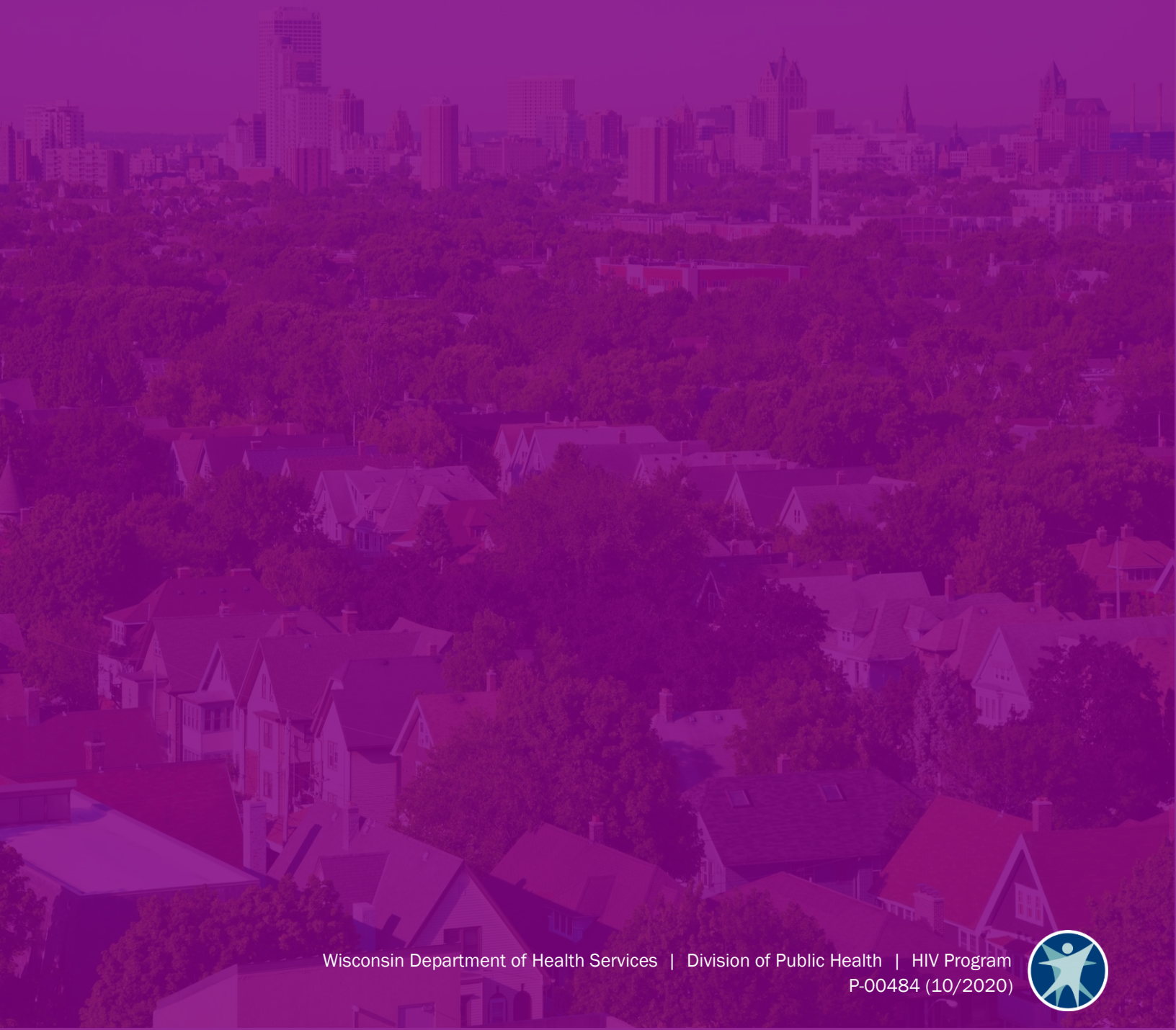
HIV in Wisconsin

Wisconsin HIV Surveillance Annual Report, 2020

Diagnosis trends, new diagnoses, and prevalence through December 31, 2020



Wisconsin Department of Health Services | Division of Public Health | HIV Program
P-00484 (10/2020)

Table of Contents

Summary

This report describes HIV diagnosis trends, people newly diagnosed with HIV during 2020, and the population living with HIV in Wisconsin as of December 31, 2020. It is acknowledged that 2020 was an unprecedented year due to COVID-19 (e.g., decreased HIV testing and increased telehealth). It is unclear if the declining data trends in 2020 are a true decrease in new HIV diagnoses and HIV care outcomes.

HIV surveillance data provide important information for planning HIV prevention and care services. Prevention services focus primarily on new diagnosis trends and the geographic and demographic distribution of new cases. Care and treatment services consider the total population of people living with HIV in the state (that is prevalent cases), regardless of when or where they were first diagnosed.

HIV Diagnosis Trends

Over the past 10 years, the number and rate of new HIV diagnoses have declined. Wisconsin has a relatively low diagnosis rate compared to neighboring states. During 2011–2020:

- Young men and people of color were disproportionately affected by HIV.
- Male-male sexual contact was the most commonly reported risk factor for HIV exposure.

New Diagnoses, 2020

During 2020, 208 people were newly diagnosed with HIV in Wisconsin.

- Over half of new cases were diagnosed in Milwaukee or Dane counties.
- A disproportionate number of new HIV diagnoses were young men of color.
- Male-male sexual contact was the most commonly reported risk factor.
- Approximately 86% of cases were linked to care services within three months of diagnosis.

Prevalence

A total of 6,926 people known to be living with HIV resided in Wisconsin at the end of 2020. An estimated 1,109 additional people may be living with HIV in Wisconsin but are not currently aware of their diagnosis. The estimated HIV prevalence was 8,035 people when those who were not aware of their diagnosis were taken into account.

- Seventy-nine people living with HIV died during 2019, primarily from causes other than HIV.
- More people living with HIV moved out of Wisconsin (310) compared to people moving into the state (181).
- Over half of people living with HIV in Wisconsin live in Milwaukee or Dane counties.
- Prevalent cases tend to be older than new diagnoses.
- Seven out of 10 people living with HIV were virally suppressed during 2020.

HIV Diagnosis Trends

Number and Rate of New Diagnoses

Number of New Diagnoses

Since 1979, 10,674 Wisconsin residents were diagnosed with HIV. HIV diagnoses rose rapidly during the 1980s, peaking during 1990 at 587 new diagnoses, and then declining steeply until the early 2000s (Figure 1).

During 2011–2020, the number of diagnoses ranged from a low of 208 (2020) to a high of 256 (2017), with an average of 228 new HIV diagnoses per year.

FIGURE 1

Over the past 10 years, the number of new HIV diagnoses reported each year in Wisconsin has slowly declined.

Number of new HIV diagnoses, Wisconsin 1979-2020

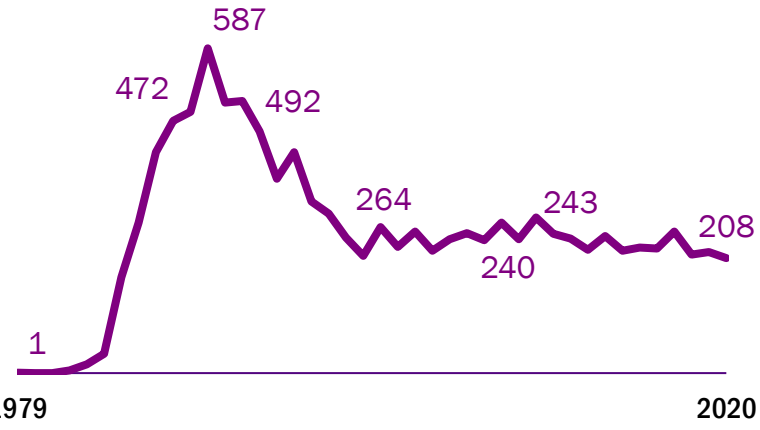
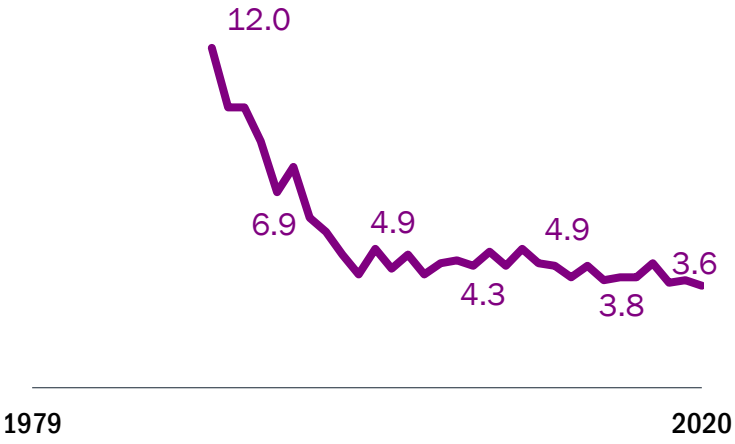


FIGURE 2

The HIV diagnosis rate in Wisconsin has slowly declined over the past 10 years.

Rate of new HIV diagnoses per 100,000 people, Wisconsin 1979-2020



New Diagnosis Rate

During 1990, 12.0 new HIV cases were diagnosed per 100,000 Wisconsin residents (Figure 2). The new diagnosis rate declined to 3.6 per 100,000 people by 2020.

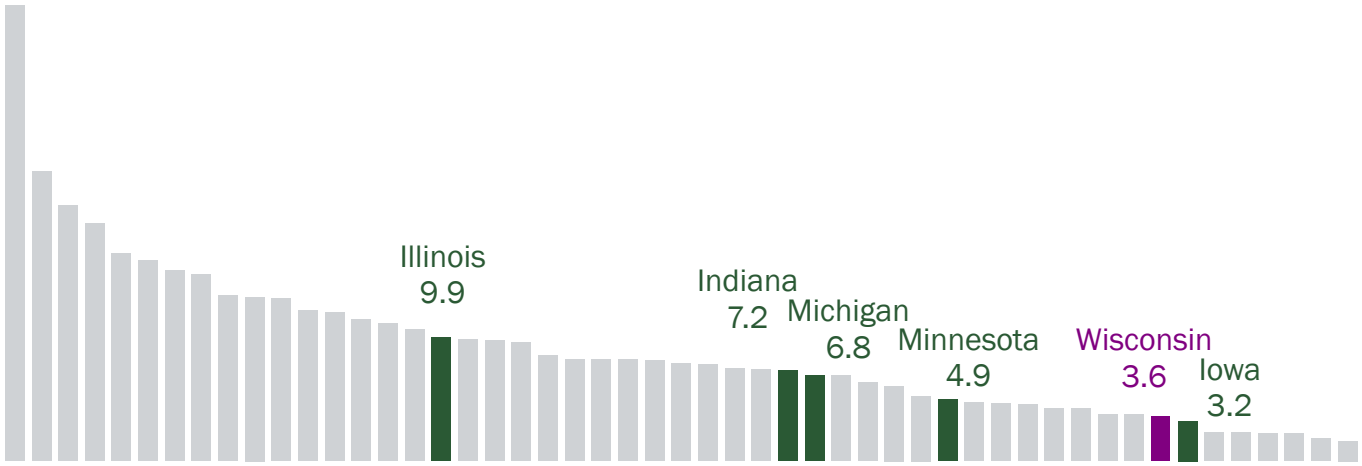
During 2011–2020, the annual diagnosis rate ranged from a low of 3.6 per 100,000 people (2020) to a high of 4.4 per 100,000 people (2017), with an average of 4.0 new HIV diagnoses per 100,000 people.

Wisconsin's HIV diagnosis rate is low by national standards (Figure 3).

FIGURE 3

Wisconsin has a lower HIV diagnosis rate compared to most neighboring states.

Estimated HIV diagnosis rate per 100,000 people, 2019*



*Centers for Disease Control and Prevention. HIV Surveillance Report, 2019; vol.32. http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html. Published May 2021. Accessed [June 2021].

Demographics

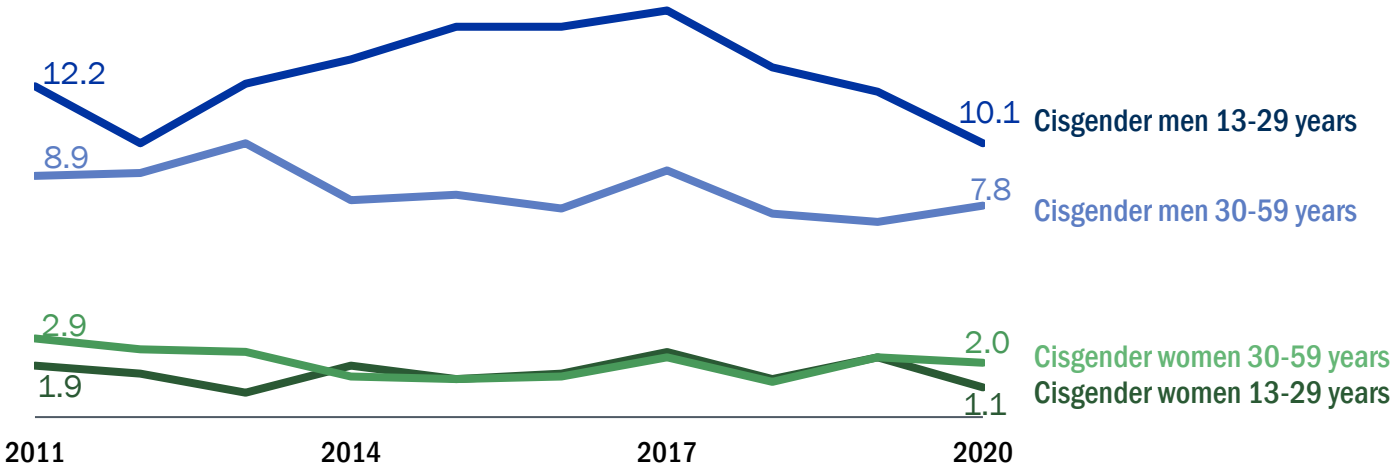
Age and Gender at Diagnosis

During 2011-2020, the HIV diagnosis rate decreased from 12.2 to 10.1 per 100,000 people among young men, and also declined among older men and among women in both age groups (Figure 4).

