

HIV in Wisconsin

Wisconsin HIV Surveillance Annual Report, 2021

Diagnosis trends, new diagnoses, and prevalence through December 31, 2021



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Summary

This report describes HIV diagnosis trends, people newly diagnosed with HIV during 2021, and the population living with HIV in Wisconsin as of December 31, 2021. It is acknowledged that COVID-19 caused unprecedented impacts over the past two years (for example, 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. Additionally, the increase in HIV diagnoses observed in 2021 may be a result of delayed testing due to the pandemic.

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 2012–2021:

- 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, 2021

During 2021, 258 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 transmission mode for HIV.
- Approximately 86% of cases were linked to care services within three months of diagnosis.

Prevalence

A total of 7,162 people known to be living with HIV resided in Wisconsin at the end of 2021. An estimated 1,099 additional people may be living with HIV in Wisconsin but are not currently aware of their diagnosis. The estimated HIV prevalence was 8,261 people when those who were not aware of their diagnosis were taken into account.

- Ninety-five people living with HIV died during 2020, primarily from causes other than HIV.
- More people living with HIV moved out of Wisconsin (324) compared to people moving into the state (212).
- Over half of people living with HIV in Wisconsin live in Milwaukee or Dane counties.
- Prevalent cases tend to be older than new diagnoses.
- Five out of seven people living with HIV were virally suppressed during 2021.

HIV Diagnosis Trends

Number and Rate of New Diagnoses

Number of New Diagnoses

Since 1979, 10,927 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 2012–2021, the number of diagnoses ranged from a low of 213 (2018; 2020) to a high of 258 (2021), with an average of 231 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 1979–2021

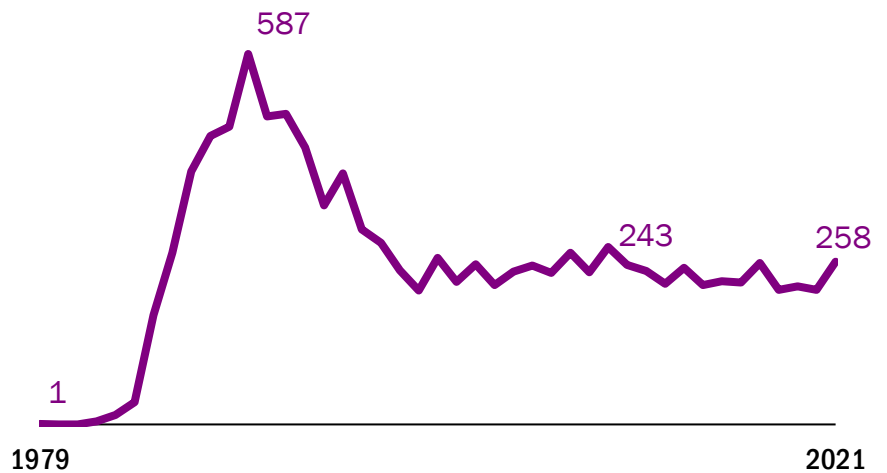


FIGURE 2

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

Rate of new HIV diagnoses per 100,000 people, Wisconsin 1979–2021



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 4.4 per 100,000 people by 2021.

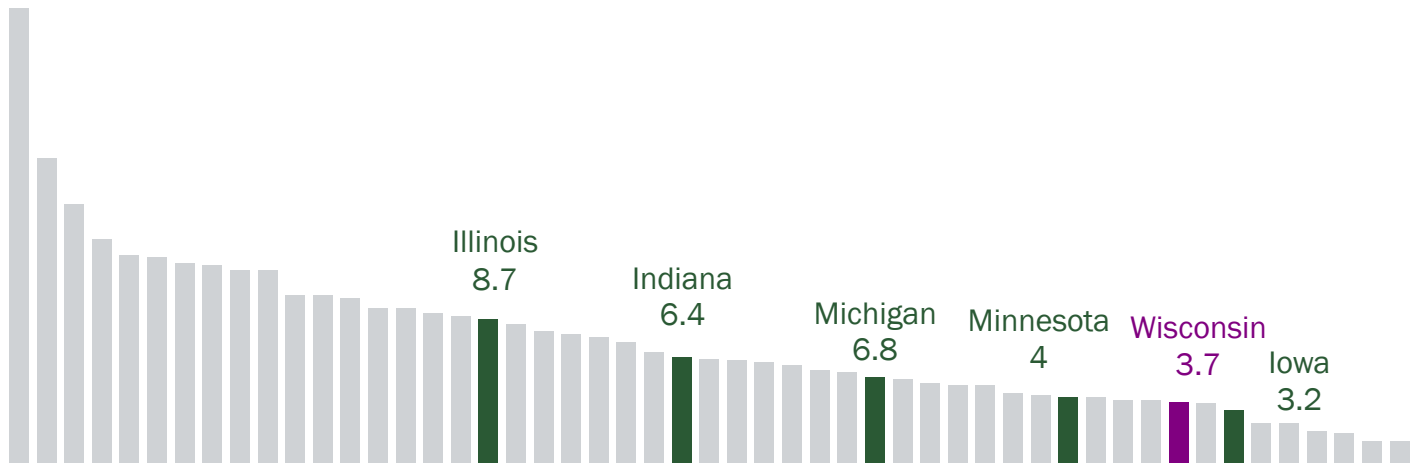
During 2012–2021, the annual diagnosis rate ranged from a low of 3.6 per 100,000 people (2020) to a high of 4.4 per 100,000 people (2017; 2021), with an average of 4.0 new HIV diagnoses per 100,000 people.

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, 2020



*Centers for Disease Control and Prevention. HIV Surveillance Report, 2020; vol.32. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2022. Accessed [July 2022].

Demographics

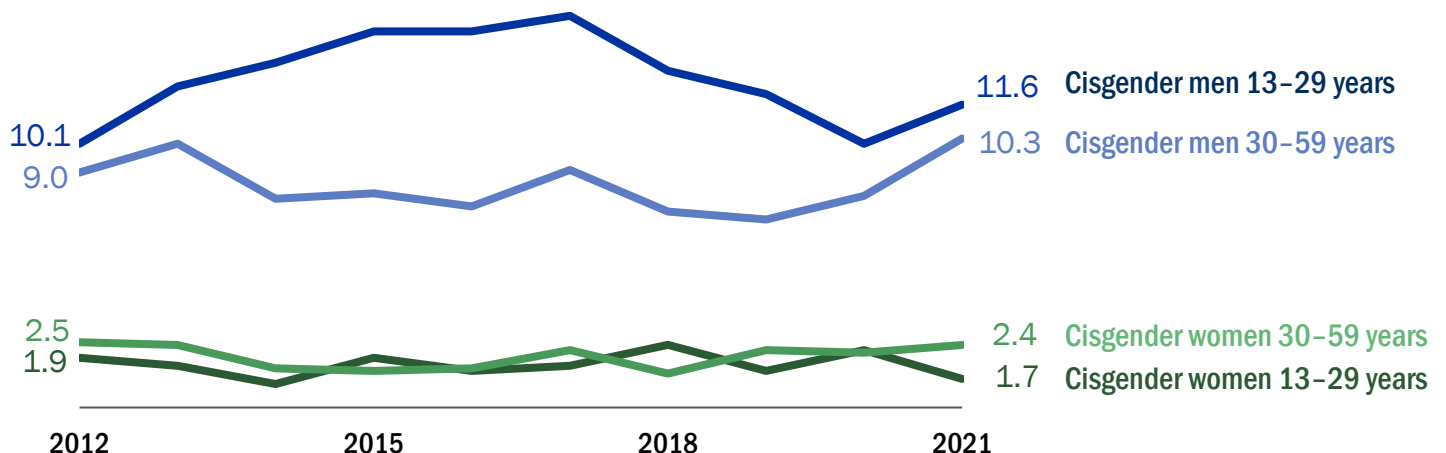
Age and Gender at Diagnosis

During 2012–2021, the HIV diagnosis rate was the highest among younger cisgender men while varying from 10.1 to 11.6 per 100,000 people. The rates for both cisgender men and women slightly increased from 2020 to 2021 and fluctuated around an overall downward trend over the past 10 years (Figure 4).

FIGURE 4

Young cisgender men have the highest HIV diagnosis rate in Wisconsin.

Number of HIV diagnoses per 100,000 people by gender and age* at diagnosis, Wisconsin, 2012–2021



*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 66% in 2021 (Figure 5). During 2021, racial and ethnic minorities made up just 19% of Wisconsin's population, but accounted for 66% of new HIV diagnoses.

