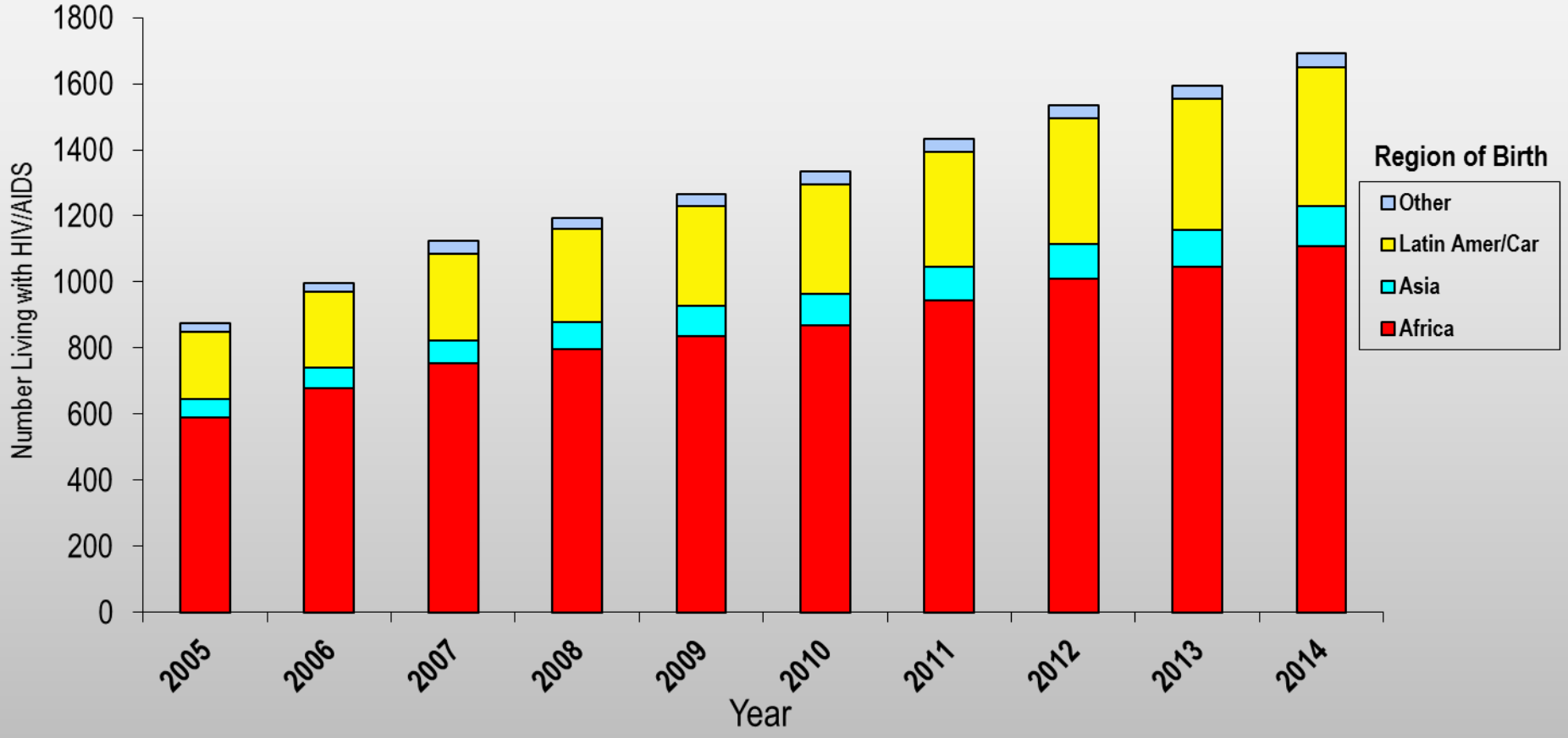
HIV and Hepatitis B and C

- As of December 31, 2014* , 7,988 persons are assumed alive and living in Minnesota with HIV/AIDS
  - Of these 7,988 persons, 884 (11%) are co-infected with either Hepatitis B or C
    - Of the 884, 294 (33%) are living with HIV and Hep B
    - Of the 884, 550 (62%) are living with HIV and Hep C
    - Of the 884, 40 (5%) are living with HIV, Hep B and Hep C

** This number includes persons who reported Minnesota as their current state of residence, regardless of residence at time of diagnosis. Includes state prisoners and refugees arriving through the HIV+ Refugee Resettlement Program, as well as, HIV+ refugee/immigrants arriving through other programs.*

Data Sources: *Minnesota HIV/AIDS Surveillance System and Minnesota Hepatitis Surveillance System*

Foreign-Born Persons Living with HIV/AIDS in Minnesota by Region of Birth, 2005-2014