FIGURE 4

Young men have the highest HIV diagnosis rate in Wisconsin.

Number of HIV diagnoses per 100,000 people by gender and age* at diagnosis, Wisconsin, 2011-2020



*Diagnosis rates among cisgender men and cisgender women ages 60 and older are unreliable due to small numbers.

Race and Ethnicity

HIV **disproportionately** affects people of color in Wisconsin. The percentage of new HIV diagnoses affecting people of color rose from 20% in 1982 to 61% in 2020 (Figure 5). During 2020, racial and ethnic minorities made up just 19% of Wisconsin's population, but accounted for 61% of new HIV diagnoses.

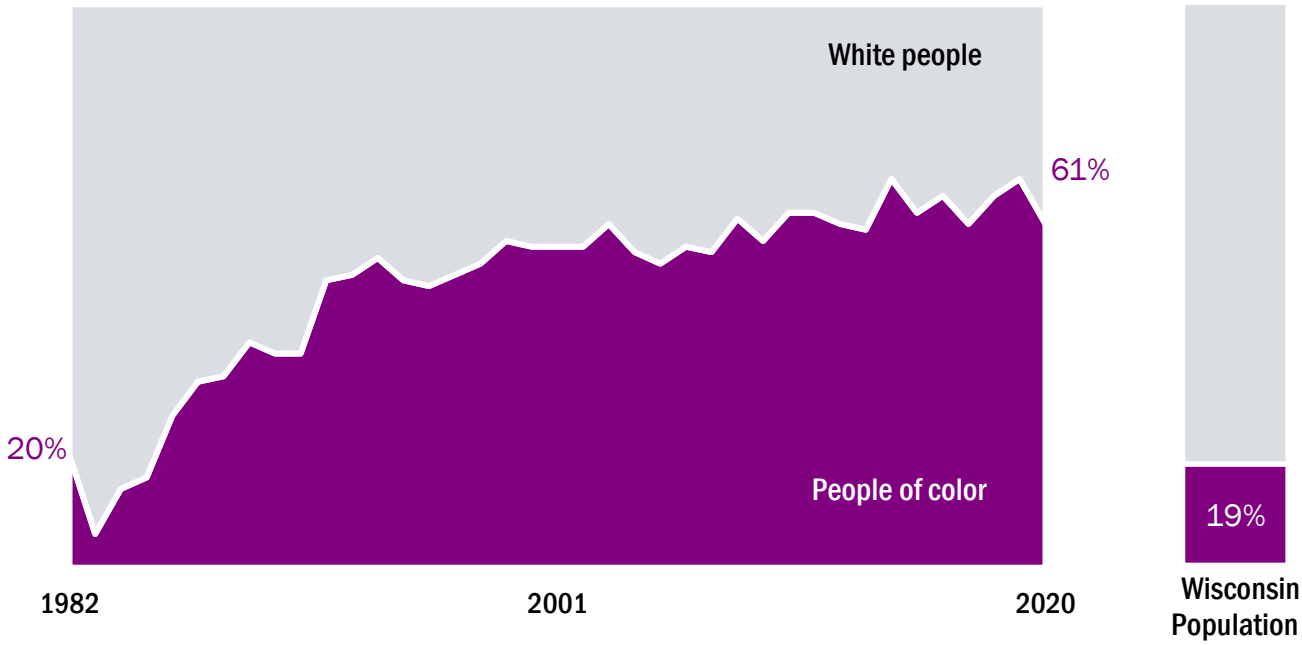
Addressing health disparities and inequities is a priority for public health. Race or ethnicity alone does not make someone more or less likely to acquire HIV. Many social and economic factors affect populations of color to a larger extent than White populations in Wisconsin, putting people of color at greater risk for acquiring HIV, such as:

- Racism
- Poverty
- Limited access to health care
- Lack of education
- Stigma
- Homelessness
- Oppression

FIGURE 5

The percentage of new HIV diagnoses among people of color is disproportionate to Wisconsin's racial and ethnic composition.

Percentage of new HIV diagnoses among White people and people of color, Wisconsin, 1982 -2020



This disparity is more pronounced among men (Figure 6, Appendix-Table A1). During 2011–2020, women of all racial and ethnic groups have had lower annual HIV diagnosis rates compared to men.

While highest in comparison to other racial and ethnic groups, HIV diagnosis rates for both Black men and women have declined from 2019 to 2020 and have fluctuated around an overall downward trend over the past 10 years.

FIGURE 6

HIV Diagnosis Rates

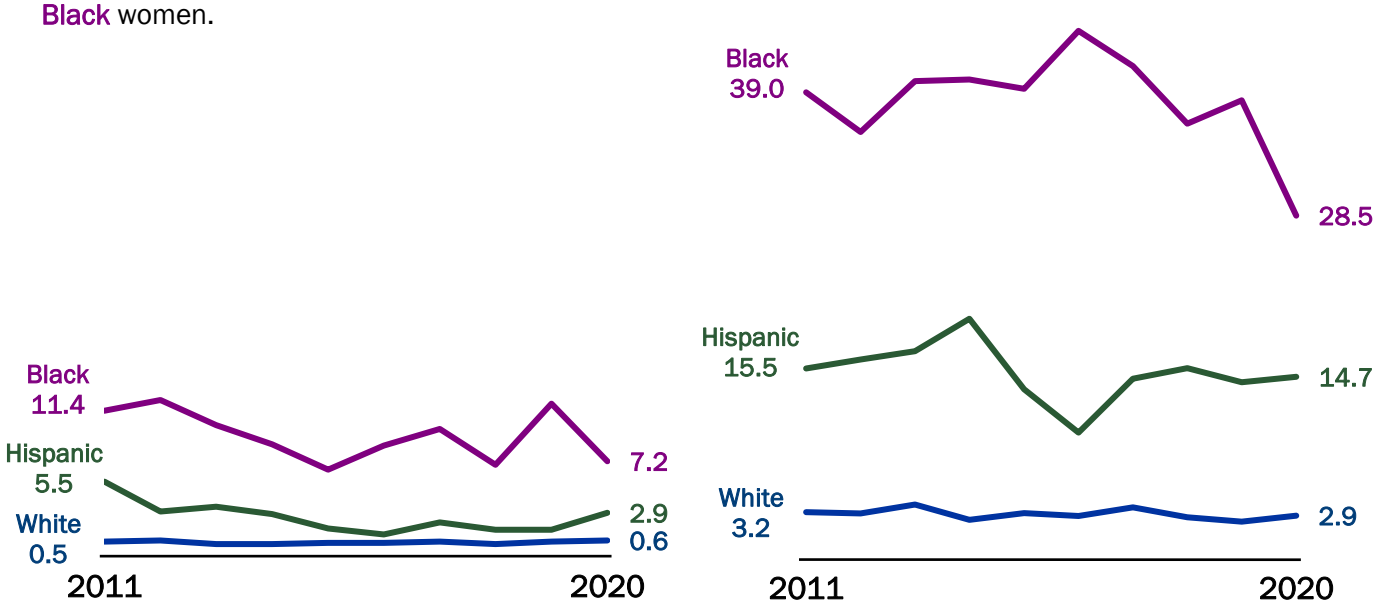
The number of new HIV diagnoses per 100,000 people by gender and race or ethnicity, Wisconsin, 2011–2020

Cisgender women

The number of new HIV diagnoses per 100,000 people has remained stable for White women, declined for Hispanic women, and varied for Black women.

Cisgender men

The number of new HIV diagnoses per 100,000 people has remained stable for White men and varied for Hispanic and Black men.



Native American and Asian People

Due to the small number of Native American and Asian people diagnosed in Wisconsin each year, these populations are excluded from many sections of this report. A brief summary is provided below.

Native American People

During 2011–2020, 16 Native American people were diagnosed with HIV in Wisconsin (Figure 7).

- Sixty-three percent of these recent diagnoses were men.
- Thirty-eight percent were under 30 at the time of diagnosis.
- All but two were diagnosed in either the southeastern (38%) or northeastern (50%) regions.
- Nine diagnoses were attributed to male-male sexual contact (56%), three were attributed to injection drug use (19%), and four had an unknown transmission category (25%).

The way that race and ethnicity is classified for the purposes of this report, which mirrors the way CDC classifies race and ethnicity (see Technical Notes), may lead to underreporting of certain racial and ethnic groups. When classified in a more inclusive way, the number of new HIV diagnoses among Native American people during 2011-2020 increases from 16 to 52 (Appendix - Table A5).

Asian People

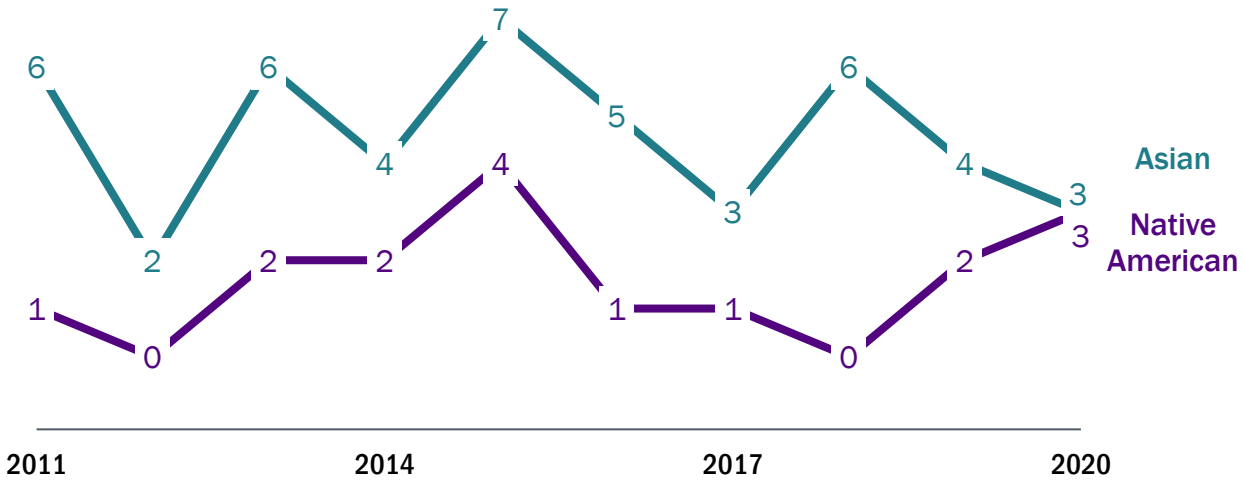
During 2011-2020, 46 Asian people were diagnosed with HIV in Wisconsin (Figure 7).

- Four out of five of these recent diagnoses were men.
- Thirty-three percent were under 30 at the time of diagnosis.
- The majority were diagnosed in the southeastern (43%), southern (24%), or northeastern (20%) regions.
- Twenty-eight of these diagnoses were attributed to male-male sexual contact (63%), two were attributed to male-female (heterosexual) sexual contact (4%), one was attributed to perinatal exposure (2%) and 14 had an unknown transmission category (30%).

FIGURE 7

The number of new HIV diagnoses among Native American and Asian people has fluctuated but remained low over the past 10 years.

Number of HIV diagnoses among Native Americans and Asians, Wisconsin 2011-2020



Transgender People

Cisgender people have a gender identity that corresponds with their sex assigned at birth. Conversely, transgender people have a gender identity that does not conform to their sex assigned at birth. This includes people who self-identify as transgender women, transgender men, and other gender nonconforming identities.

Gender identity and sexual orientation are separate, distinct concepts, with gender identity referring to an individual's sense of themselves and sexual orientation referring to an individual's attractions and partnering.

Transgender people are at high risk of HIV due to stigma, discrimination, social rejection and exclusion, violence, and barriers faced in health care settings, such as lack of provider training on transgender people's unique needs.[1]

Since 1982, 95 transgender individuals have been diagnosed with HIV in Wisconsin (eight transgender men and 87 transgender women). While collection of self-reported gender identity has improved over time, the number of diagnoses among transgender individuals in Wisconsin may be underreported.