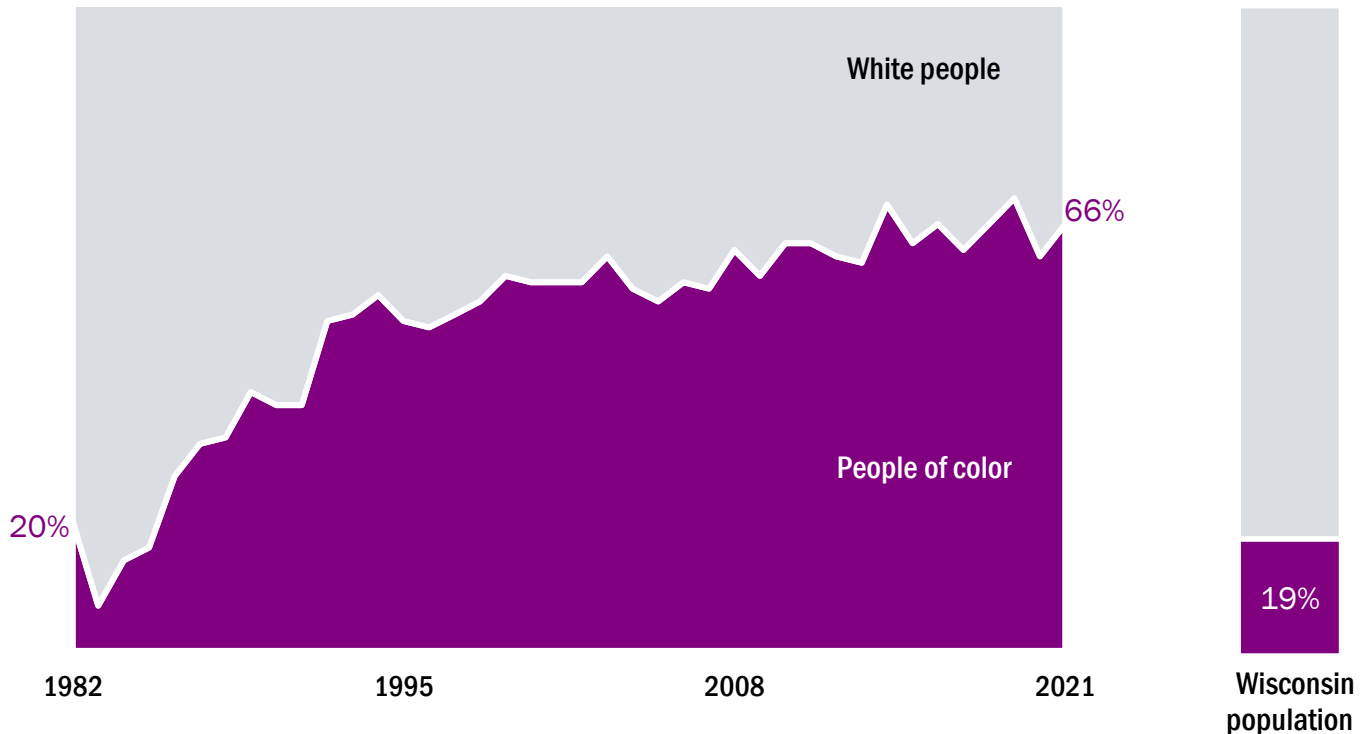
Addressing health disparities and inequities is a priority for public health. Race or ethnicity alone does not make someone more or less likely to acquire HIV. Many social and economic factors affect populations of color to a larger extent than White populations in Wisconsin, putting people of color 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, 1982–2021



This disparity is more pronounced among cisgender men (Figure 6, Appendix-Table A1). During 2012–2021, cisgender women of all racial and ethnic groups have had lower annual HIV diagnosis rates compared to cisgender men.

While highest in comparison to other racial and ethnic groups, HIV diagnosis rates for both Black cisgender men and women increased from 2020 to 2021 and fluctuated around an overall downward trend over the past 10 years.

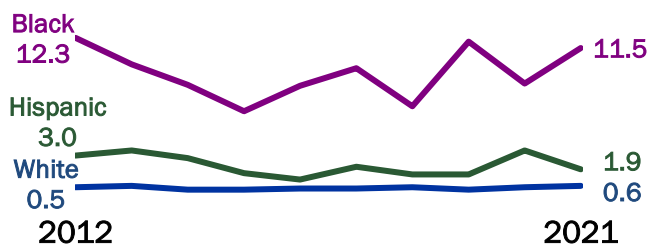
FIGURE 6

HIV Diagnosis Rates

The number of new HIV diagnoses per 100,000 people by gender and race or ethnicity, Wisconsin, 2012–2021

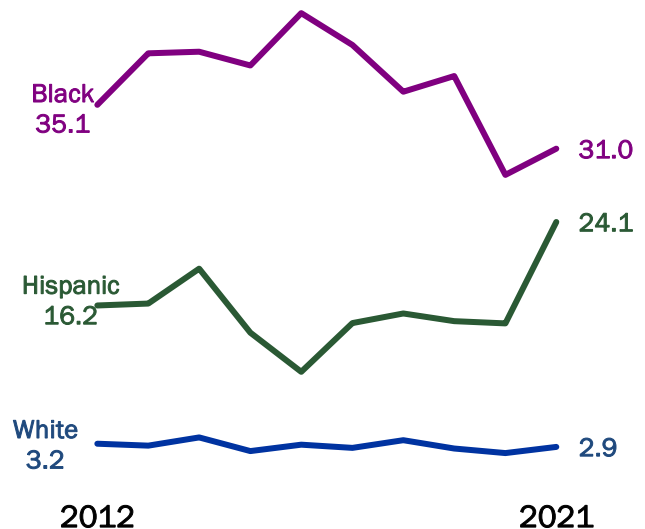
Cisgender women

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 2012–2021, 18 Native American people were diagnosed with HIV in Wisconsin (Figure 7).

- Sixty-six percent of these recent diagnoses were men.
- Forty-two percent were under 30 at the time of diagnosis.
- All but four were diagnosed in either the southeastern (11%) or northeastern (67%) regions.
- Nine diagnoses were attributed to male–male sexual contact (50%), two were attributed to injection drug use (11%), and five had an unknown transmission category (28%).

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 2012–2021 increases from 18 to 54 (Appendix-Table A5).

Asian People

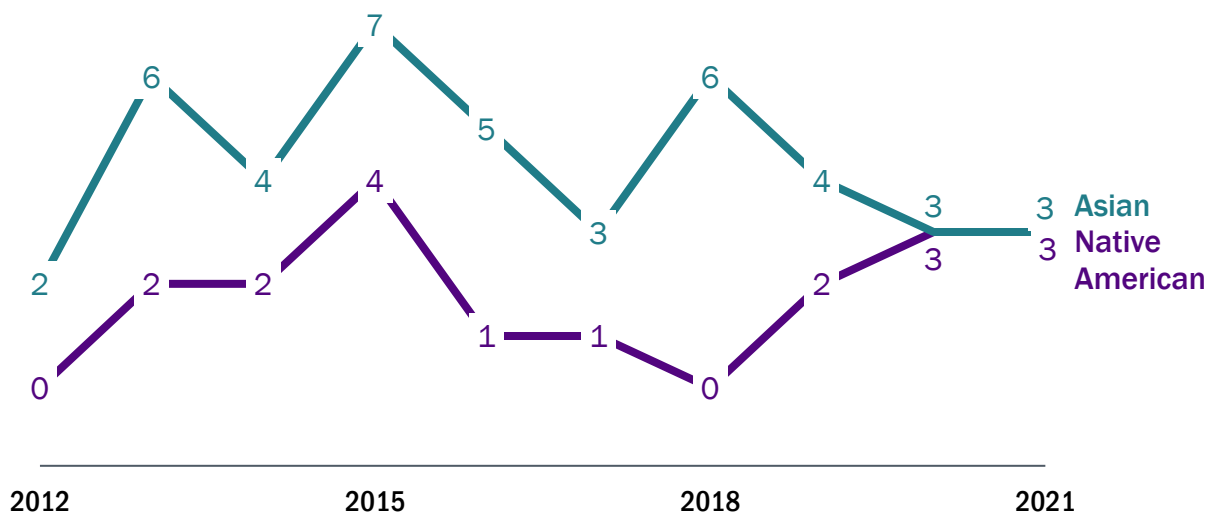
During 2012–2021, 43 Asian people were diagnosed with HIV in Wisconsin (Figure 7).

- Four out of five of these recent diagnoses were men.
- Thirty-one percent were under 30 at the time of diagnosis.
- The majority were diagnosed in the southeastern (51%), southern (21%), or northeastern (16%) regions.
- Twenty-eight of these diagnoses were attributed to male–male sexual contact (65%), two were attributed to male–female sexual contact (5%), one was attributed to perinatal exposure (2%) and 12 had an unknown transmission category (28%).

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 2012–2021



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 face an increased risk for 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, 134 transgender individuals have been diagnosed with HIV in Wisconsin (eleven transgender men and 123 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.