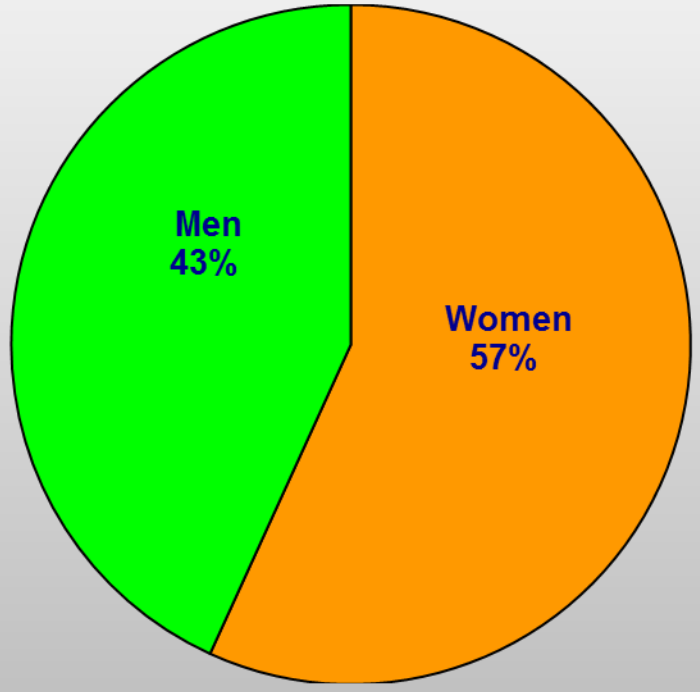
Latin Amer/Car – Includes Mexico, Caribbean, and Central/South American countries

Data Source: Minnesota HIV/AIDS Surveillance System

African-Born† Persons Living with HIV/AIDS Compared to Other Minnesota Cases by Gender, 2014

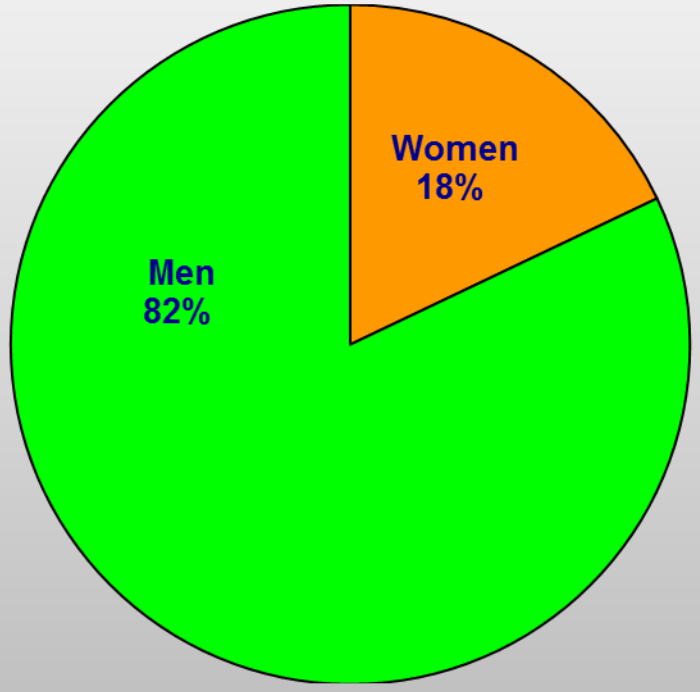
African-born Persons

Total Number = 1,109



U.S.-born Cases

Total Number =6,297



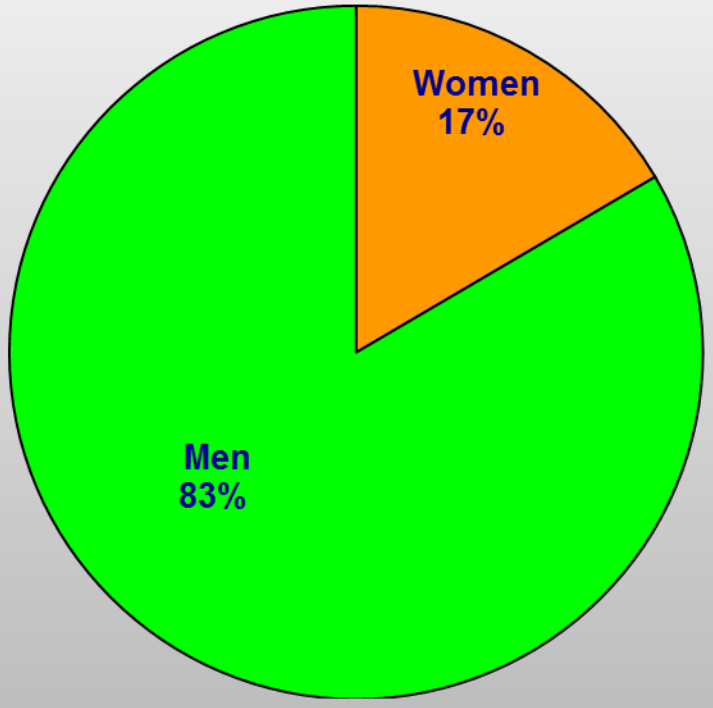
† *Includes persons arriving to Minnesota through the HIV+ Refugee Resettlement Program and other refugee/immigrant programs. Also includes 1 White African-born persons and 2 multi-racial African-born person.*

Data Source: Minnesota HIV/AIDS Surveillance System

Persons Living with HIV/AIDS born in Latin America/Caribbean† Countries Compared to Other Minnesota Cases by Gender, 2014