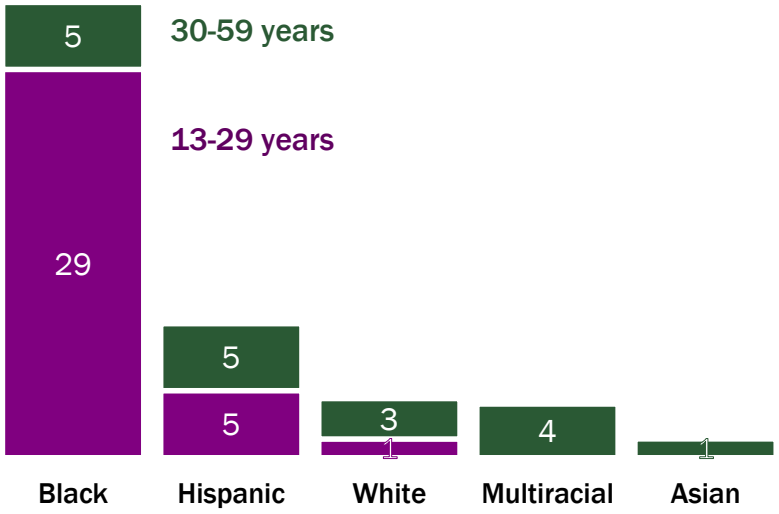
Of the 95 HIV diagnoses among transgender individuals, 53 occurred between 2011 and 2020 (Figure 8).

- The majority were from a racial or ethnic minority group (92%).
- Two out of three individuals were under age 30 (66%).
- 89% of recent diagnoses were attributed to sexual contact (47 of 53).

FIGURE 8

Over half of transgender people diagnosed with HIV in the last 10 years were young people of color.

Number of HIV diagnoses among transgender people by age at diagnosis and race and ethnicity, 2011-2020



Transmission Category

Adult Transmission Risks

Some people newly diagnosed with HIV do not know for certain how they were exposed or do not choose to share their risk factors for HIV exposure with their doctor. A statistical method called imputation is used to estimate the probable transmission category for people with an unknown transmission category (see Technical Notes).

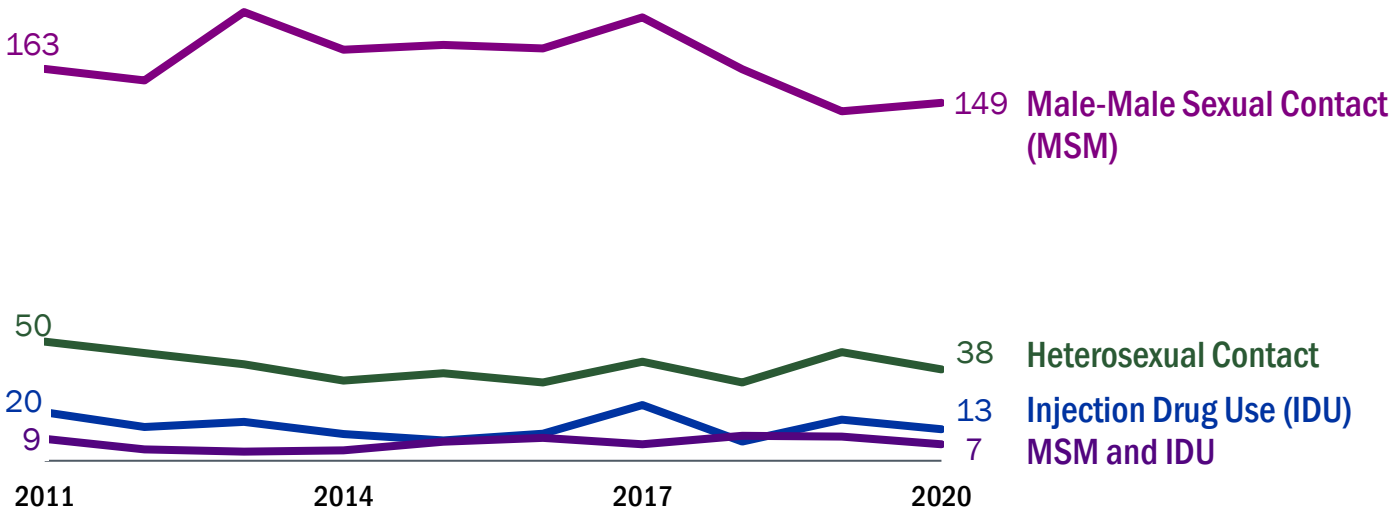
[1] Centers for Disease Control and Prevention. HIV Among Transgender People. https://www.cdc.gov/hiv/group/gender/transgender/. Published April 2017.

During 2011–2020, the estimated number of diagnoses attributed to male-male sexual contact, injection drug use, and male-female sexual (heterosexual) contact were stable (Figure 9).

FIGURE 9

Male-male sexual contact is the most common HIV tranmission risk.

New HIV diagnoses by estimated transmission category*, Wisconsin, 2011-2020



*Data have been statistically adjusted to account for those with unknown transmission category.

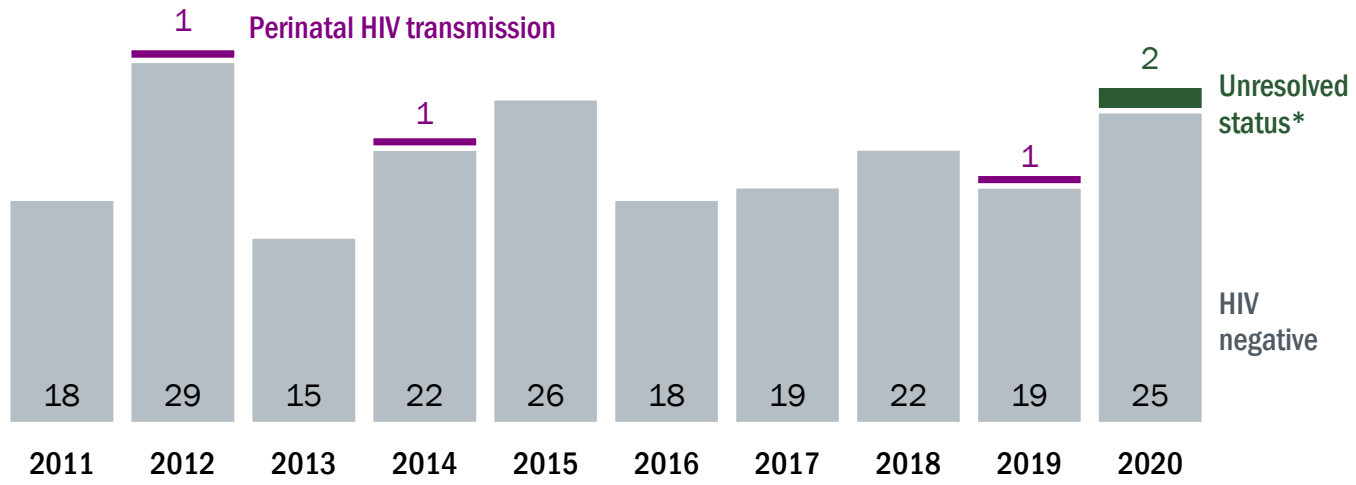
Perinatal Transmission

During 2011–2020, 218 infants were born to women living with HIV in Wisconsin, and none were born to transgender people. Of these infants, 213 (98%) are HIV negative, three are living with HIV (1%), and two have an unresolved diagnostic status as of this writing due to being born too recently to have completed testing to confirm a negative status (1%; Figure 10).

FIGURE 10

Perinatal transmission of HIV to babies is rare in Wisconsin due to strong partnerships for providing care to pregnant people living with HIV.

Diagnostic status of children born to people of childbearing potential living with HIV, Wisconsin, 2011-2020



* These babies were born too recently to have resolved their infection status at the time this report was made.

Late Diagnosis

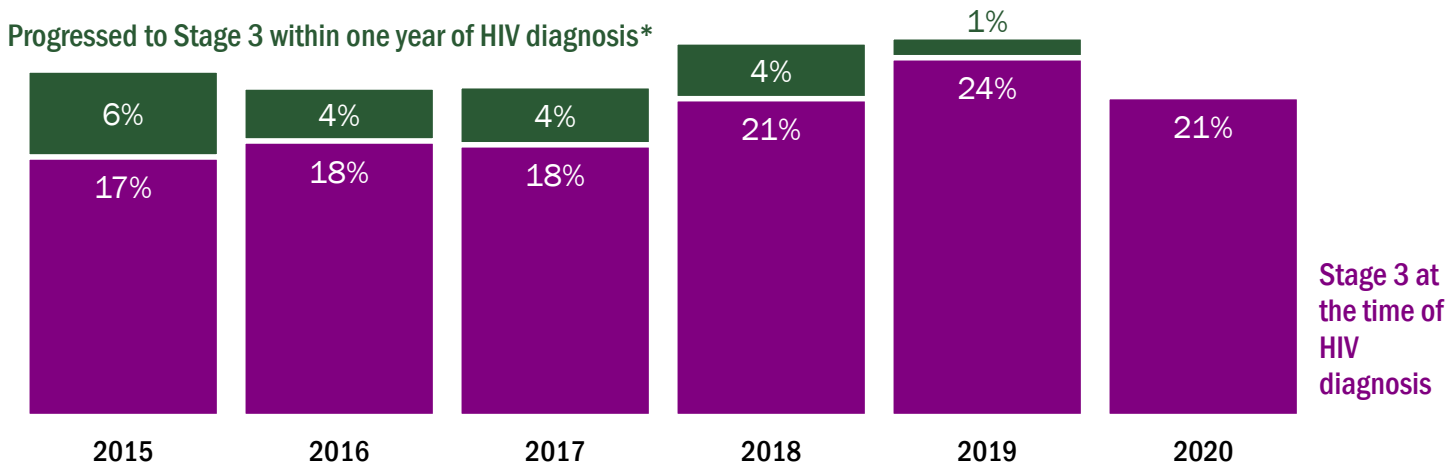
A late diagnosis occurs when a person living with HIV progresses to Stage 3 (AIDS) within one year of receiving their initial diagnosis. Without treatment, progression to Stage 3 typically occurs eight to 10 years after HIV was acquired. Stage 3 status is clinically defined by having a very low CD4 white blood cell count or a Stage 3-defining opportunistic infection. Early diagnosis and access to HIV care can prevent progression to Stage 3 so that people living with HIV have longer and healthier lives.

The percentage of new HIV diagnoses that had progressed to Stage 3 by the time they were first identified increased from 2015 to 2020, with a low of 17% in 2015 and a high of 24% in 2019 (Figure 11).

FIGURE 11

The percentage of people who progressed to Stage 3 at the time of diagnosis increased overall during 2015-2020.

Percentage of people who progressed to Stage 3 HIV infection within one year of diagnosis, Wisconsin, 2015-2020



*Those diagnosed with HIV during 2020 have not had one full year to evaluate progression to Stage 3 and have been excluded.

Of people who received a late HIV diagnosis during 2015–2019:

- The majority (77%) were men.
- Four out of five (79%) were over 30 at the time of diagnosis.
- Thirty-nine percent were White, 38% were Black, and 17% were Hispanic.
- About half (51%) had a transmission category of male-male sexual contact, 8% had a transmission category of male-female sexual (heterosexual) contact, and 3% had a transmission category of injection drug use.