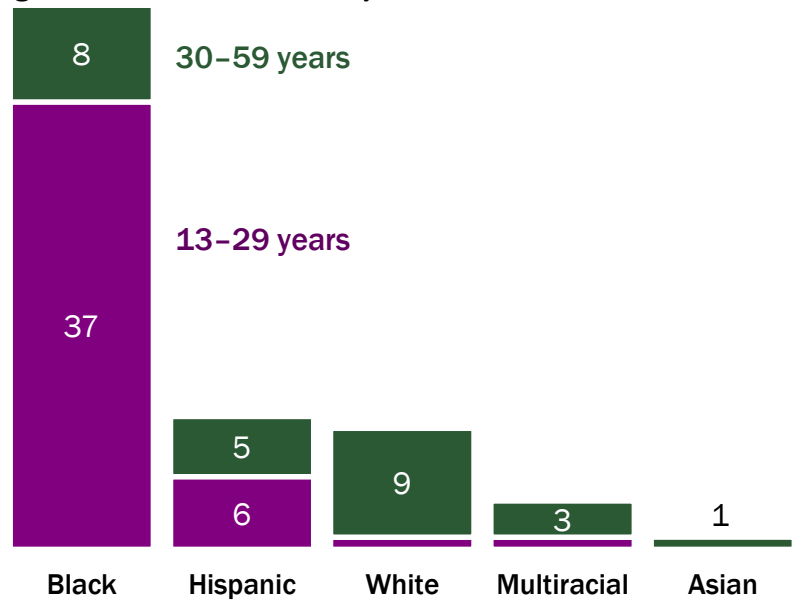
Of the 134 HIV diagnoses among transgender individuals, 71 occurred between 2012 and 2021 (Figure 8).

- The majority were from a racial or ethnic minority group (86%).
- Two out of three individuals were under age 30 (63%).
- 89% of recent diagnoses were attributed to sexual contact (63 of 71).

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, 2012–2021



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).

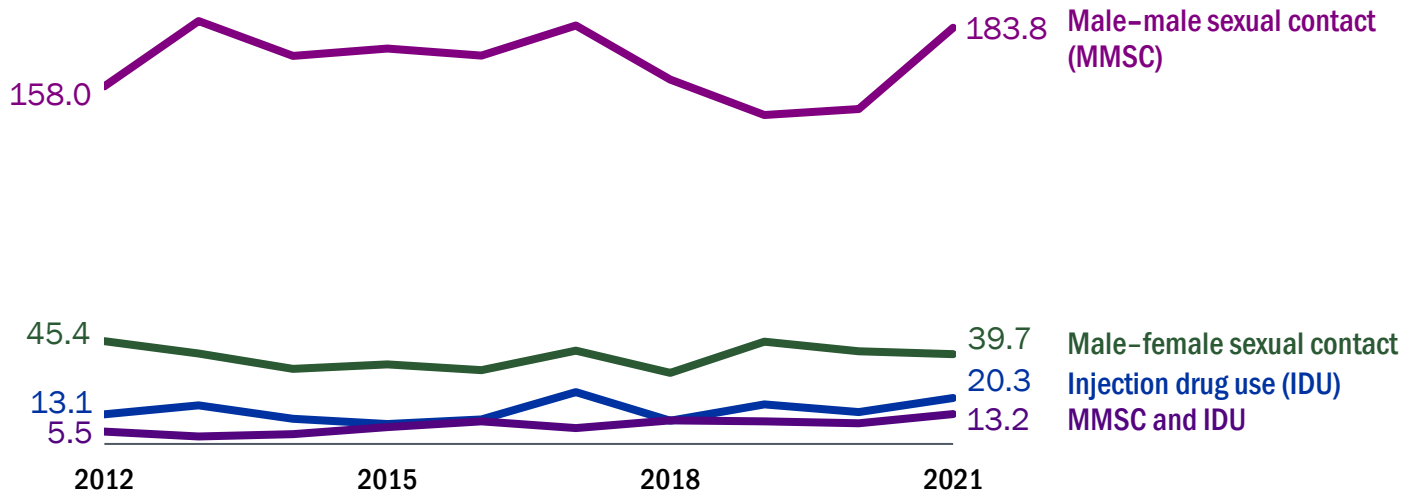
During 2012–2021, the estimated number of diagnoses attributed to male–male sexual contact fluctuated, while injection drug use and male–female sexual contact were stable (Figure 9).

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

FIGURE 9

Male–male sexual contact is the most common HIV transmission risk.

New HIV diagnoses by estimated transmission category*, Wisconsin, 2012–2021



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

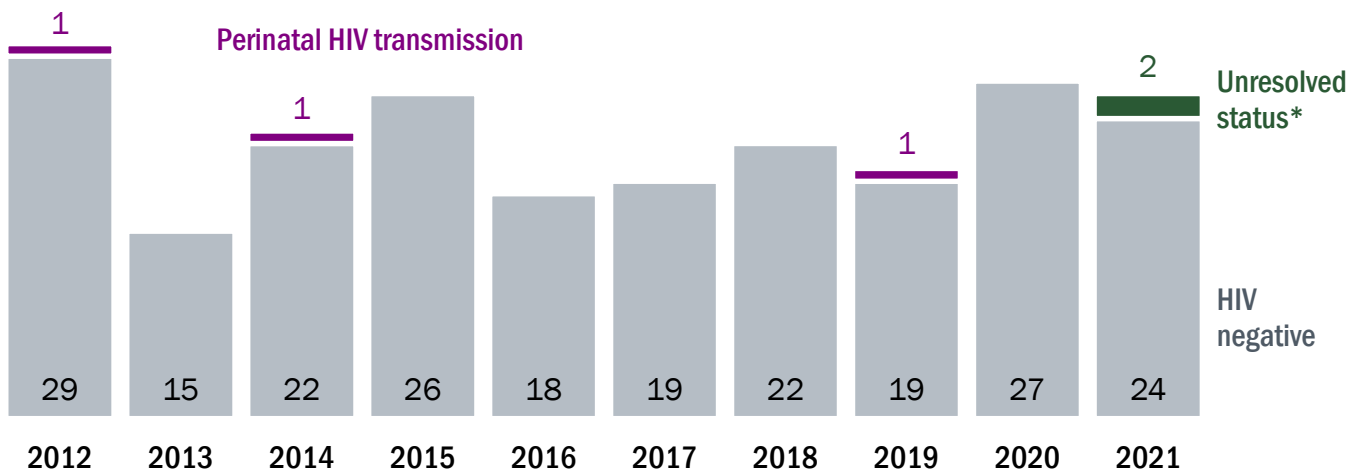
Perinatal Transmission

During 2012–2021, 226 infants were born to cisgender women living with HIV in Wisconsin, and none were born to transgender people. Of these infants, 221 (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 women living with HIV.

Diagnostic status of children born to people of childbearing potential living with HIV, Wisconsin, 2012–2021



* These babies were born too recently to have resolved their diagnostic 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.

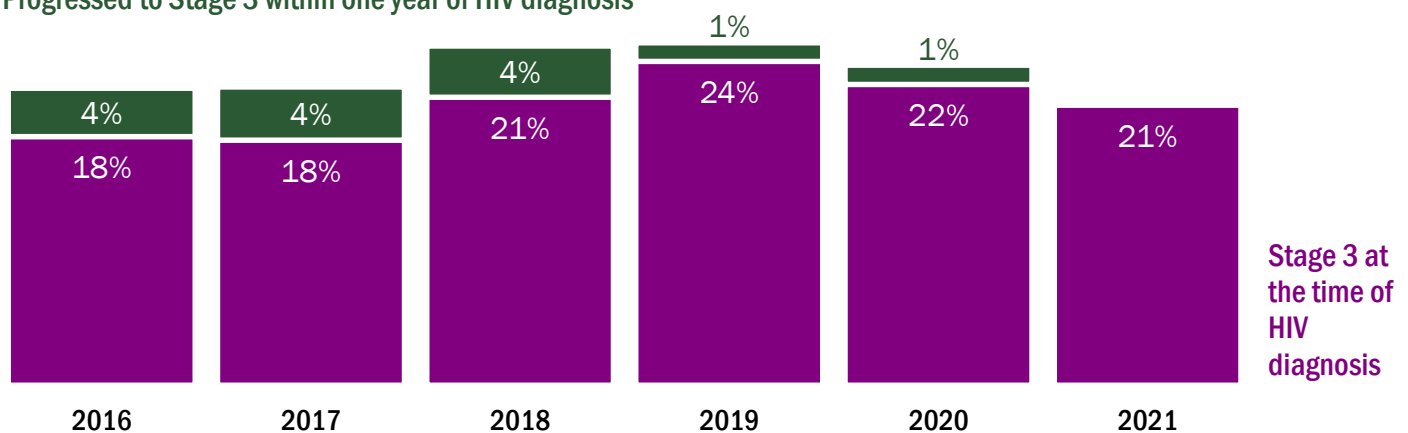
The percentage of new HIV diagnoses that had progressed to Stage 3 by the time they were first identified increased from 2016 to 2021, with a low of 18% in 2016 and a high of 24% in 2019 (Figure 11).