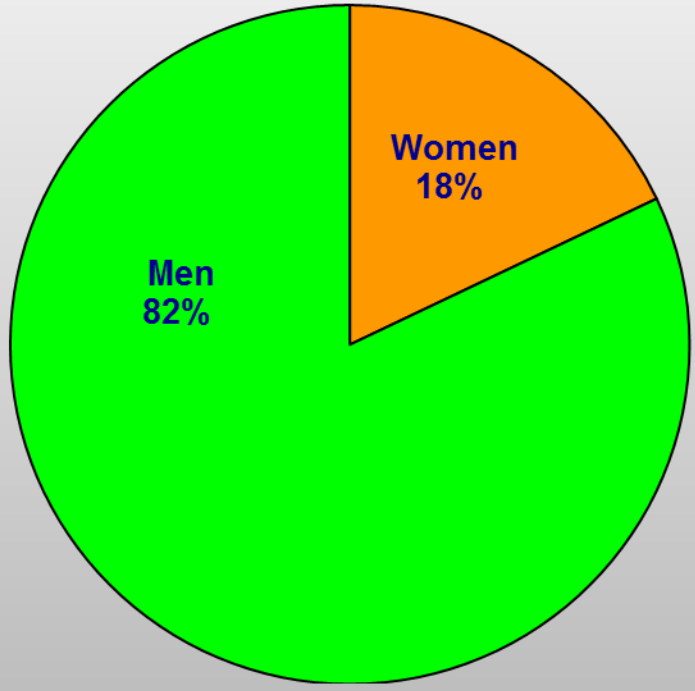
Latin/Caribbean Persons

Total Number = 417



U.S.-born Cases

Total Number = 6,297



† *Includes Mexico and all Central/South American and Caribbean countries.*

Data Source: Minnesota HIV/AIDS Surveillance System

Countries of Birth Among Foreign-Born Persons† Living with HIV/AIDS, Minnesota, 2014

- **Mexico** (n=244)
- **Ethiopia/Oromia** (n=241)
- **Liberia** (n=169)
- **Kenya** (n=155)
- **Somalia** (n=111)
- **Cameroon** (n=84)
- **Sudan** (n=66)
- **Other^** (n=622)

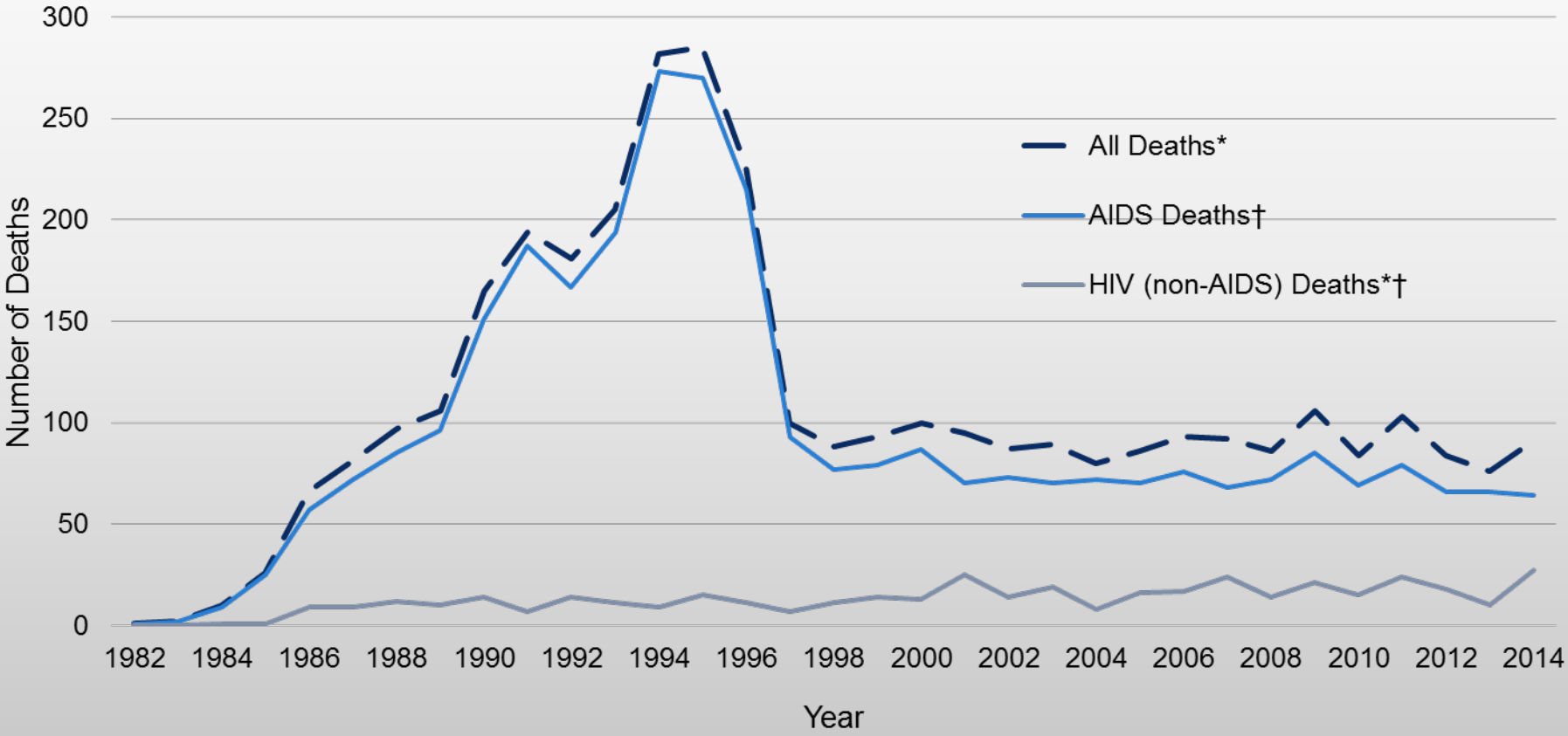
† Includes persons arriving to Minnesota through the HIV+ Refugee Resettlement Program, as well as other refugee/immigrants with an HIV diagnosis prior to arrival in Minnesota.