New Diagnoses, 2020

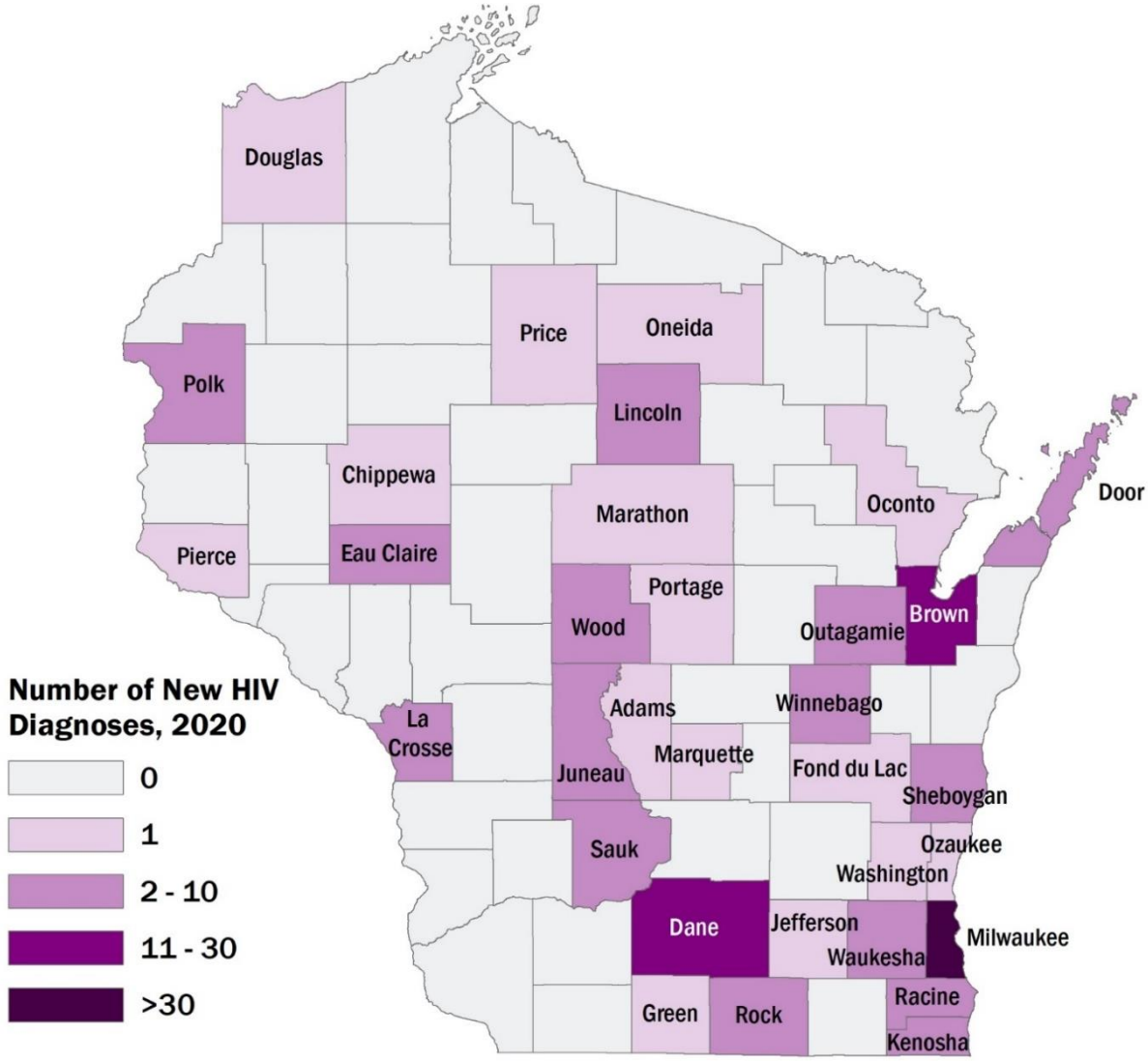
Number of New HIV Diagnoses

New HIV diagnoses are Wisconsin residents who received their first HIV diagnosis during the current reporting period. During 2020, 208 Wisconsin residents were newly diagnosed with HIV, or 3.6 new diagnoses per 100,000 Wisconsin residents. The majority of new HIV cases were diagnosed in Milwaukee County (105, 50%), Dane County (19, 9%), and Brown County (12, 6%; Figure 12, Appendix-Table A2).

FIGURE 12

The majority of new HIV diagnoses were identified in Milwaukee, Dane, and Brown counties.

Geographic distribution of new HIV diagnoses, Wisconsin, 2020



Recent and Acute Infections

Recent HIV infections are those diagnosed during the six months after HIV was acquired as evidenced by a documented or self-reported negative HIV test during this period (see Technical Notes). Acute HIV infections are those diagnosed during the two to four weeks after HIV exposure.

People in the acute stage of infection have a high viral load (that is, a large number of viruses in the blood) and are more able to transmit HIV to others due to high virus concentrations in the body. Rapid linkage of people with acute infections to partner services ensures that exposed partners receive timely HIV testing.

During 2020, 56 people received a recent or acute HIV diagnosis. Of these, none were considered to have acute diagnoses based on laboratory testing algorithms or presence of acute symptoms.

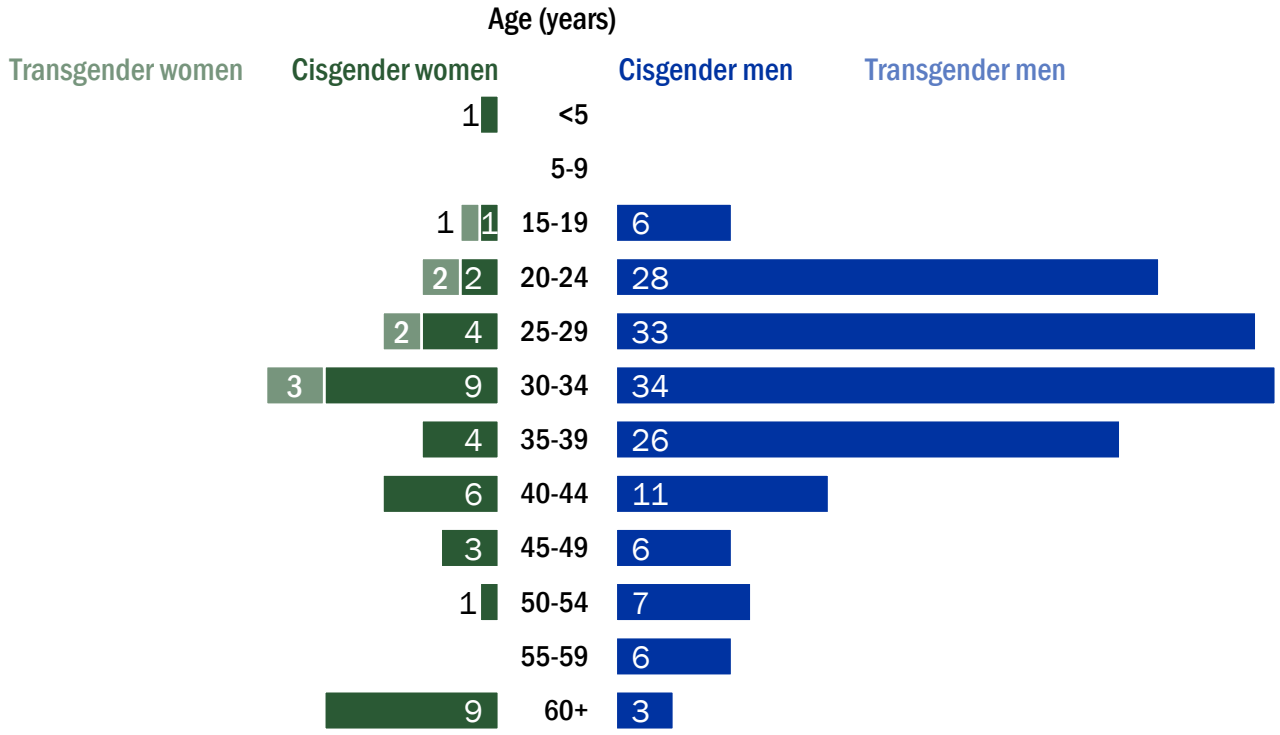
Demographics

During 2020, 160 men, 40 women, and eight transgender individuals were diagnosed with HIV in Wisconsin (Figure 13, Appendix-Table A3).

FIGURE 13

Approximately 1 out of 3 new HIV diagnoses during 2020 were among young cisgender men under 30.

Number of HIV diagnoses by age and gender, Wisconsin, 2020



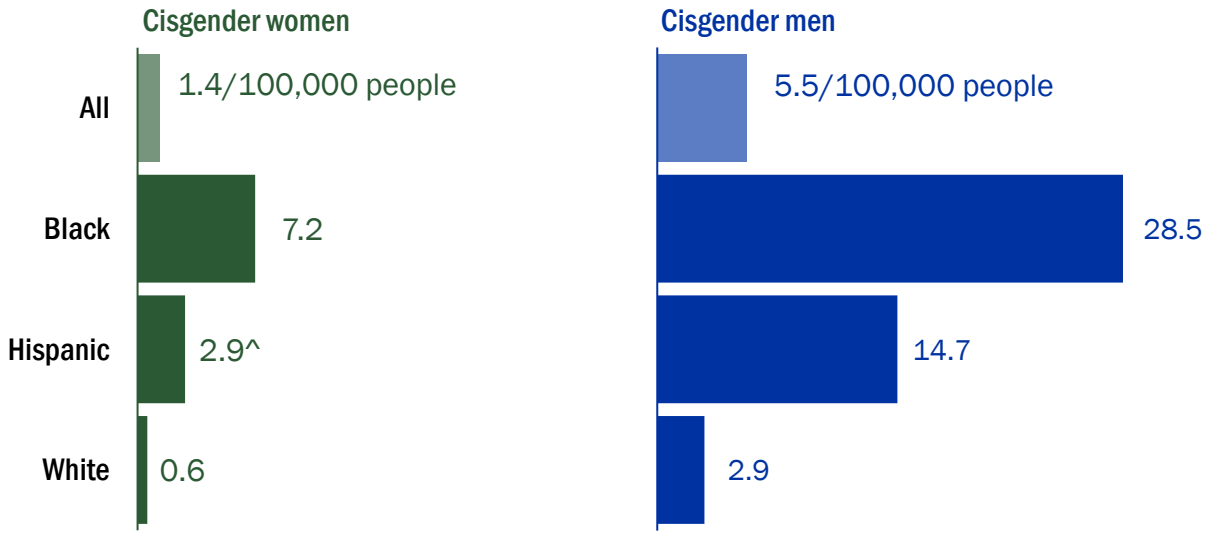
The average (median) age at diagnosis was 32.5, with a range of 1-72. During 2020, newly diagnosed men had a lower average age at diagnosis than women (men, 32; women, 38). The average age at diagnosis for transgender women in 2020 was 25.

During 2020, the new HIV diagnosis rate was higher for men and was higher among Black and Hispanic people compared to other race or ethnicity groups (Figure 14).

FIGURE 14

Black men were diagnosed with HIV at a higher rate than other groups.

Number of new HIV diagnoses per 100,000 people by gender* and race or ethnicity, Wisconsin, 2020



*Eight transgender persons diagnosed during 2020 are excluded from these rates as population denominators are not available to calculate rates.
^ Rate is unreliable due to a count less than 12. Rates based on counts less than five have been suppressed. This is why not all racial groups are included in this figure.

Transmission Category

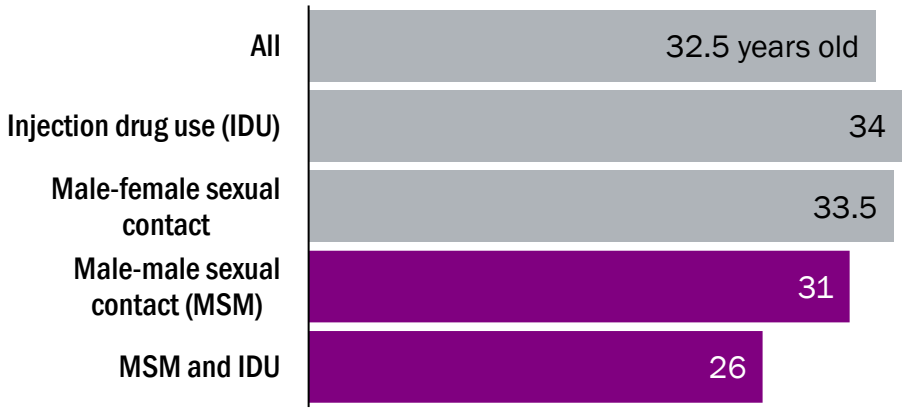
Age

Transmission categories are determined by what people tell their doctor about behaviors that might lead to HIV exposure. People who reported male-male sexual contact as a possible route of exposure to HIV tended to be younger on average (Figure 15).

FIGURE 15

People at risk of HIV through male-male sexual contact tended to be younger at diagnosis than those at risk from injection drug use or male-female sexual contact.

Median age at HIV diagnosis by transmission category, Wisconsin, 2020

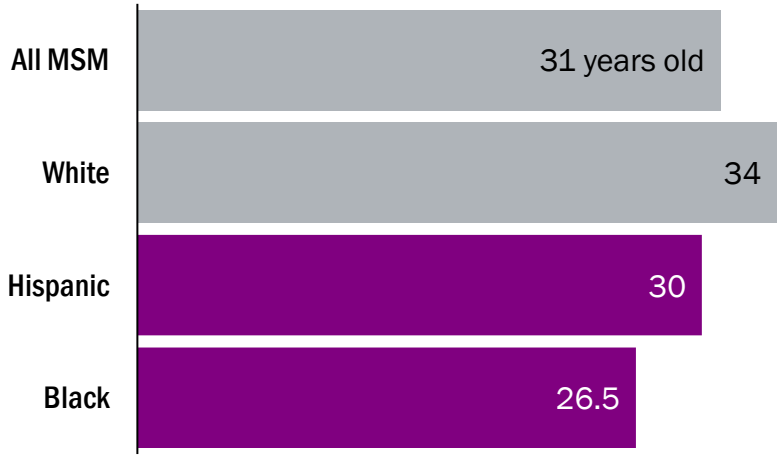


Within the male-male sexual contact transmission category, Black and Hispanic men tended to be younger at diagnosis compared to White men (Figure 16).

FIGURE 16

Of men who have sex with men, Black and Hispanic men were younger at diagnosis than White men.