FIGURE 11

The percentage of people who had progressed to Stage 3 at the time of diagnosis increased during 2016-2021.

Percentage of people who progressed to Stage 3 of HIV within one year of diagnosis, Wisconsin, 2016-2021

Progressed to Stage 3 within one year of HIV diagnosis*



*Those diagnosed with HIV during 2021 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 2016–2020:

- The majority (73%) were cisgender men.
- Four out of five (78%) were over 30 at the time of diagnosis.
- Thirty-six percent were White, 42% were Black, and 18% were Hispanic.
- About half (47%) had a transmission category of male–male sexual contact, 7% had a transmission category of male–female sexual contact, and 3% had a transmission category of injection drug use.

New Diagnoses, 2021

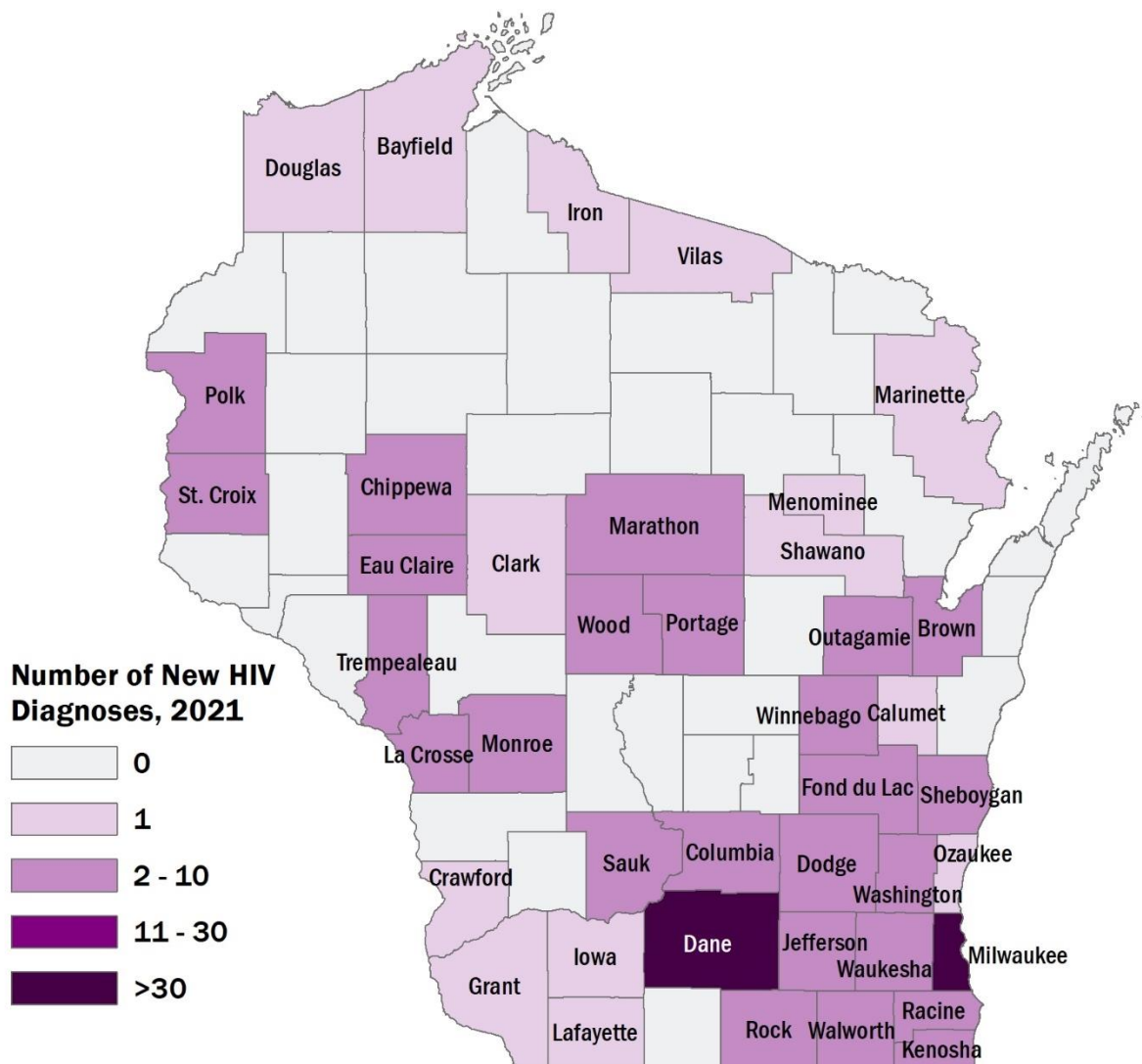
Number of New HIV Diagnoses

New HIV diagnoses are Wisconsin residents who received their first HIV diagnosis during the current reporting period. During 2021, 258 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 (110, 43%), Dane County (36, 14%), Racine County (9, 4%), and Rock County (9, 4%; Figure 12, Appendix-Table A2).

FIGURE 12

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

Geographic distribution of new HIV diagnoses, Wisconsin, 2021



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 2021, 62 people received a recent or acute HIV diagnosis. Of these, two were considered to have acute diagnoses based on laboratory testing algorithms or presence of acute symptoms.

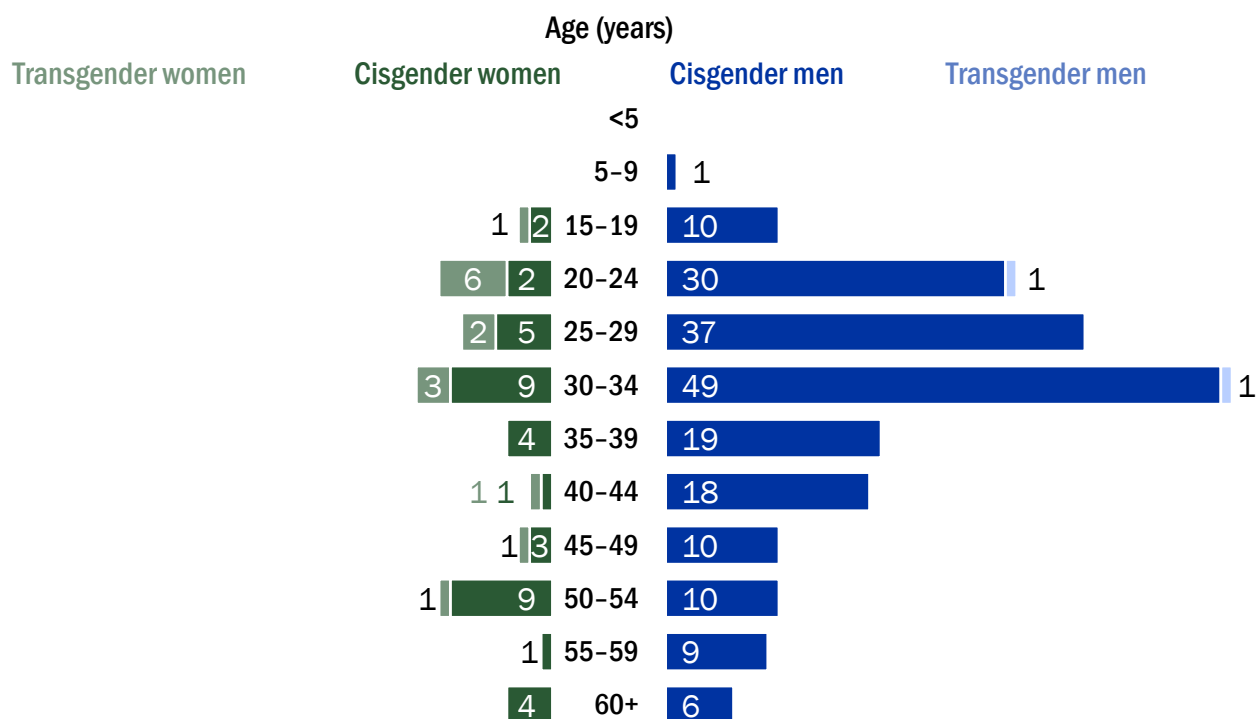
Demographics

During 2021, 199 cisgender men, 41 cisgender women, and eighteen transgender individuals were diagnosed with HIV in Wisconsin (Figure 13, Appendix-Table A3).

FIGURE 13

Approximately 1 out of 3 new HIV diagnoses during 2021 were among young cisgender men under 30.