^ Includes 95 additional countries.

Data Source: Minnesota HIV/AIDS Surveillance System

Mortality

Reported Deaths among persons with HIV in Minnesota , 1984-2014



* Number of deaths known to have occurred among all people living with HIV infection in Minnesota, regardless of location of diagnosis and cause of death.

† Number of deaths known to have occurred among people living with AIDS in Minnesota in a given calendar year, regardless of location of diagnosis and cause of death

*† Number of deaths known to have occurred among people living with HIV (non-AIDS) in Minnesota in a given calendar year, regardless of location of diagnosis and cause of death

Data Source: Minnesota HIV/AIDS Surveillance System

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Companion Text for the Slide Set:
Minnesota HIV/AIDS Prevalence & Mortality Report, 2014

Overview

The *Minnesota HIV/AIDS Prevalence & Mortality Report, 2014* 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

In Minnesota, laboratory-confirmed infections of human immunodeficiency virus (HIV) are monitored by the Minnesota Department of Health (MDH) through an active and passive surveillance system. State rules (Minnesota Rule 4605.7040) require both physicians and laboratories to report all cases of HIV infection (HIV or AIDS) directly to MDH (passive surveillance). In June 2011, an amendment to the communicable disease reporting rule was passed, requiring the report of all CD4 and viral load test results, improving the completeness of passive reporting in Minnesota, and better allowing for the monitoring of disease progression. Additionally, regular contact is maintained with several clinical sites to ensure completeness of reporting (active surveillance). MDH staff also performs routine death matches with state and national data as to ensure correct vital status in the surveillance system. All of the data presented in this report come from MDH HIV/AIDS Surveillance System.

Data Limitations

The prevalence estimate is calculated by totaling the number of HIV and AIDS cases diagnosed through December 31, 2014 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.

National Context

According to the Centers for Disease Control & Prevention (CDC), an estimated 1.2 million persons in the United States over the age of 13 were living with HIV/AIDS, with 14% undiagnosed and unaware of their HIV infection[1]. The number of people specifically living with diagnosed AIDS in the United States has been increasing steadily since 1985 and an estimated 509,845 were living with AIDS at end of 2012.[2]

Overview of HIV/AIDS in Minnesota, 1990's-2014

The annual number of new HIV and AIDS cases increased steadily from the beginning of the epidemic to the early 1990s. 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. These treatments have been shown to be effective at preventing transmission of HIV. Over the past decade, the number of HIV/AIDS cases diagnosed has remained relatively stable with an average of 319 cases diagnosed each year. By the end of 2014, an estimated 7,988 persons with HIV/AIDS were assumed to be living in Minnesota.[3]

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[1] Centers for Disease Control and Prevention. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas—2012. HIV Surveillance Supplemental Report 2014;19(No. 3). http://www.cdc.gov/hiv/library/reports/ surveillance/. Published November 2014. Accessed April 20, 2015

[2] Centers for Disease Control and Prevention. *HIV Surveillance Report, 2013*; vol. 25. http://www.cdc.gov/hiv/library/reports/surveillance/. Published February 2015. Accessed April 20, 2015

[3] 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.

Persons Living with HIV/AIDS in Minnesota, 2014

Among the estimated 7,988 prevalent cases in Minnesota, 4,221 are diagnosed with HIV (non-AIDS) and 3,767 are diagnosed with AIDS. The majority (83%) of prevalent cases reside in the seven-county metropolitan area surrounding the Twin Cities of Minneapolis and St. Paul (Hennepin, Ramsey, Anoka, Carver, Dakota, Scott, and Washington counties). Although HIV infection is more common in communities with higher population densities and greater poverty, there are people living with HIV or AIDS in 95% of counties in Minnesota.

Gender & Race/Ethnicity

Seventy-six percent (76%) of prevalent HIV/AIDS cases are males. Broken down by race/ethnicity, 58% of male cases are white, 20% African American, 10% Hispanic, 8% African-born, 1% American Indian, 2% Asian/Pacific Islander, and 2% are persons of multiple or unknown race. In total, 40% of males living with HIV/AIDS are among men of color whereas only 17% of the general male population comprised of people of color. Among female cases, the distribution is even more skewed toward women of color: 33% African-born, 27% African American, 24% white, 7% Hispanic, 3% American Indian, 2% Asian/Pacific Islander, and 3% persons of multiple or unknown race. Thus, 73% of prevalent female HIV/AIDS cases are among women or color whereas only 17% of the general female population in Minnesota is comprised of women of color.

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.

Beginning in 2012, MDH began estimating the number of MSM living in Minnesota. Men who have sex with Men have the highest rate of persons living with HIV/AIDS than any other sub-group. In 2014, the estimated rate of people living with HIV/AIDS among MSM was 4,797.0 per 100,000 population. This is more than 60 times higher than the rate among non-MSM men (77.1 per 100,000 population). It's important

to note that MSM contains cases from all racial/ethnic categories and therefore cannot be directly compared to the rates by race/ethnicity. For more information on how this was estimated, see the *HIV/AIDS Prevalence & Mortality Technical Notes*.