Median age at HIV diagnosis by race and ethnicity for those reporting male-male sexual contact, Wisconsin, 2020



Gender

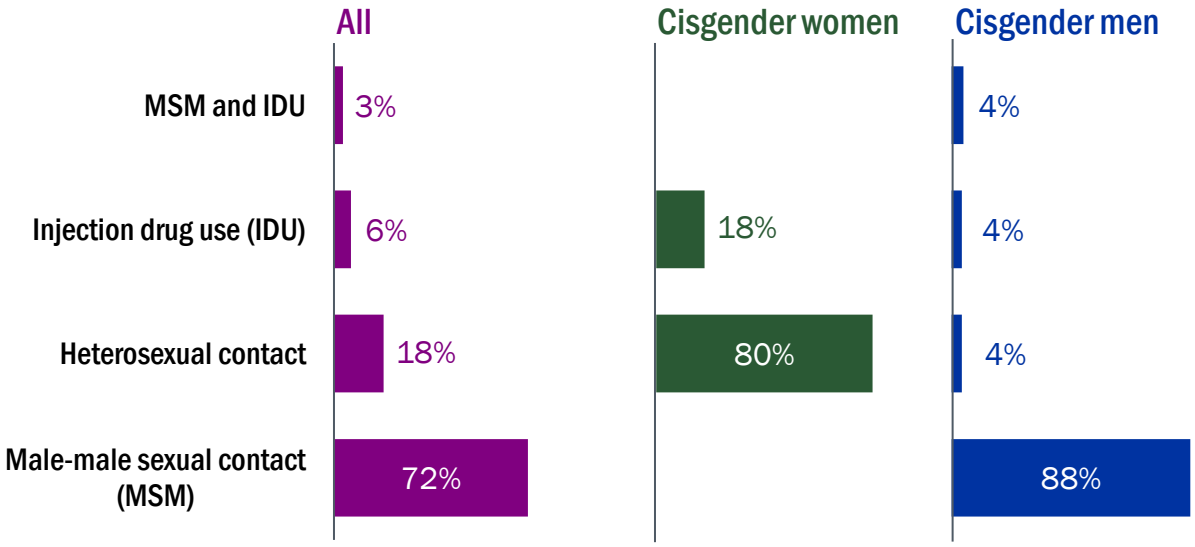
The majority of new diagnoses were attributed to an estimated transmission category of male-male sexual contact (72%; Figure 17). The remainder was attributed to male-female sexual contact (18%), injection drug use (6%), or both male-male sexual contact and injection drug use (3%).

Among transgender individuals, all eight diagnoses were attributed to sexual contact.

FIGURE 17

Two out of 3 new HIV diagnoses were attributed to male-male sexual contact.

Percentage of HIV diagnoses by gender and estimated trasmission category*, Wisconsin, 2020



*Data have been statistically adjusted to account for those wtih unknown transmission category.

During 2020, there were six diagnoses with a reported transmission category of injection drug use and six with a reported transmission category of male-male sexual contact and injection drug use. The number of diagnosis attributed to injection drug use was lower in 2020 compared to 2019 (11 injection drug use, 9 male-male sexual contact and injection drug use).

Facility at Diagnosis

HIV testing occurs in a variety of settings, including publicly funded test sites and private medical clinics. Counseling, testing, and referral (CTR) sites are funded by the Division of Public Health. These CTR sites include community-based organizations and some local health departments.

During 2020, the most common settings for HIV diagnoses were outpatient clinics (51%), community based organizations (11%), and local health departments (9%; Figure 18).

FIGURE 18

Facility at Diagnosis

Percent of new HIV diagnoses by facility, Wisconsin, 2020

*Other includes diagnosis at a family planning clinic (4%), HIV care clinic (3%), jail or prison (4%), emergency room or urgent care (3%), or other facility types (2%).

Linkage to Care

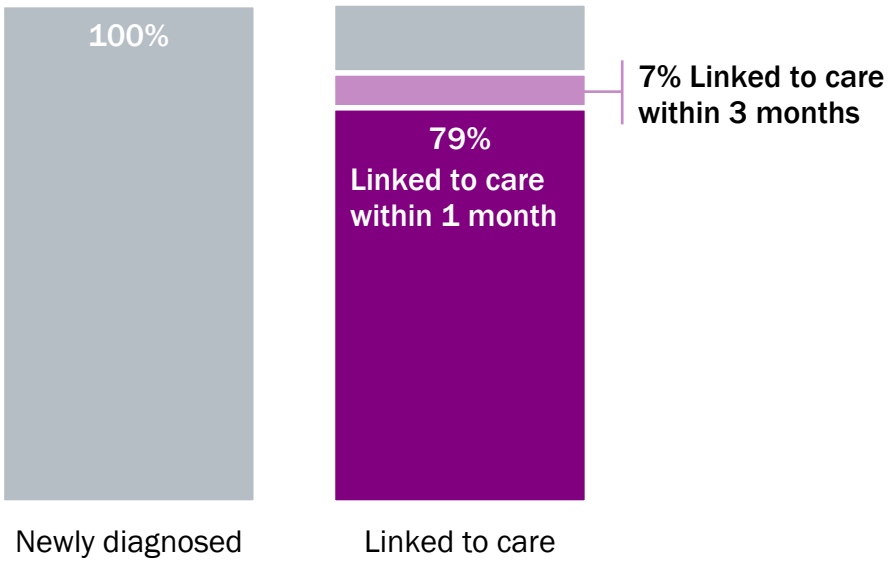
Timely linkage to care (visiting an HIV health care provider within one month (30 days) after learning they were living with HIV) can help people living with HIV have healthier lives and prevent further HIV transmission. Access to medications that reduce the amount of virus in the body can lower the risk of transmitting HIV by sexual contact.

The HIV care continuum is used at the state, regional, and local levels to measure and monitor engagement in care and health outcomes for people living with HIV (Appendix-Figure A1). A portion of the care continuum specifically measures timely linkage to care (Figure 19).

FIGURE 19

Most people newly diagnosed with HIV are linked to care services within one month of diagnosis.

HIV Care Continuum* - Linkage to Care, Wisconsin, 2020



*Reflects laboratory data received through April 30, 2021

Prevalence

Number of People Living with HIV

Observed Prevalence

Prevalence is the total number of people living with HIV in Wisconsin at the end of the reporting period. Prevalent HIV cases are defined as people living with HIV who:

- Currently live in Wisconsin according to surveillance and address records.
- Are alive at the end of the reporting period.

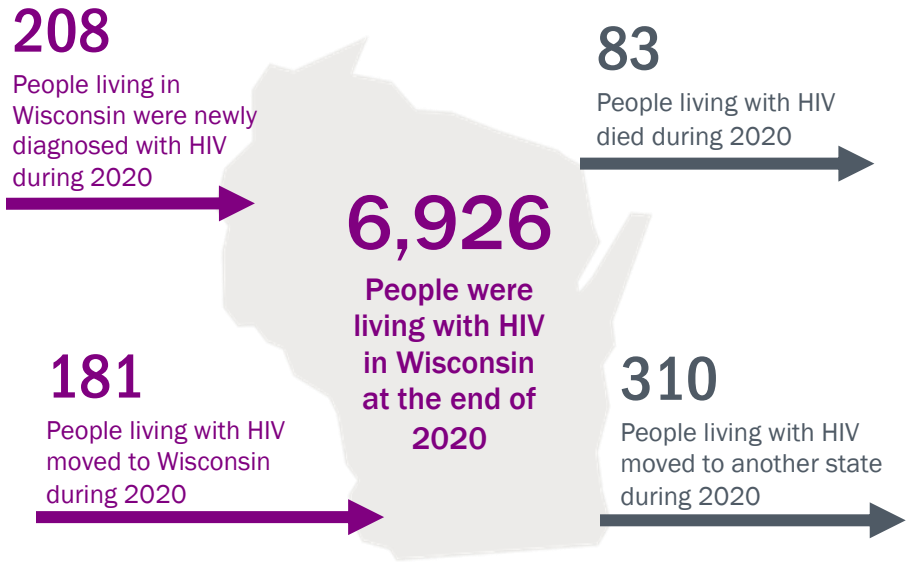
Prevalence fluctuates due to new diagnoses, migration, and deaths (Figure 20).

At the end of 2020, 6,926 people living with HIV resided in Wisconsin.

FIGURE 20

More people living with HIV left Wisconsin than entered during 2020.

Flow of people living with HIV into and out of Wisconsin, 2020



People who are Unaware of HIV Diagnosis

Not everyone living with HIV is aware of their diagnosis. The estimated prevalence of HIV in Wisconsin that includes those unaware of their status is approximately 8,035 people.

The most recent CDC estimate[2] suggests that nationally, 13.8% of people (about one out of seven) living with HIV are unaware of their status. Given CDC's estimate, the observed prevalence likely underestimates the total population of people living with HIV in the state by approximately 1,109 people who are not aware of their HIV diagnosis.

[2] Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States 2014-2018. *HIV Surveillance Supplemental Report* 2020;25 (No. 1). https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html. Published May 2020. Accessed July 2021.

According to the CDC, awareness of HIV status may be substantially lower for younger people and slightly lower for some racial and ethnic minorities due to barriers to getting tested (Appendix-Table A4). This understanding can guide prioritization of services to populations with the highest need for HIV testing.

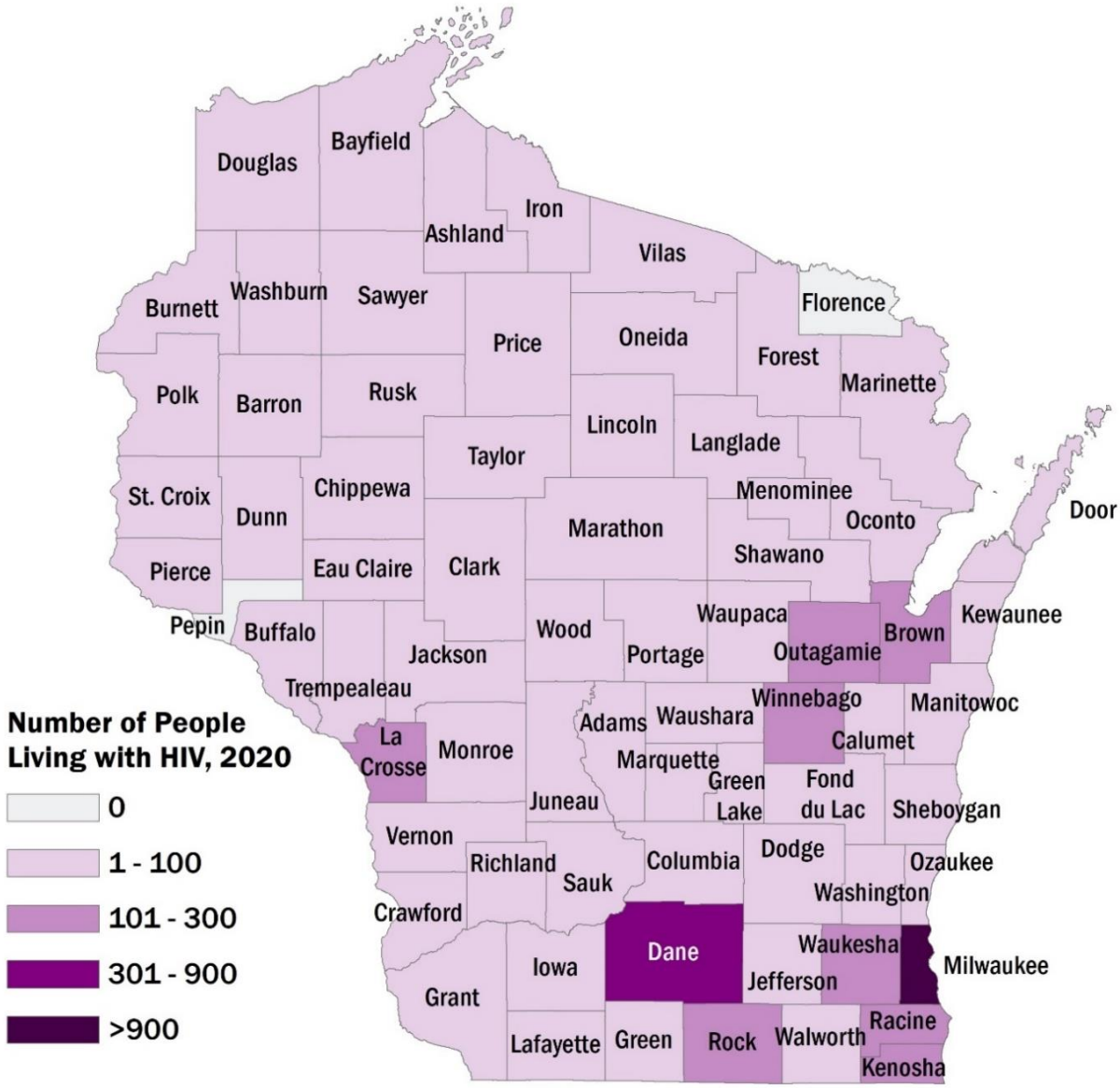
Geographic Distribution of People Living with HIV

Nearly half (47%) of all individuals living with HIV in Wisconsin currently reside in Milwaukee County, 12% live in Dane County, and 4% each live in Racine and Brown counties, (Figure 21).

FIGURE 21

The majority of people living with HIV live in the southern and southeastern part of the state.