Number of HIV diagnoses by age and gender, Wisconsin, 2021



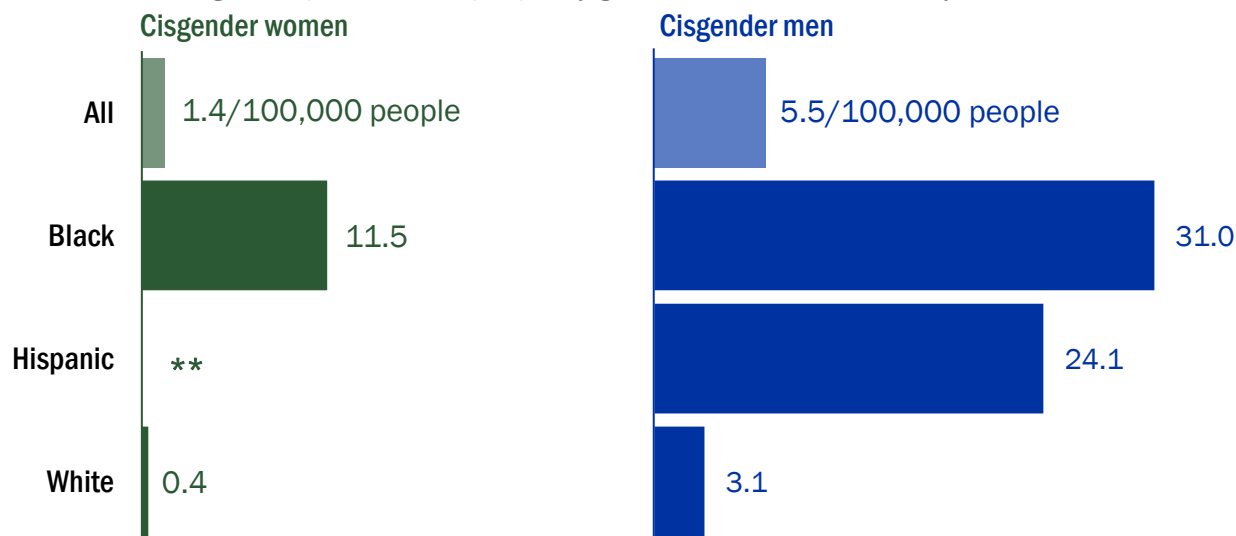
The average (median) age at diagnosis was 32 years, with a range of 6–79. During 2021, newly diagnosed cisgender men had a lower average age at diagnosis than cisgender women (men, 32; women, 35). The average age at diagnosis for transgender women in 2021 was 28.5, and transgender men was 31.5.

During 2021, the new HIV diagnosis rate was higher for cisgender men and was higher among Black and Hispanic cisgender people compared to other race or ethnicity groups (Figure 14).

FIGURE 14

Black cisgender 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, 2021



*Eighteen transgender persons diagnosed during 2021 are excluded from these rates as population denominators are not available to calculate rates.
 **Rates based on counts less than five have been suppressed.
 ^Rate is unreliable due to a count <12.

Transmission Category

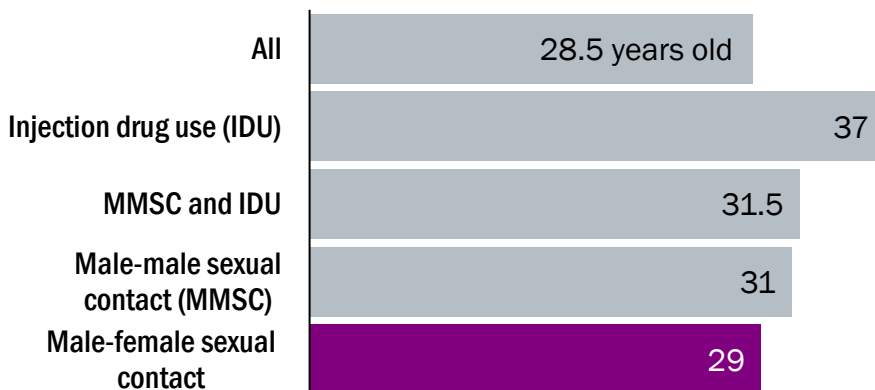
Age

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

FIGURE 15

People who reported male–female sexual contact tended to be younger at HIV diagnosis than those reported male-male sexual contact or injection drug use.

Median age at HIV diagnosis by transmission category, Wisconsin, 2021



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

Gender

The majority of new diagnoses were attributed to an estimated transmission category of male–male sexual contact (70%; Figure 17). The remainder was attributed to male–female sexual contact (16%), injection drug use (8%), or both male–male sexual contact and injection drug use (6%).

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

FIGURE 16
Of people who reported male–male sexual contact (MSM), Black and Hispanic males were younger at diagnosis than White males.

Median age at HIV diagnosis by race and ethnicity for those reporting male–male sexual contact, Wisconsin, 2021

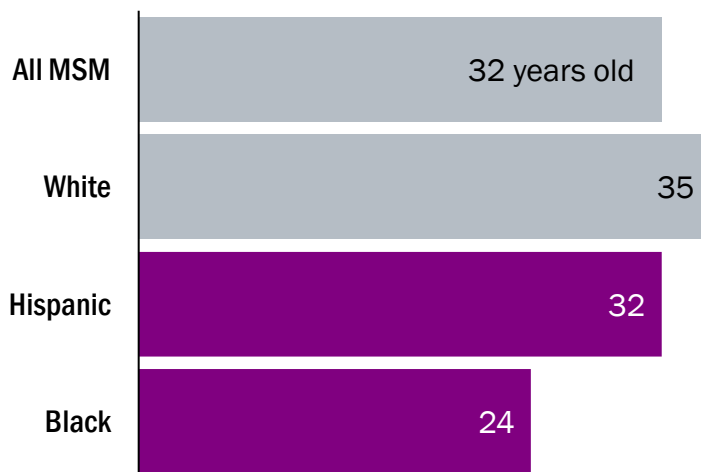
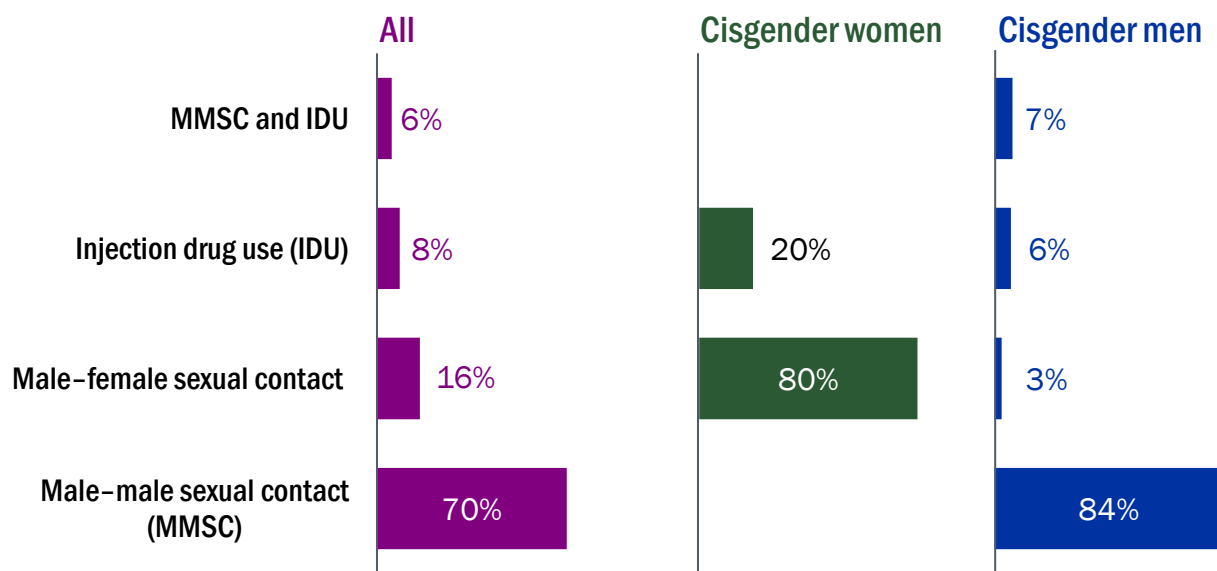


FIGURE 17
Two out of 3 new HIV diagnoses were attributed to male–male sexual contact.
Percentage of HIV diagnoses by gender and estimated transmission category*, Wisconsin, 2021



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

During 2021, there were eleven diagnoses with a reported transmission category of injection drug use and twelve with a reported transmission category of male–male sexual contact and injection drug use. The number of diagnoses attributed to injection drug use was higher in 2021 compared to 2020 (6 injection drug use, 6 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 2021, the most common settings for HIV diagnoses were outpatient clinics (43%), inpatient facilities (25%), community based organizations (8%), and local health departments (8%; Figure 18).