Age

Seventy percent (70%) of persons living with HIV/AIDS in 2014 are currently 40 years of age or older. As with new cases, there are differences by gender in the age of living cases. While males age 25 to 34 account for 15% of male living cases, females of the same age account for 20% of female living cases.

With the advent of therapies that delay progression to AIDS and death for those living with HIV infection the population of living cases has aged over time. In 2014, persons age 50 and older accounted for 42%, or more than one in three persons living with HIV in Minnesota, compared to 16% in 2002.

Mode of Exposure

In 2014, MDH used a risk re-distribution method to estimate the mode of exposure among cases with unknown risk. For additional details on how this was done please read the *HIV Prevalence and Mortality Technical Notes.* All mode of exposure numbers referred to in the text are based on the risk re-distribution.

The proportions of living cases attributable to particular modes of exposure differ among gender and race groups. While male-to-male sex (MSM or MSM/IDU) accounts for an estimated 95% of white male cases, it accounts for a smaller proportion of cases among men of color. For example, MSM and MSM/IDU account for 83%, 74%, and 12.5% of Hispanic, African American, and African-born males living with HIV in Minnesota, respectively. The estimated percent of male cases that identified IDU as a risk factor is higher for African Americans (13%), American Indians (13%), and Hispanics (8%). The percentage of cases with a risk of IDU among Asian, white, and African-born males are estimated at 3%, 2%, and 0.5%, 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 also accounts for a large

percentage of female cases among most race/ethnicity groups. The largest estimated percentage of IDU cases are among American Indians (20%), followed by whites with 16%, African Americans with 14% and Hispanics with 9%. Among Asian females, heterosexual contact accounted for an estimated 81% of cases, and IDU for an estimated 2%. However, the number of prevalent cases among Asian/Pacific Islander females is quite small (n=45), so the results need to be interpreted very carefully. Finally, while African-born women make up the largest proportion (33%) of females living with HIV in Minnesota, they account for less than one percent of the IDU cases among HIV+ women.

Special Populations

Between 1990 and 2014, 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, and by 2003 this number had increased twelve-fold to 692 persons. In 2014, the total number of foreign-born persons living with HIV/AIDS in Minnesota was 1,691, a 6% increase from 2013. This trend illustrates the growing diversity of the infected population in Minnesota and the need for culturally appropriate HIV care services and prevention efforts.

The characteristics of foreign-born persons living with HIV/AIDS in Minnesota differ from U.S.-born, especially in gender. While females account for 18% of cases among U.S.-born persons, they account for 44% of foreign-born cases. This is especially noticeable among African-born cases, where women account for 57% of those living with HIV/AIDS in Minnesota. The gender distribution among cases born in Latin America/the Caribbean is similar to that of U.S.-born cases, where 17% of prevalent cases are among women.

Seven countries (Mexico, Ethiopia, Liberia, Kenya, Somalia, Cameroon, and Sudan) account for a majority (63%) of living foreign-born cases, however there are 95 additional countries represented among the 1,691 foreign-born persons living with HIV infection in Minnesota.

HIV/AIDS Mortality in Minnesota

The number of deaths[4] among all people living with HIV infection in Minnesota decreased dramatically between 1995 and 1997 and has remained relatively constant over the past decade. In 2014, a total of 91 deaths were reported people living with HIV infection in Minnesota. The total number of deaths[5] reported in Minnesota for those living with AIDS was 64 (70% of all deaths) in 2014.

[4] Includes all deaths known to have occurred among all people living with HIV infection in Minnesota, regardless of location of diagnosis and cause of death.

[5] Number of deaths known to have occurred among people living with AIDS in Minnesota in a given calendar year, regardless of location of diagnosis and cause of death

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HIV/AIDS PREVALENCE & MORTALITY 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 rules[1]. In June 2011, an amendment to the communicable disease reporting rule was passed, requiring the report of all CD4 and viral load test results, improving the completeness of passive reporting in Minnesota, and better allowing for the monitoring of disease progression. Active surveillance conducted by MDH staff involves routine visits and correspondence with select HIV clinical facilities to ensure completeness of reporting and accuracy of the data.

Factors that impact the completeness and accuracy of HIV/AIDS surveillance data include: availability and targeting of HIV testing services, test-seeking behaviors of HIV-infected individuals, compliance with case reporting, and timeliness of case reporting. 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. Vital status information is updated by monthly visits to select reporting facilities, correspondence with other health departments, annual death certificate reviews, and

[1] Minnesota Rule 4605.7040
[2] MMWR 1992;41[no.RR-17]:1-19

periodic matches with the National Death Index, Social Security Master Death File, and Minnesota Vital Statistics Death Files. "AIDS deaths" refers to all deaths among AIDS cases regardless of the cause of death. "All deaths" refers to all death among HIV/AIDS cases regardless of the cause of death.

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, as well as, other refugees/immigrants that resettled to Minnesota but had an HIV diagnosis prior to arrival.

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 who even a national study is not available.

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

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. For females an additional step was added to the process. If females reported sex with males but did not report injecting drug use or receipt of blood products, then she was placed in a new category named "Heterosexual – with unknown risk". The same was not done for males given the high level of stigma associated with male-to-male sex in certain communities.