Geographic distribution of people living with HIV, Wisconsin, 2020



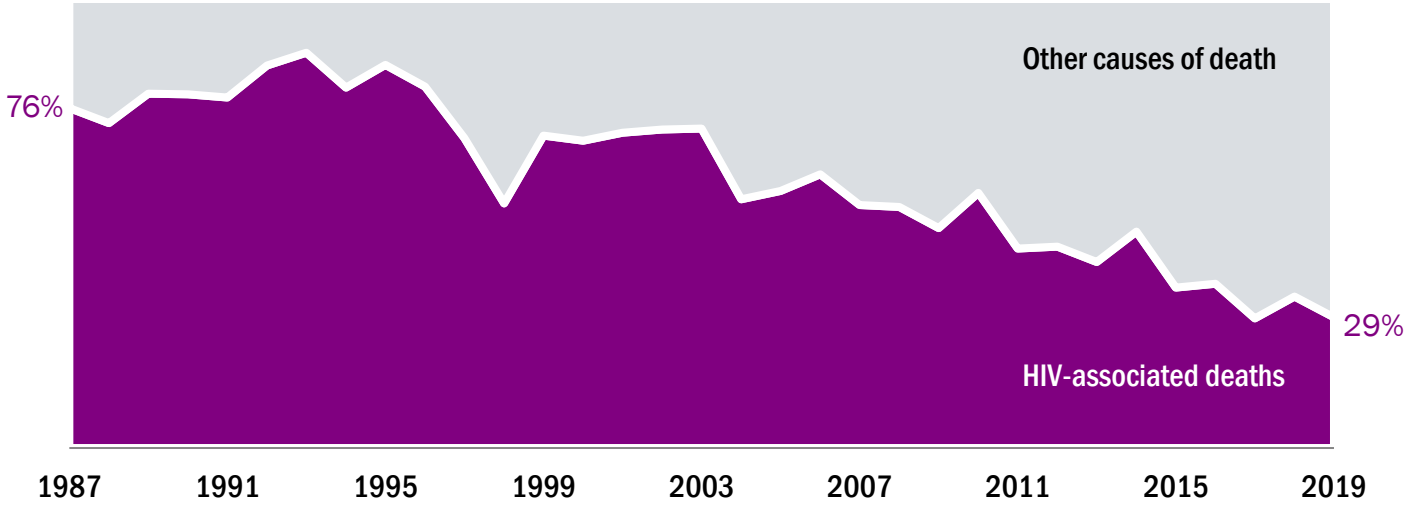
Deaths

Deaths due to any cause among people living with HIV in Wisconsin have declined since the early- to mid-1990s and the percentage of deaths specifically attributed to HIV-associated causes has also declined (Figure 22).

FIGURE 22

Deaths attributed to HIV continue to decrease due to access to medications that allow people living with HIV to have longer, healthier lives.

Percentage of deaths attributed to HIV as primary cause of death, Wisconsin, 1987-2019



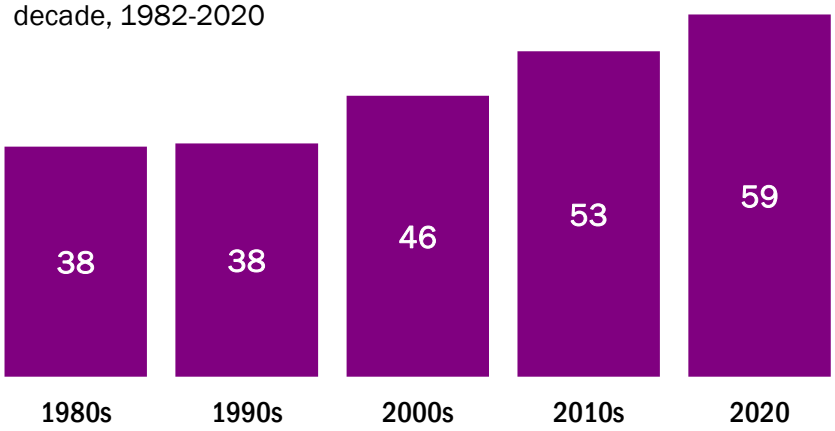
During 2019, 79 deaths occurred in Wisconsin among people living with HIV. 29% of deaths had HIV listed as the primary cause of death. The remaining 71% were attributed to other causes in line with the national leading causes of death[3].

The median age at death of people living with HIV in Wisconsin has increased substantially since 1982 (Figure 23).

FIGURE 23

People living with HIV are living longer and healthier lives.

Median age at death of people living with HIV in Wisconsin by decade, 1982-2020



[3] Heron M. Deaths: Leading causes for 2018. National Vital Statistics Reports; vol 70 no 4. Hyattsville, MD: National Center for Health Statistics. 2021.

Migration

New HIV reports are Wisconsin residents living with HIV who were identified to public health for the first time during the reporting period. These include both new diagnoses and people who were diagnosed in another state prior to moving to Wisconsin.

Of the 389 new HIV reports received during 2020, 181 (47%) were previously diagnosed in another state prior to moving to Wisconsin. People living with HIV who moved to Wisconsin during 2020 tended to be older and a slightly higher percentage reported a risk of male-female sexual (heterosexual) contact compared to new HIV diagnoses in Wisconsin (Appendix-Table A3).

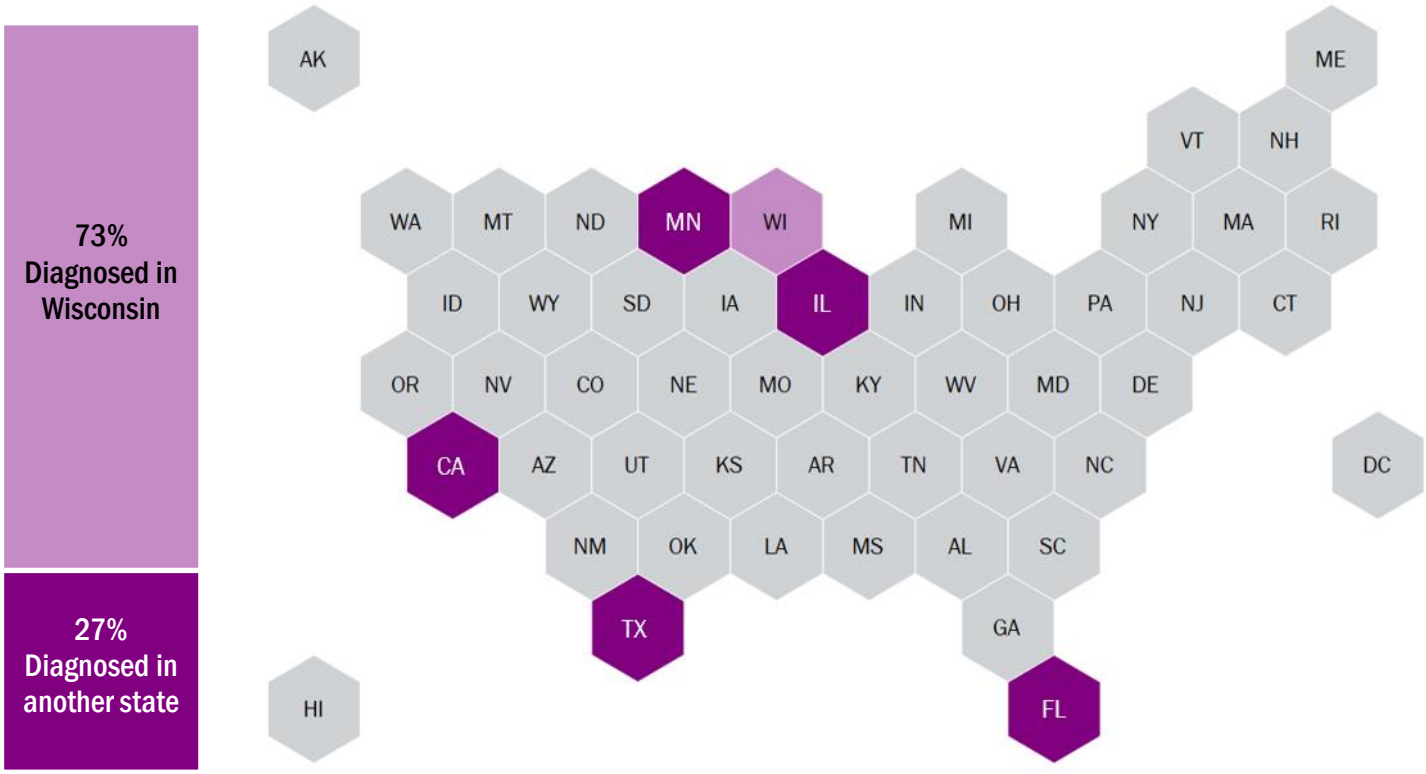
Approximately three out of four (73%) of the 6,926 people living with HIV in Wisconsin during 2020 were diagnosed in the state (Figure 24). The remaining 1,901 people (27%) were diagnosed in:

- Illinois (451)
- California (167)
- Florida (146)
- Minnesota (122)
- Texas (104)
- Another state (735)
- A foreign country (176)

FIGURE 24

Most people living with HIV in Wisconsin were diagnosed in Wisconsin or in Illinois, California, Florida, Minnesota, or Texas.

Diagnosis location of people living with HIV in Wisconsin during 2020



Demographics

Of people living with HIV in Wisconsin during 2020:

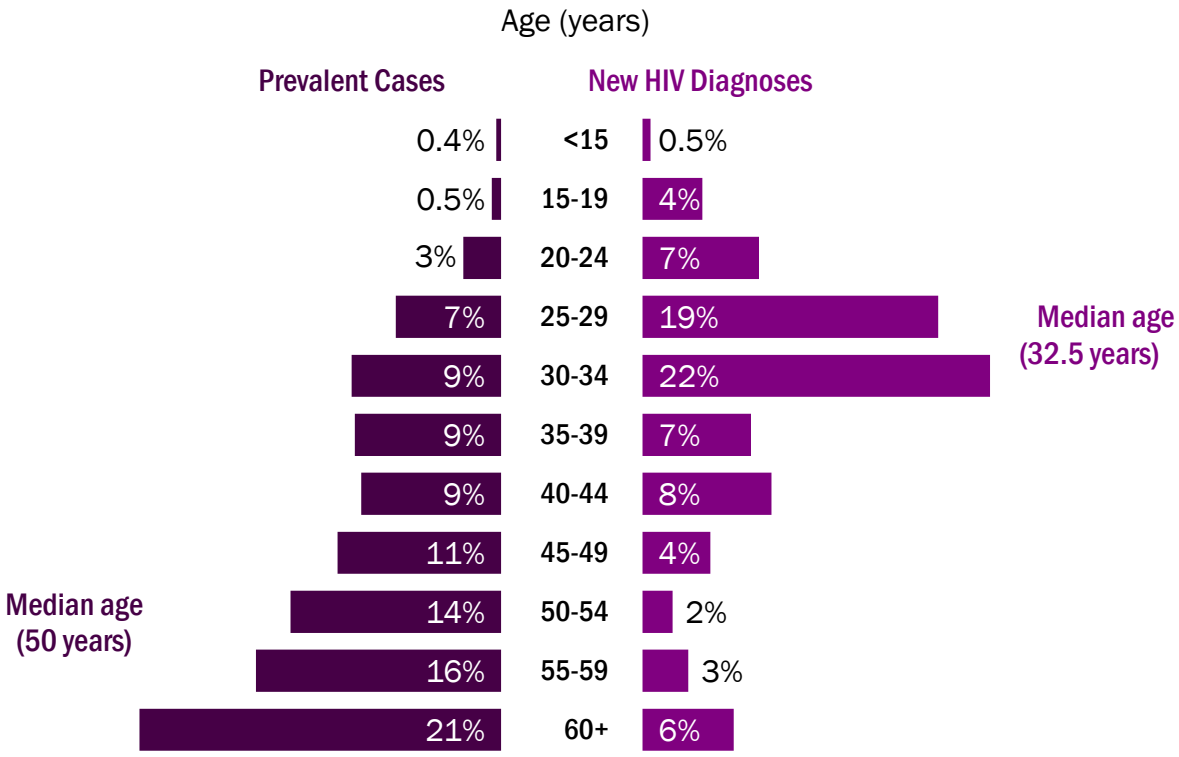
- The majority (79%) are men.
- The majority are over age 30 (90%) and half (52%) are over age 50.
- Three out of seven (43%) are White, 38% are Black, and 14% are Hispanic.
- Two out of three (63%) had a transmission category of male-male sexual contact, 20% had a transmission category of male-female sexual (heterosexual) contact, and 15% had a transmission category of injection drug use or both injection drug use and male-male sexual contact.

People living with HIV are living longer and healthier lives. This has resulted in a shift in the average age of prevalent cases compared to those being newly diagnosed (Figure 25). Services for people living with HIV need to address health conditions associated with aging in addition to HIV, while prevention efforts need to prioritize younger age groups.

FIGURE 25

The population of all people living with HIV in Wisconsin tends to be older than people newly diagnosed with HIV infection during 2020.