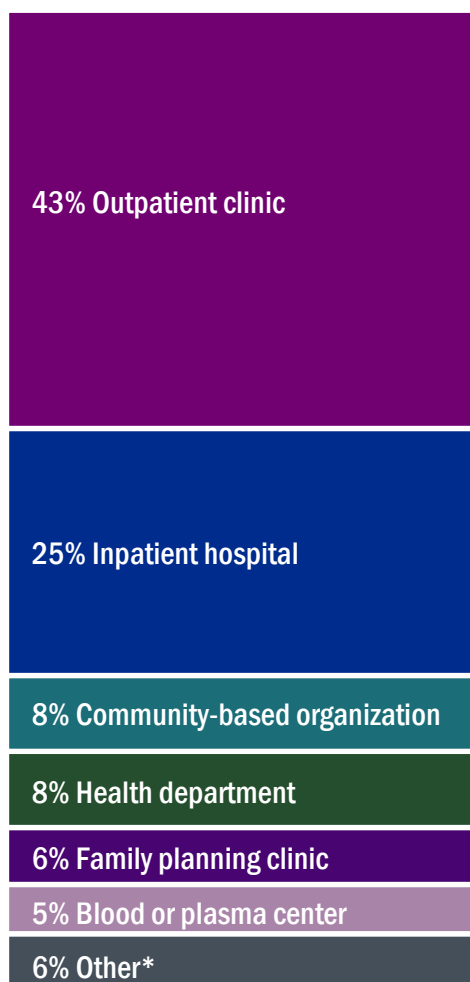
FIGURE 18

Facility at Diagnosis

Percent of new HIV diagnoses by facility, Wisconsin, 2021

New HIV diagnoses (258 people)

Two out of five people were newly diagnosed with HIV at **outpatient clinics** during 2021



*Other includes diagnosis at a HIV care clinic (0.4%), jail or prison (1.5%), emergency room or urgent care (1.9%), or other facility types (1.9%).

Linkage to Care

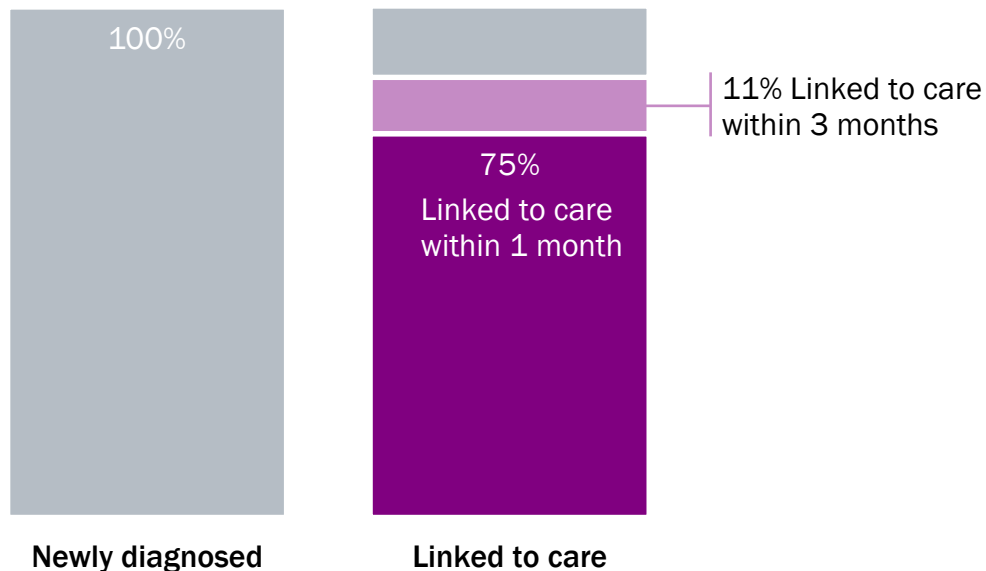
Timely linkage to care (visiting an HIV health care provider within one month (30 days) after learning they were living with HIV) can help people living with HIV have healthier lives and prevent further HIV transmission. Access to medications that reduce the amount of virus in the body can lower the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

Three out of four people newly diagnosed with HIV are linked to care services **within one month of diagnosis.**

HIV care continuum* - Linkage to care outcomes, Wisconsin, 2021



*Reflects laboratory data received through August 29, 2022

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 2021, 7,162 people living with HIV resided in Wisconsin.

People who are Unaware of HIV Diagnosis

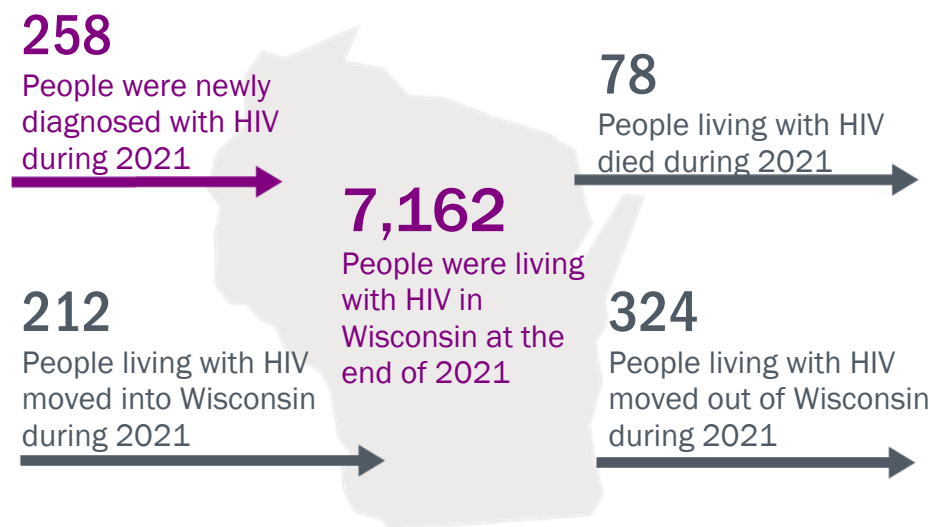
Not everyone living with HIV is aware of their diagnosis. The estimated prevalence of HIV in Wisconsin that includes those unaware of their status is approximately 8,261 people.

The most recent CDC estimate² suggests that nationally, 13.3% 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 1,099 people who are not aware of their HIV diagnosis.

FIGURE 20

More people living with HIV left Wisconsin than entered the state during 2021.

Flow of people living with HIV into and out of Wisconsin, Wisconsin, 2021



² Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States 2015-2019. *HIV Surveillance Supplemental Report* 2021;26 (No. 1). <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2021. Accessed August 2022.

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.

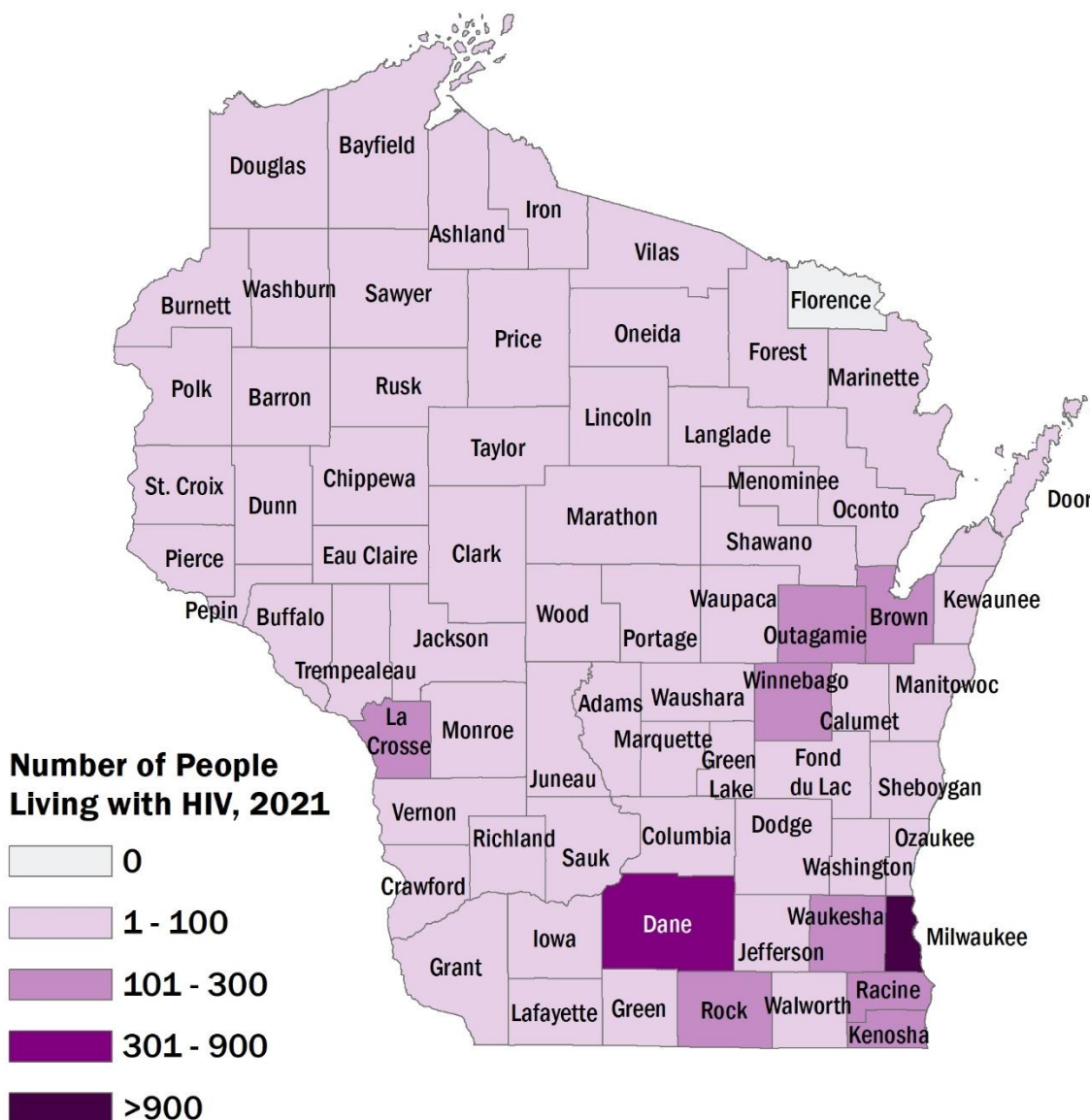
Geographic Distribution of People Living with HIV