When applying the proportions from those with known risk to those with unspecified risk there were two exceptions to the 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.

MSM Estimate

In 2012 MDH began estimating the population of MSM in Minnesota. This estimate generates a denominator for the most commonly reported risk factor in Minnesota and allows for the calculation of a rate of infection and rate of prevalence among those in the risk group. Estimation is done each year using the most recently available census data for men over the age of 13 and using the model by on Laumann et al[4] where 9% of the urban population, 4% of the suburban population and 1% of the rural population are estimated to be MSM.

$$MSM_{state\ i} = (rural\ pop_{state\ i} \times 0{:}01\%) + (suburban\ pop_{state\ i} \times 0{:}04\%) + (urban\ pop_{state\ i} \times 0{:}09\%)$$

After consulting with stakeholders, it was agreed that it was appropriate to assign urban/suburban/rural designation based on the unique geography of Minnesota. The

[4] Laumann EO, Gagnon JH, Michael RT, et al. The social organization of sexuality: sexual practices in the United States, chapter 8. Chicago: University of Chicago Press; 1994

counties of Hennepin and Ramsey are assigned as urban, the counties of Anoka, Carver, Dakota, Scott and Washington along with the cities of Rochester, St. Cloud and Duluth are assigned as suburban, and the remaining areas were are assigned as rural. In 2014, this method utilized 2010 census data and produced an estimate of the MSM population in Minnesota to be 92,788. Overall, this represents 4.3% of the adolescent and adult male population in Minnesota.

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).

Routine Interstate Duplicate Review (RIDR)

The Minnesota Department of Health (MDH) continues to participate in RIDR. RIDR 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. RIDR was the second such de-duplication initiative by CDC. The first initiative, IDEP, looked at cases reported through December 31, 2001. RIDR is now an ongoing activity that all states are expected to undertake. CDC will release a RIDR report every 6 months which will affect the ownership of Minnesota cases. While the Surveillance staff will always inquire about previous diagnosis and will check with CDC to determine if the case has been previously reported, it is possible that cases we believe to have been initially diagnosed in Minnesota were in fact diagnosed in another state. Ongoing participation in this initiative will allow for proper attribution of incident and prevalent cases in Minnesota.

Table 1. Number[I] and Rate[II] (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by Residence, Age, and Gender -- Minnesota, 2014

Group	HIV (non-AIDS)		AIDS		*Total*		*HIV/AIDS*
	Cases	%	Cases	%	*Cases*	*%*	*Prevalence Rate*
Residence[III]							
Minneapolis	1,668	40%	1,396	37%	*3,064*	*38%*	*800.9*
St. Paul	551	13%	526	14%	*1,077*	*14%*	*377.8*
Suburban	1,363	32%	1,195	32%	*2,558*	*32%*	*117.2*
Greater Minnesota	627	15%	634	17%	*1,261*	*16%*	*51.4*
Total	*4,209*	*100%*	*3,751*	*100%*	*7,960*	*100%*	*150.1*
Age[IV]							
<13 yrs	41	1%	8	<1%	*49*	*1%*	*5.3*
13-19 yrs	39	1%	14	<1%	*53*	*1%*	*10.4*
20-24 yrs	164	4%	55	1%	*219*	*3%*	*61.6*
25-29 yrs	385	9%	116	3%	*501*	*6%*	*134.4*
30-34 yrs	503	12%	258	7%	*761*	*10%*	*221.9*
35-39 yrs	448	11%	351	9%	*799*	*10%*	*243.5*
40-44 yrs	541	13%	457	12%	*998*	*13%*	*282.8*
45-49 yrs	634	15%	634	17%	*1,268*	*16%*	*312.2*
50-54 yrs	633	15%	834	22%	*1,467*	*18%*	*365.2*
55-59 yrs	432	10%	499	13%	*931*	*12%*	*266.3*
60+ yrs	396	9%	541	14%	*937*	*12%*	*97.3*
Total	*4,216*	*100%*	*3,767*	*99%*	*7,983*	*100%*	*150.5*
Gender							
Male	3,192	76%	2,916	77%	*6,108*	*76%*	*232.1*
Female	1,029	24%	851	23%	*1,880*	*24%*	*70.4*
Total	*4,221*	*100%*	*3,767*	*100%*	*7,988*	*100%*	*150.6*
StateTotals	*4,221*		*3,767*		*7,988*		*150.6*

[I] Cases reported to the MDH, assumed to be alive, and currently residing in Minnesota as of 12/31/14.

[II] 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 2010 U.S. Census data.

[III] Residence information missing for 12 persons living with HIV and 16 persons living with AIDS.

[IV] Age missing for 5 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 135 state prisoners, 170 refugees in the HIV-Positive Refugee Resettlement Program, and 171 additional refugees/immigrants with HIV infection prior to resettling in Minnesota.

Percentages may not add to 100 due to rounding.