Age distribution of people currently living with HIV in Wisconsin (prevalent cases) compared to age at diagnosis for people newly diagnosed during 2020



Retention in Care

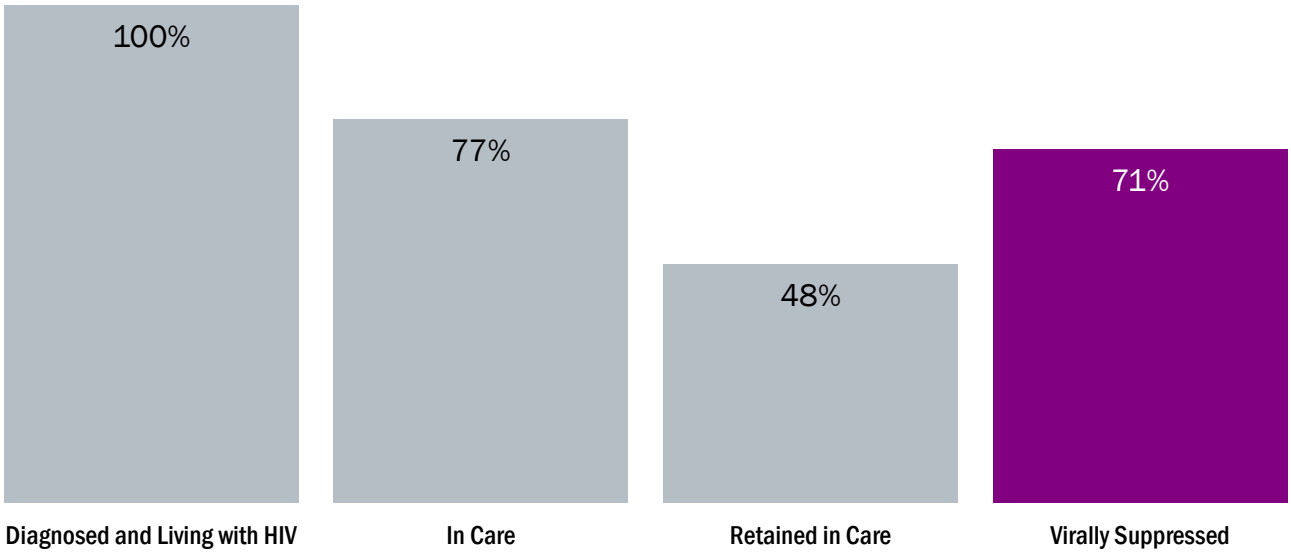
Access to HIV care and medications that reduce the amount of virus in the body (that is, the viral load) benefit both the health of people living with HIV and HIV prevention efforts. Individuals with a viral load that cannot be detected by standard laboratory diagnostic testing (that is, are virally suppressed) have a negligible risk of transmitting HIV through sexual contact.

The HIV care continuum is used at the state, regional, and local levels to measure and monitor HIV engagement in care and health outcomes (Figure A1). A portion of the care continuum specifically measures engagement in care and successful attainment of viral suppression (Figure 26).

FIGURE 26

Five out of seven people living with HIV in Wisconsin were virally suppressed during 2020.

HIV Care Continuum* - Retention and Care Outcomes, Wisconsin, 2020



*Reflects laboratory data received through April 30, 2021.

Technical Notes

Background

This report was prepared by the Wisconsin HIV Program. Wisconsin statutes require health care providers and laboratories to report confirmed or suspected HIV cases. Data in this report are compiled from laboratory results and report forms completed by health care providers. Risk information is self-reported by patients.

HIV reporting in Wisconsin is estimated to capture 99% of diagnosed individuals, but completeness of reporting may vary by geographic region, transmission category, and demographic group. Data reported here are based on the information available as of April 2021. Results are provisional and subject to change as additional information becomes available.

New Diagnoses

New HIV diagnoses are included in the annual report if they meet all of the following criteria:

- The person was diagnosed with HIV during the year of analysis.
- The person was a resident of Wisconsin at the time of diagnosis.
- Wisconsin is the earliest state of verifiable report. People who report being first diagnosed with HIV in another country, but whose diagnosis cannot be definitively documented, are included as new diagnoses. These practices conform to CDC's guidelines for residency assignment.

Prevalence

Observed Prevalence

People living with HIV are included in the observed prevalence if they meet the following criteria:

- The person was confirmed to be living with HIV.
- The person was presumed to be alive at the end of the analysis year.
- The last known address available for the person is a Wisconsin address.

Because of delays in reporting deaths to local and national databases, the number of people presumed alive should be considered provisional. Due to periodic data cleaning, prevalence may decrease as individuals thought to be living with HIV in Wisconsin are found to be deceased or living out of state.

Estimated Prevalence

The estimated prevalence is a measure that takes into account that a proportion of individuals who are living with HIV are not aware of their diagnosis. The calculation consists of:

- Number of people known to be living with HIV.
- Estimated proportion of people living with HIV who are unaware.

The estimated prevalence is calculated as:

$$\frac{Number\ known\ to\ be\ living\ with\ HIV}{Proportion\ unaware}$$

Rates

In this report, rates are defined as the number of cases per 100,000 people, except if noted otherwise. Population denominators used to calculate rates are from the Wisconsin Interactive Statistics on Health (https://www.dhs.wisconsin.gov/wish/index.htm).

Rates published by the CDC for Wisconsin, Milwaukee, and Madison cannot be compared to those prepared by the Wisconsin Department of Health Services—Division of Public Health and local health departments because they may use different data sources.

Demographic Variables

Age

For new diagnoses, age refers to the age at the time of HIV diagnosis. For people living with HIV, age refers to the age on December 31 of the year of analysis.

Gender

Consistent with the Council of State and Territorial Epidemiologists' position statement on transgender HIV surveillance,[4] this report uses gender identity rather than sex at birth.

[4] Council of State and Territorial Epidemiologists. Transgender HIV Surveillance. 17-ID-06. https://cdn.ymaws.com/www.cste.org/resource/resmgr/2017PS/2017PSFinal/17-ID-06.pdf. Accessed August 2021.

Gender is determined based on information in surveillance records. Individuals are counted as transgender for this report if they identified as transgender on an HIV report or laboratory document, or if there was a mismatch in birth sex and the sex or gender reported on any of the previously mentioned documents.

During 2020, transgender gender identity was not further verified; therefore, some individuals may be mistakenly counted as a transgender person in this report if sex or gender was incorrectly reported on any document or if data entry errors occurred. When information is available, surveillance staff may confirm gender identity when collecting report information from medical providers and public health officials.

Race and ethnicity

Generally, CDC uses race and ethnicity terminology aligning with the 1997 Office of Management and Budget (OMB) standards[5] on race and ethnicity. At a minimum, data on the following race categories are collected: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, and White. For the purpose of this report, Native American is used to describe persons reported with a race of American Indian or Alaska Native. In addition to data on race, data on two categories of ethnicity should be collected: Hispanic or Latino and not Hispanic or Latino.

This report also presents data for persons for whom multiple race categories are reported. In this report, persons categorized by race were not Hispanic or Latino. Conversely, people who identify their origin as Hispanic, Latino, or Spanish may be of any race and they are referred to as “Hispanic” in this report.

Residency

People who meet the definition of newly diagnosed (see *New Diagnoses* section above) are assigned to the county of residence listed on the HIV report form when first diagnosed and reported with HIV.

People who meet the prevalence definition (see *Prevalence* section above) are assigned to the county of their last known address.

Vital Status

Information about deaths is obtained from the Wisconsin Vital Records Office, the National Death Index, and the Social Security Death Master File. Deaths described in this report include only those that occurred in Wisconsin among people living with HIV. Deaths are described as being due to HIV, or caused by HIV, if HIV was listed as the underlying cause of death on the death certificate. Deaths are described as being due to other causes if HIV was not listed as the underlying cause of death. However, HIV may have been listed as one of the 19 possible contributing causes of death.

---

[5] Office of Management and Budget. Revisions to the standards for the classification of federal data on race and ethnicity. Federal Register 1997;62:58782-58790. https://www.govinfo.gov/content/pkg/FR-1997-10-30/pdf/97-28653.pdf. Accessed August 2021.

Transmission Category

Observed Transmission Category

Transmission category is the term that summarizes a person's possible HIV risk factors; the summary category results from selecting, from a hierarchical order of probability, the single risk factor most likely to have been responsible for transmission. For surveillance purposes, a diagnosis of HIV is counted only once in the hierarchy of transmission categories. Persons with more than one reported risk factor for HIV are classified in the transmission category listed first in the hierarchy. The exception is men who had sexual contact with other men and injected drugs; this group makes up a separate transmission category. Transmission categories are defined as follows:

- Male-male sexual contact includes men who have ever had sexual contact with other men and men who have ever had sexual contact with both men and women.
- Male-female sexual contact includes persons who have ever had male-female sexual (heterosexual) contact with a person known to have, or to be at high risk for, HIV (for example, someone who injects drugs). The male-female sexual contact category excludes men who have ever had sexual contact with both men and women.
- Injection drug use includes persons who have ever reported injecting drugs.
- Unknown includes people without a risk factor listed in the hierarchy of transmission categories. People may have an unknown transmission category because they did not identify risk behaviors, identified risk behaviors not part of the transmission hierarchy, died before they could be interviewed, or were lost to follow-up and could not be interviewed.
- The category "Other" is used to group less common transmission categories, including people with hemophilia, people who were exposed to HIV through a blood transfusion or tissue/organ transplant, and other pediatric transmission categories.
- Perinatal transmission refers to HIV transmitted during the perinatal period, which spans from 22–28 weeks of gestation to seven days after birth. This category is also used for children presumed to be exposed during breastfeeding.
- Sexual contact includes transgender persons exposed to HIV through sexual contact.

Imputed Transmission Category

Some people diagnosed with HIV are reported in Wisconsin with insufficient risk information to assign a transmission category. Multiple imputation is a statistical method in which the known transmission categories of individuals with similar demographic characteristics are used to estimate the most plausible values for those with unknown transmission category (See Box 1).

Counts estimated by imputed transmission category are reported rounded to the nearest whole number of people but are still considered to be estimates, not counts. Imputed transmission categories may change as new information becomes available. This method conforms to the CDC's method of addressing people with unknown transmission category.

Box 1: Multiple Imputation Example

Assuming 30 women aged 45-64 were diagnosed with HIV, 18 of them had diagnoses attributed to male-female sexual contact; nine had diagnoses attributed to injection drug use; and three had unknown transmission categories. The 27 known transmission categories are applied to the three people with an unknown transmission category. Of the three persons with an unknown transmission category, two are assigned 67% male-female sexual contact and one 33% injection drug use. To conclude, two persons with unknown transmission risk are estimated to have male-female sexual contact risk and one person an injection drug use risk.

HIV Stage at Diagnosis

Recent and Acute HIV Diagnosis

Recent HIV is defined as having been diagnosed during the six months after HIV was acquired. Recent HIV is suspected when a newly diagnosed individual reports a negative test within the previous six months, or when the initial viral load test is high.

Acute HIV is defined as having been diagnosed with HIV in the two to four weeks after HIV was acquired. This time period immediately after acquiring HIV is characterized by high viral load, undetectable HIV-1 antibodies, and presence of viral nucleic acids (that is, RNA) or p24 antigen.

Late (Stage 3) HIV Diagnosis

In this report, an HIV case is any person with laboratory-confirmed HIV infection. This includes HIV and Stage 3 HIV (AIDS) diagnosis. People diagnosed with Stage 3 HIV infection include only those that meet the CDC's Stage 3 HIV surveillance definition.

According to the CDC, late diagnosis occurs among individuals who progress to Stage 3 HIV (AIDS) within one year of receiving their initial HIV diagnosis, including those progressed to Stage 3 by the time they are first diagnosed with HIV. Stage 3 HIV typically occurs eight to 10 years after acquiring HIV in the absence of treatment, and is clinically defined by a very low CD4 count or a Stage 3-defining opportunistic infection.

During 2014, the Stage 3 surveillance definition changed to exclude individuals with a Stage 3-defining CD4 count (<200 cells/mL) if a negative HIV test in the previous six months has been documented. Instead, the low CD4 count may reflect recently acquired HIV. Individuals may be incorrectly classified as having progressed to Stage 3 if recent negative tests are not documented. Collection of recent negative tests has improved over time.

Statistical Significance

Statements about statistical significance are sometimes made when looking at a change over time or when comparing groups. Tests of statistical significance determine whether the observed trend or difference is due to chance or is a true pattern. Linear regression on rolling three-year averages was used to assess trends over time and chi-squared analysis was used to assess differences between groups. Statements about increasing or decreasing trends or differences between groups are only made if the pattern is statistically significant.

Appendix

TABLE A1

Number of new HIV diagnoses per 100,000 people by year of diagnosis, gender, and race or ethnicity, Wisconsin, 2011-2020

	Cisgender Men			Cisgender Women		
Year	Black	White	Hispanic	Black	White	Hispanic
2011	39.0	3.2	15.5	11.4	0.5	5.5**
2012	35.6	3.1	16.2	12.3	0.6	3.0**
2013	39.9	3.9	16.9	10.2	0.3**	3.4**
2014	40.1	2.5	19.7	8.6	0.3**	2.8**
2015	39.3	3.1	13.7	6.5	0.4**	*
2016	44.2	2.9	10.0	8.5	0.4**	*
2017	41.2	3.6	14.6	9.9	0.5	*
2018	36.3	2.8	15.5	6.9	0.3**	*
2019	38.3	2.4	14.3	12	0.5**	*
2020	28.5	2.9	14.7	7.2	0.6	2.9**

* Rates based on counts less than five have been suppressed.

** Rates are statistically unreliable due to counts less than 12.

TABLE A2

Geographic distribution of new HIV diagnoses by county of diagnosis, Wisconsin, 2020

County of Residence	Number	Percent of Cases	Rate/100,000 people *
Adams	1	0.5%	-
Brown	12	5.8%	4.5
Chippewa	1	0.5%	-
Dane	19	9.1%	3.5
Door	2	1%	-
Douglas	1	0.5%	-
Eau Claire	2	1%	-
Fond du Lac	1	0.5%	-
Green	1	0.5%	-
Jefferson	1	0.5%	-
Juneau	2	1%	-
Kenosha	3	1.4%	-
La Crosse	4	1.9%	-
Lincoln	2	1%	-
Marathon	1	0.5%	-
Marquette	1	0.5%	-
Milwaukee	105	50.5%	11.1
Oconto	1	0.5%	-
Oneida	1	0.5%	-
Outagamie	2	1%	-
Ozaukee	1	0.5%	-
Pierce	1	0.5%	-
Polk	4	1.9%	-
Portage	1	0.5%	-
Price	1	0.5%	-
Racine	6	2.9%	3.1**
Rock	8	3.8%	5.0**
Sauk	5	2.4%	7.9**
Sheboygan	3	1.4%	-
Washington	1	0.5%	-
Waukesha	4	1.9%	-
Winnebago	3	1.4%	-
Wood	2	1%	-
Department of Corrections	5	2.4%	-
TOTAL	**208**	**100%**	**3.6**

* Rates based on counts less than five have been suppressed.

** Rates are statistically unreliable due to counts less than 12.

TABLE A3

Comparison of new HIV reports by location of diagnosis, Wisconsin, 2020

	Diagnosis Location	
	Wisconsin	Outside of Wisconsin
	Number (%)	Number (%)
Total	208 (100%)	181 (100%)
Current Gender		
Cisgender Men	160 (77%)	146 (81%)
Cisgender Women	40 (19%)	32 (18%)
Transgender Women	8 (4%)	3 (2%)
Median Age (Range)	32.5 (1-72)	42 (19-82)
Race/Ethnicity		
Native American	3 (1%)	2 (1%)
Asian	3 (1%)	2 (1%)
Black	78 (38%)	45 (25%)
Hispanic	40 (19%)	33 (18%)
Native Hawaiian/Pacific Islander	0 (0%)	0 (0%)
White	82 (39%)	89 (49%)
Multiracial	2 (1%)	10 (6%)
Transmission Category		
Male-Male Sexual Contact (MSM)	118 (57%)	108 (60%)
Injection Drug Use (IDU)	6 (3%)	14 (8%)
MSM and IDU	6 (3%)	19 (11%)
Male-Female Sexual Contact	14 (7%)	19 (11%)
Perinatal Exposure	1 (0.5%)	1 (1%)
Unknown	63 (30%)	20 (11%)

TABLE A4

Observed and estimated prevalence of people living with HIV in Wisconsin, 2020

		Wisconsin		
	United States Estimated % Unaware*	Observed Prevalence	Estimated # Unaware**	Estimated Prevalence
Total	13.8%	6,926	1,109	8,035
Age				
13-24 years	44.9%	213	174	387
25-34 years	29.3%	1,125	466	1,591
35-44 years	15.6%	1,255	232	1,487
45-54 years	7.6%	1,643	135	1,778
Greater than 55 years	4.9%	2,672	138	2,810
Race and Ethnicity				
White	11.3%	2,950	376	3,326
Black	14.0%	2,612	425	3,037
Hispanic or Latino	16.7%	1,001	201	1,202
Multiracial	12.1%	225	31	256
Asian	15.0%	98	17	115
Native American	19.9%	33	8	41
Transmission Category				
Male-Male Sexual Contact (MSM)	15.9%	4,360	824	5,184
Male-Female Sexual Contact	13.4%	1,399	216	1,615
Injection Drug Use (IDU)	6.5%	644	45	689
MSM and IDU	7.9%	405	35	440

* Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States 2014-2018. *HIV Surveillance Supplemental Report* 2020;25 (No. 1). https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html. Published May 2020. Accessed July 2021.

** Details about calculation of estimated unaware and estimated prevalence can be found in the Technical Notes.

TABLE A5 Comparison of HIV new diagnoses among Native American people by race/ethnicity classification method and selected demographics, Wisconsin, 2011-2020

	Native American Standard Classification*	Native American Revised Classification**
Total	**16 (100%)**	**52 (100%)**
Year of Diagnosis		
2011	1 (6%)	5 (10%)
2012	0 (0%)	3 (6%)
2013	2 (13%)	3 (6%)
2014	2 (13%)	8 (15%)
2015	4 (25%)	9 (17%)
2016	1 (6%)	6 (12%)
2017	1 (6%)	6 (12%)
2018	0 (0%)	1 (2%)
2019	2 (13%)	6 (12%)
2020	3 (19%)	5 (10%)
Gender		
Cisgender Men	10 (63%)	39 (75%)
Cisgender Women	6 (38%)	9 (17%)
Transgender Women	0 (0%)	4 (8%)
Age at Diagnosis (years)		
0-19	1 (6%)	3 (6%)
20-24	0 (0%)	13 (25%)
25-29	5 (31%)	11 (21%)
30-39	2 (13%)	10 (19%)
40-49	3 (19%)	10 (19%)
50+	5 (31%)	5 (10%)
Transmission Category		
Male-Male Sexual Contact (MSM)	9 (56%)	38 (73%)
Injection Drug Use (IDU)	3 (19%)	4 (8%)
MSM & IDU	0 (0%)	1 (2%)
Male-Female Contact	0 (0%)	2 (4%)
None Reported	4 (25%)	7 (13%)
Region		
Northeastern	8 (50%)	10 (19%)
Southeastern	6 (38%)	25 (48%)
North	1 (6%)	3 (6%)
South	1 (6%)	12 (23%)
West	0 (0%)	2 (4%)

*Reported as Native American, and never reported as any other race or ethnicity group
**Ever reported as Native American, alone or in combination with other racial or ethnic identities

The most commonly used method of collecting and reporting race and ethnicity data in the U.S., as used in this report (see Technical Notes), has important limitations. The race and ethnicity categories used throughout this report include Hispanic (regardless of race), non-Hispanic White, non-Hispanic Black, non-Hispanic Native American, non-Hispanic Asian, and non-Hispanic multiracial. Since racial and ethnic identities can be complex, this method of classification may not be sufficient. For individuals whose racial identity does not fit neatly into these categories or who identify as more than one of these groups, this method of classification may lead to underreporting of the actual burden of HIV within certain populations. This issue may affect Native American people more than other racial groups.[7]

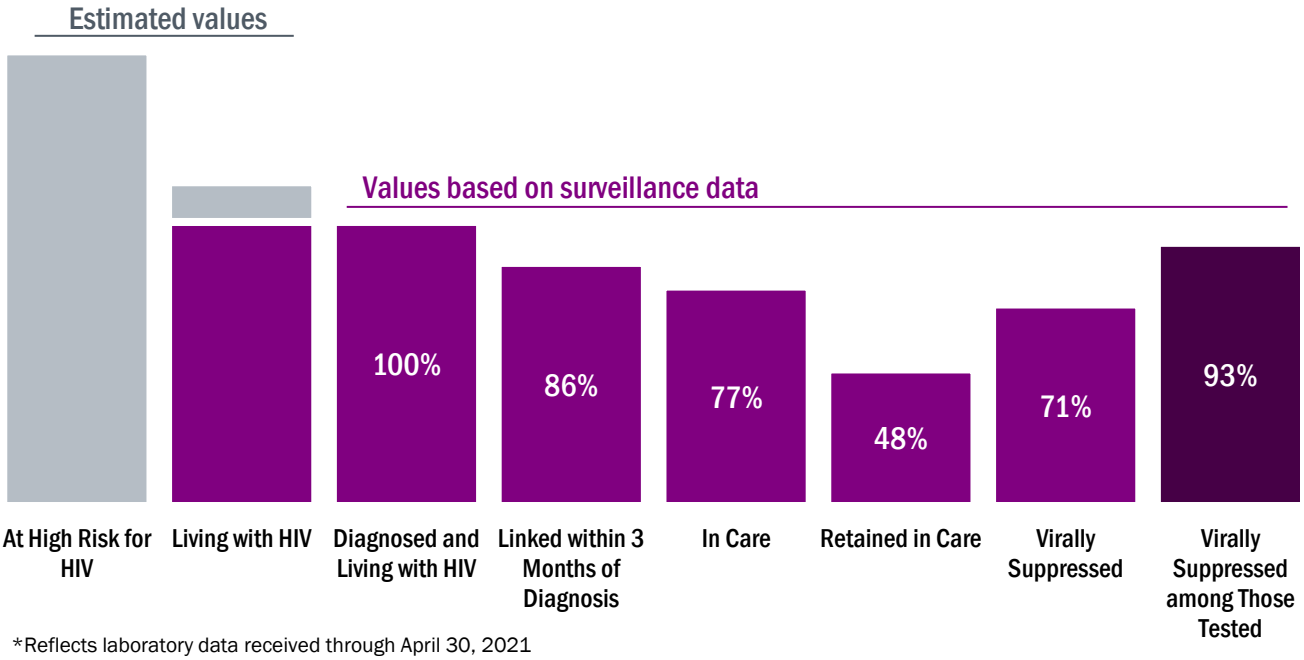
As seen in table A5 above, the case count for new HIV diagnosis among Native American people in Wisconsin for 2011-2020 is 225% greater (16 to 52) when looking at individuals who have ever been reported as Native American compared to the standard single-race Native American data classification. Likewise, the total number of Native American people living with HIV by the end of 2020 is 330% greater (33 to 142) when using the same reclassification method.

[7]Great Lakes Inter-Tribal Epidemiology Center (GLITEC). Race and Ethnicity Distribution Factsheet. https://www.glitc.org/2020/wp-content/uploads/2020/07/Race-and-Ethnicity-Distribution-Factsheet_GLITECOct2019.pdf Published October 2019. Accessed August 2021.

FIGURE A1

The majority of people living with HIV who are engaged in care are virally suppressed.

HIV Care Continuum*, Wisconsin, 2020



*Reflects laboratory data received through April 30, 2021

Estimated Values

At High Risk for HIV: People at higher risk for HIV include those with factors such as condomless male-to-male sex without pre-exposure prophylaxis (PrEP), sharing injection drug-use equipment, and male-female sexual contact with a person living with HIV or at risk of acquiring HIV. The size of this population is not known. These risk behaviors occur in the context of social determinants of health, such as poverty, unequal access to health care, lack of education, stigma, homelessness, and racism.

Living with HIV: CDC estimates that 13.8% of individuals living with HIV in the U.S. are unaware of their status. This bar shows both those aware and diagnosed and those unaware of their HIV diagnosis.

Values Based on Surveillance Data

Diagnosed and Living with HIV: All individuals reported living with HIV in Wisconsin by the end of 2019 who were still alive and living in Wisconsin by the end of 2020 (6,501 people).

Linked within Three Months of Diagnosis: Of 208 people diagnosed with HIV in Wisconsin during 2020, 86% (178 people) were linked to care within three months of diagnosis. Four out of five (165/208 people or 79%) newly diagnosed individuals were linked to care within the one-month target described in the most recent National HIV/AIDS Strategy[6].

[6]White House Office of National AIDS Policy. National HIV/AIDS Strategy for the United States: Updated to 2020. https://files.hiv.gov/s3fs-public/nhas-update.pdf. Published July 2015. Accessed June 2020.

In Care: Of 6,501 individuals diagnosed and living with HIV in Wisconsin during 2020, 77% had at least one medical visit that included one or more laboratory tests that were available in the HIV surveillance system as evidence of receiving care.

Retained in Care: Of 6,501 individuals diagnosed and living with HIV in Wisconsin during 2020, 48% had laboratory test results that suggested two or more medical visits occurred at least three months apart during the reporting period. This criterion for retention in care may underestimate the number of people who are routinely receiving HIV care, as people who have been treated for many years or who are uninsured may receive care once a year or less and may still be adherent to care and attaining viral suppression.

Virally Suppressed: Of 6,501 people living with HIV in Wisconsin, 71% had viral loads (a test that documents the number of virus copies in the blood) that were less than 200 copies/mL, indicating attainment of viral suppression. Individuals whose last viral load test was prior to 2020 or who did not have a viral load test recorded were considered to have unsuppressed viral loads.

Virally Suppressed among those Tested: Of 4,976 people who had a viral load test during 2020, 93% were virally suppressed at their last measurement. This suggests that most individuals receiving some medical care are achieving viral suppression. Viral suppression improves the health of the person living with HIV and also prevents them from transmitting HIV sexually to partners.

For more information, contact:

Wisconsin HIV Program
Surveillance Unit
Email: dhshivsurveillance@dhs.wisconsin.gov

Room 265
1 West Wilson Street,
Madison, WI 53703
https://www.dhs.wisconsin.gov/aids-hiv/index.htm