Table 2. Number of Males & Females and Rates (per 100,000) Living with HIV (non-AIDS) and AIDS by Race/Ethnicity and Mode of Exposure[I] - Minnesota, 2014

Group	Males				Females				*Total*				
	HIV (non-AIDS)	AIDS	*Total*		HIV (non-AIDS)	AIDS	*Total*		*HIV (non-AIDS)*	*AIDS*	*Grand Total*		
			Cases	*%*			*Cases*	*%*			*Cases*	*%*	*Rate[III]*
Race/Ethnicity													
White, non-Hispanic	1,936	1,582	*3,518*	*58%*	263	196	*459*	*24%*	*2,199*	*1,778*	*3,977*	*50%*	*90.3*
Black[II], African-American	615	589	*1,204*	*20%*	271	244	*515*	*27%*	*886*	*833*	*1,719*	*22%*	*873.2*
Black[II], African-born	220	253	*473*	*8%*	343	284	*627*	*33%*	*563*	*537*	*1,100*	*14%*	*1418.3*
Hispanic	259	331	*590*	*10%*	69	57	*126*	*7%*	*328*	*388*	*716*	*9%*	*286.1*
American Indian	30	38	*68*	*1%*	27	26	*53*	*3%*	*57*	*64*	*121*	*2%*	*198.6*
Asian/PI	55	53	*108*	*2%*	25	20	*45*	*2%*	*80*	*73*	*153*	*2%*	*70.7*
Other[II]	77	70	*147*	*2%*	31	24	*55*	*3%*	*108*	*94*	*202*	*3%*	*X*
Total	*3,192*	*2,916*	*6,108*	*100%*	*1,029*	*851*	*1,880*	*100%*	*4,221*	*3,767*	*7,988*	*100%*	*150.6*
Mode of Exposure													
MSM	2,233	1,813	*4,046*	*66%*	--	--	--	--	*2,233*	*1,813*	*4,046*	*51%*	*X*
IDU	103	156	*259*	*4%*	75	95	*170*	*9%*	*178*	*251*	*429*	*5%*	*X*
MSM/IDU	193	212	*405*	*7%*	--	--	--	--	*193*	*212*	*405*	*5%*	*X*
Heterosexual (Total)	(106)	(138)	(244)	*4%*	(839)	(692)	(1531)	*81%*	*(945)*	*(830)*	*(1775)*	*22%*	*X*
with IDU	24	43	67	--	69	81	150	--	93	124	217	--	*X*
with Bisexual Male	-	-	-	--	48	44	92	--	48	44	92	--	*X*
with Hemophiliac/other	4	2	6	--	6	3	9	--	10	5	15	--	*X*
with HIV+	78	93	171	--	268	187	455	--	346	280	626	--	*X*
Hetero, unknown risk[IV]	0	0	0	--	448	377	825		448	377	825		
Perinatal	22	25	*47*	*1%*	35	21	56	*3%*	57	46	103	*1%*	*X*
Other	8	21	*29*	*0%*	3	3	*6*	*0%*	*11*	*24*	*35*	*0%*	*X*
Unspecified	331	365	*696*	*11%*	52	28	*80*	*4%*	*383*	*393*	*776*	*10%*	*X*
No Interview, Unspecified	196	186	*382*	*6%*	25	12	*37*	*2%*	*221*	*198*	*419*	*5%*	*X*
Total	*3,192*	*2,916*	*6,108*	*100%*	*1,029*	*851*	*1,880*	*100%*	*4,221*	*3,767*	*7,988*	*100%*	*150.6*

[I] Cases reported to the MDH, assumed to be alive and currently residing in Minnesota as of 12/31/14.

[II] African-born Blacks are reported separately from other Blacks (born in the U.S. or elsewhere). "Other" includes multi-racial persons and persons with unknown or missing race.

III Rates calculated using U.S. Census 2010 data. The population estimate for African-born persons was calculated by the Minnesota State Demographic Center . The population estimate for Black, African-American persons (196,211) was calculated by subtracting the U.S. Census estimate for African-born persons (77,557) from the total Black population (274,412). Note that this assumes that all African-born persons are Black (as opposed to another race).

[IV] Hetero, unknown risk - Females who were interviewed and whose only risk is heterosexual contact but who were not able to provide information on the sexual partner's risk.

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, Unspecified = Cases who refused to be, could not be or have not yet been interviewed.

Numbers exclude federal and private prisoners, but include 135 state prisoners, 170 refugees in the HIV-Positive Refugee Resettlement Program, and 171 additional refugees/immigrants with HIV infection prior to resettling in Minnesota.

Percentages may not add to 100 due to rounding.

Table 3. Number and Rate (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by County of Residence[I] -- Minnesota, 2014

County[II]	HIV (non-AIDS)	AIDS	*Total*	*Rate[III]*
Aitkin	4	3	*7*	*43.2*
Anoka	190	166	*356*	*107.6*
Becker	7	5	*12*	*36.9*
Beltrami	11	15	*26*	*58.5*
Benton	12	12	*24*	*62.4*
Big Stone	0	2	*2*	-
Blue Earth	14	20	*34*	*53.1*
Brown	6	6	*12*	*46.3*
Carlton	4	5	*9*	*25.4*
Carver	24	25	*49*	*53.8*
Cass	10	13	*23*	*80.5*
Chippewa	4	4	*8*	*64.3*
Chisago	10	7	*17*	*31.5*
Clay	26	10	*36*	*61.0*
Clearwater	1	1	*2*	-
Cook	0	0	*0*	-
Cottonwood	2	6	*8*	*68.5*
Crow Wing	6	11	*17*	*27.2*
Dakota	209	173	*382*	*95.8*
Dodge	3	4	*7*	*34.8*
Douglas	6	5	*11*	*30.5*
Faribault	0	5	*5*	*34.4*
Fillmore	6	4	*10*	*47.9*
Freeborn	4	8	*12*	*38.4*
Goodhue	9	11	*20*	*43.3*
Grant	5	3	*8*	*132.9*
Hennepin	2,357	1,992	*4,349*	*377.4*
Houston	3	2	*5*	*26.3*
Hubbard	2	5	*7*	*34.3*
Isanti	13	11	*24*	*63.5*
Itasca	4	11	*15*	*33.3*
Jackson	5	5	*10*	*97.4*
Kanabec	1	4	*5*	*30.8*
Kandiyohi	15	15	*30*	*71.0*
Kittson	0	0	*0*	-
Koochiching	1	0	*1*	-
Lac Qui Parle	1	2	*3*	-
Lake	2	3	*5*	*46.0*
Lake of the Woods	0	0	*0*	-
Le Sueur	4	7	*11*	*39.7*
Lincoln	2	0	*2*	-
Lyon	11	1	*12*	*46.4*
McLeod	11	7	*18*	*49.1*
Mahnomen	1	1	*2*	-
Marshall	1	2	*3*	-
Martin	9	3	*12*	*57.6*
Meeker	7	4	*11*	*47.2*
Mille Lacs	4	9	*13*	*49.8*
Morrison	3	7	*10*	*30.1*
Mower	24	28	*52*	*132.8*
Murray	2	1	*3*	-
Nicollet	6	10	*16*	*48.9*
Nobles	14	14	*28*	*131.0*
Norman	1	0	*1*	-
Olmsted	72	70	*142*	*98.4*
Otter Tail	6	4	*10*	*17.5*
Pennington	0	1	*1*	-
Pine	6	9	*15*	*50.4*
Pipestone	2	0	*2*	-
Polk	8	8	*16*	*50.6*
Pope	3	2	*5*	*45.5*
Ramsey	653	638	*1,291*	*253.8*
Red Lake	1	1	*2*	-
Redwood	1	1	*2*	-
Renville	3	3	*6*	*38.1*
Rice	33	24	*57*	*88.9*
Rock	1	3	*4*	-
Roseau	1	1	*2*	-
St. Louis	81	85	*166*	*82.9*

Table 3. Number and Rate (per 100,000) of Persons Living with HIV (non-AIDS) and AIDS by County of Residence (I) -- Minnesota, 2014 (continued)

County (II)	HIV (non-AIDS)	AIDS	Total	Rate (III)
Scott	50	52	102	78.5
Sherburne	24	26	50	56.5
Sibley	1	1	2	-
Stearns	32	33	65	43.1
Steele	8	5	13	35.5
Stevens	0	1	1	-
Swift	1	1	2	-
Todd	1	1	2	-
Traverse	0	0	0	-
Wabasha	2	6	8	36.9
Wadena	2	2	4	-
Waseca	3	6	9	47
Washington	99	71	170	71.4
Watonwan	1	1	2	-
Wilkin	0	1	1	-
Winona	15	3	18	35
Wright	22	20	42	33.7
Yellow Medicine	0	3	3	-
State Total (II)	***4,221***	***3,767***	***7,988***	***162.4***

(I) Cases reported to the MDH, assumed to be alive and currently residing in a Minnesota county as of 12/31/14.

(II) Residence information missing for 12 persons living with HIV and 19 persons living with AIDS. Total rate is based on all cases in the state (n=7,987)

Numbers by county exclude federal, and private prisoners, but include 170 refugees in the HIV-Positive Refugee Resettlement Program and 171 additional refugees/immigrants with HIV infection prior to resettling in Minnesota. Numbers for counties in which a state correctional facility is located exclude those inmates. The total number of state prisoners is 135. State correctional facilities are located in the following counties: Anoka, Carlton, Chisago, Goodhue, Itasca, Rice, Scott, Sherburne, and Washington.

(III) 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 2010 U.S. Census data. Rates not calculated for counties with fewer than 5 cases.

Table 4. Number of HIV (non-AIDS) Cases, AIDS Cases, AIDS Deaths, People Living with HIV/AIDS (PLWHA), and All Deaths[I] Minnesota, 2005-2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
HIV (non-AIDS)	246	272	265	250	282	248	220	236	216	235
AIDS[II]	217	196	190	202	190	181	188	203	160	160
AIDS deaths	70	76	68	72	85	69	79	66	66	64
PLWHA	5,233	5,566	5,950	6,221	6,552	6814	7,136	7,516	7,723	7,988
All deaths	86	93	92	86	106	84	103	84	76	91

[I] **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, including AIDS at first diagnosis. **AIDS deaths** = Number of deaths known to have occurred among people living with AIDS in Minnesota in a given calendar year, regardless of location of diagnosis and cause of death. **All deaths**= Number of deaths known to have occurred among all people living with HIV infection in Minnesota, regardless of location of diagnosis and cause of death.

[II]Numbers include refugees in the HIV-Positive Refugee Resettlement Program and other refugees/immigrants diagnosed with AIDS subsequent to their arrival in the U.S.

Please Note: These numbers refer to events, not individuals. For example, a person diagnosed as an HIV (non-AIDS) case in 2003 and then diagnosed as an AIDS case in 2008 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, 2014 New HIV Infections, Table 1 for cumulative totals.

Case numbers exclude federal and private prisoners.