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, 2021



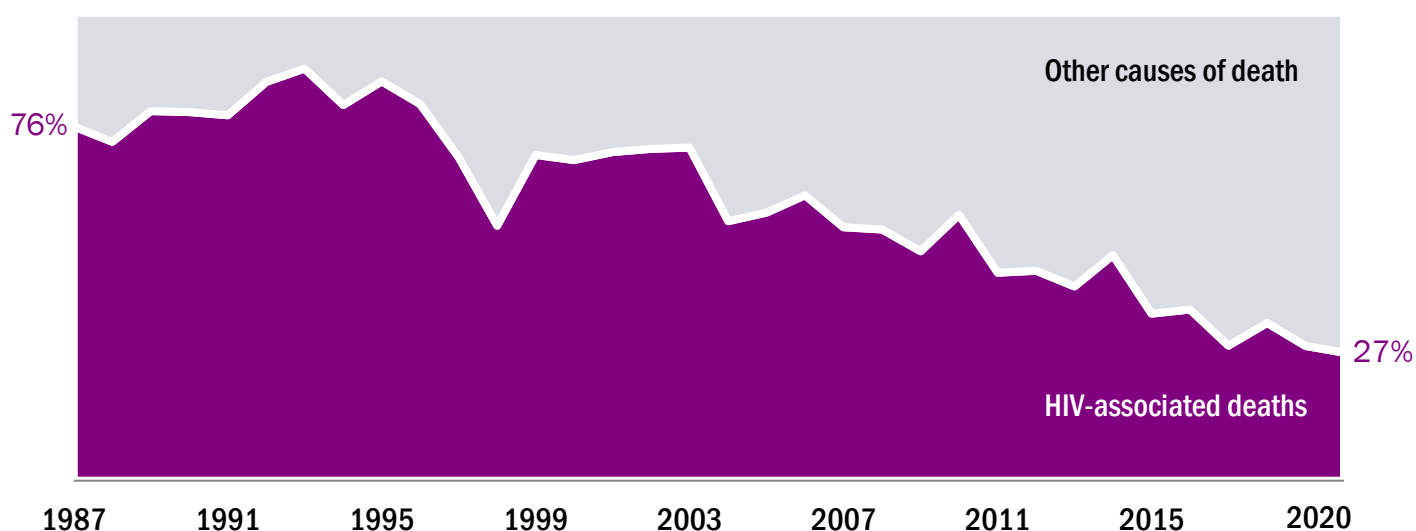
Deaths

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, 1987–2020



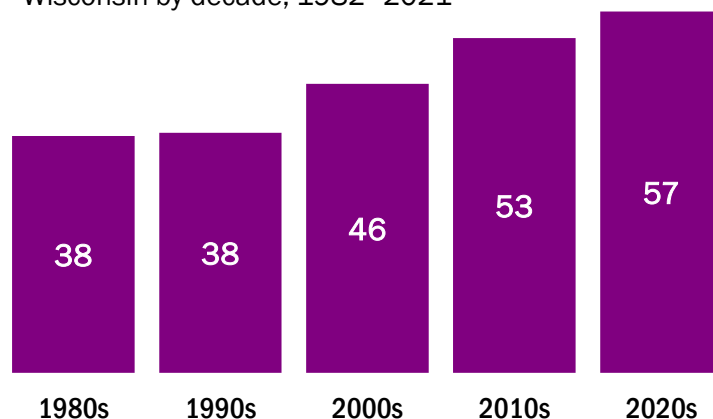
During 2020, 95 deaths occurred in Wisconsin among people living with HIV. Twenty-seven percent of deaths had HIV listed as the primary cause of death. The remaining 73% were attributed to other causes in line with the national leading causes of death³.

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, 1982–2021



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 470 new HIV reports received during 2021, 212 (45%) were previously diagnosed in another state prior to moving to Wisconsin. People living with HIV who moved to Wisconsin during 2021 tended to be older and a slightly higher percentage reported a transmission mode of male-female sexual contact and male-male sexual contact compared to new HIV diagnoses in Wisconsin (Appendix-Table A3).

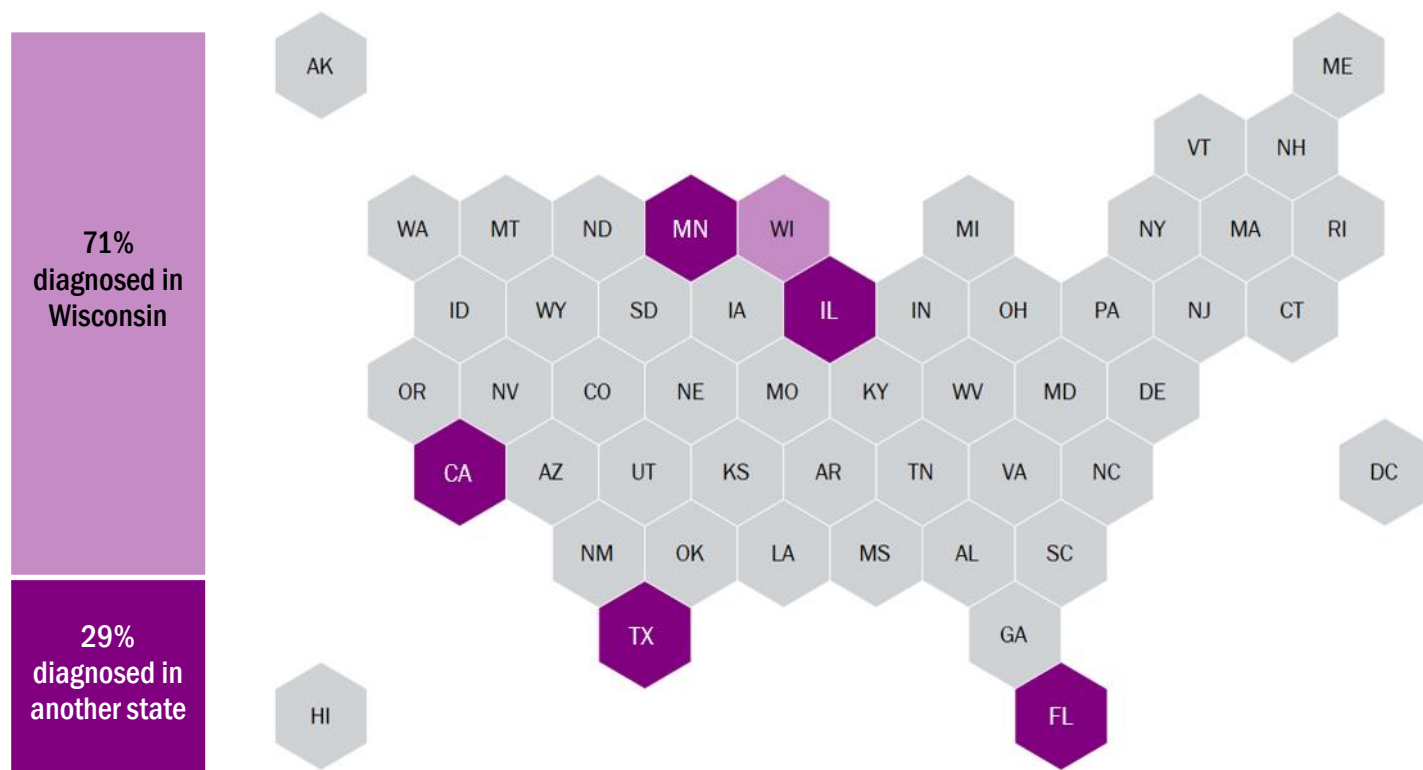
Approximately three out of four (71%) of the 7,162 people living with HIV in Wisconsin during 2021 were diagnosed in the state (Figure 24). The remaining 2,038 people (29%) were diagnosed in:

- Illinois (477)
- California (181)
- Florida (156)
- Minnesota (128)
- Texas (126)
- Another state (794)
- A foreign country (183)

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 2021



Demographics

Of people living with HIV in Wisconsin during 2021:

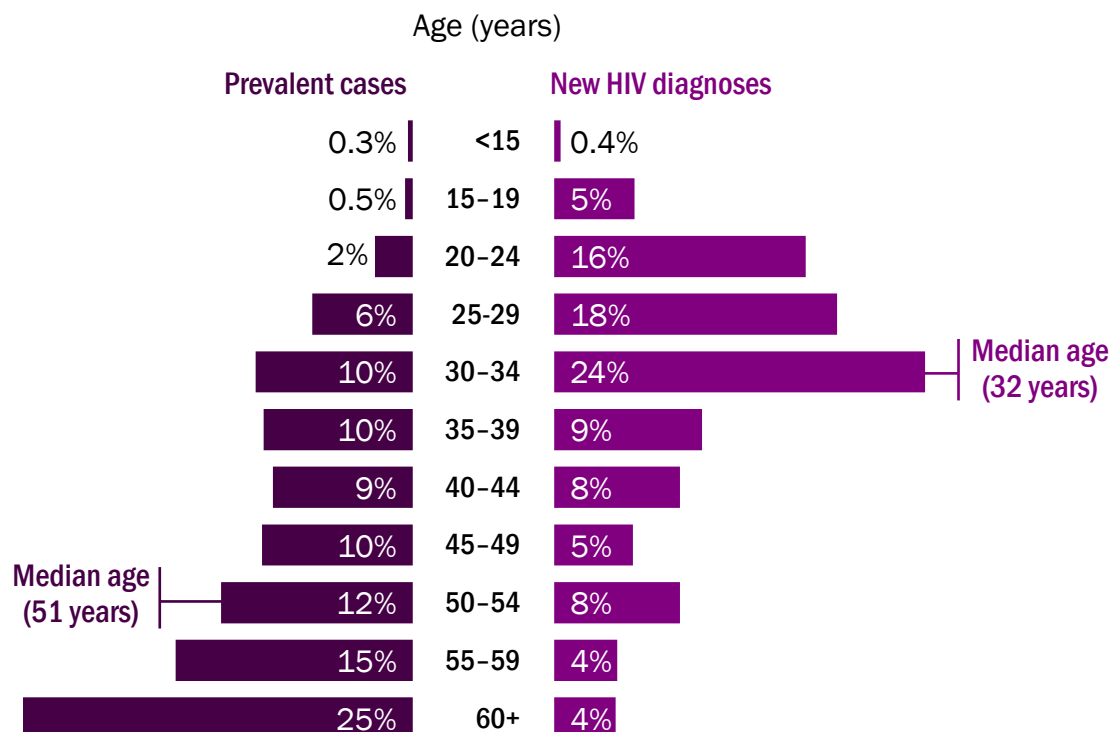
- The majority (78%) are men.
- The majority are over age 30 (90%) and half (52%) are over age 50.
- Three out of seven (42%) are White, 37% are Black, and 15% are Hispanic.
- Two out of three (64%) had a transmission category of male–male sexual contact, 20% had a transmission category of male–female sexual 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 2021.

Age distribution of people currently living with HIV in Wisconsin (prevalent cases) compared to age at diagnosis for people newly diagnosed during 2021



Retention in Care

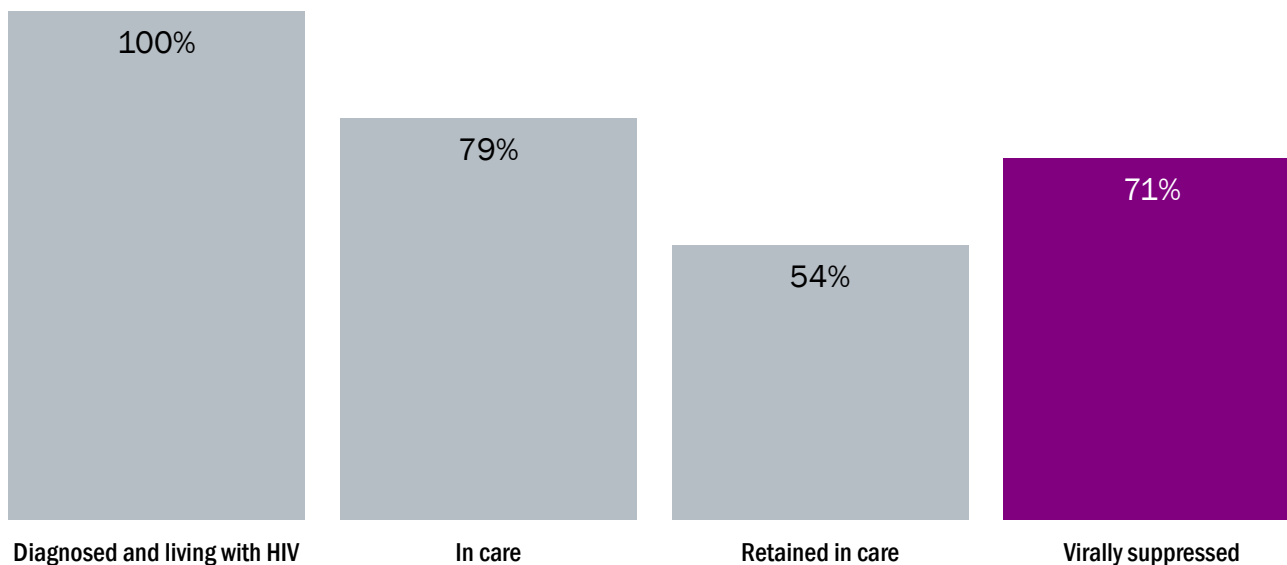
Access to HIV care and medications that reduce the amount of virus in the body (that is, the viral load) benefit both the health of people living with HIV and HIV prevention efforts. Individuals with a viral load that cannot be detected by standard laboratory diagnostic testing (that is, are virally 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 2021.

HIV care continuum* - Retention and care outcomes, Wisconsin, 2021



*Reflects laboratory data received through August 29, 2022

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 May 2022. 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:

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

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 2021, 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) standards⁵ 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](https://www.govinfo.gov/content/pkg/FR-1997-10-30/pdf/97-28653.pdf). 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 been diagnosed as living with HIV or an increased 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 a male–female sexual contact risk and one person with 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, 2012–2021

Year	Cisgender Men			Cisgender Women		
	Black	White	Hispanic	Black	White	Hispanic
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	14.27	12	0.5**	*
2020	28.5	2.9	14.7	7.2	0.6	2.9**
2021	31.0	3.1	24.1	11.5	0.4	1.9**

* 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, 2021

County of Residence	Number	Percent of Cases	Rate/100,000 People *
Bayfield	1	0.4%	-
Brown	7	2.7%	2.7**
Calumet	1	0.4%	-
Chippewa	2	0.8%	-
Clark	1	0.4%	-
Columbia	2	0.8%	-
Crawford	1	0.4%	-
Dane	36	14.0%	6.7
Dodge	2	0.8%	-
Douglas	1	0.4%	-
Eau Claire	4	1.6%	-
Fond du Lac	2	0.8%	-
Grant	1	0.4%	-
Iowa	1	0.4%	-
Iron	1	0.4%	-
Jefferson	3	1.2%	-
Kenosha	8	3.1%	4.7**
La Crosse	2	0.8%	-
Lafayette	1	0.4%	-
Menominee	1	0.4%	-
Milwaukee	110	42.6%	11.6
Monroe	2	0.8%	-
Outagamie	5	1.9%	2.7**
Ozaukee	1	0.4%	-
Polk	3	1.2%	-
Portage	2	0.8%	-
Racine	9	3.5%	4.6**
Rock	9	3.5%	5.6**
Sauk	3	1.2%	-
Shawano	1	0.4%	-
Sheboygan	2	0.8%	-
Saint Croix	2	0.8%	-
Trempealeau	2	0.8%	-
Vilas	1	0.4%	-
Walworth	2	0.8%	-
Washington	2	0.8%	-
Waukesha	7	2.7%	1.7**
Waushara	1	0.4%	-
Winnebago	9	3.5%	5.3**
Wood	1	0.4%	-
Department of Corrections	3	1.2%	-
TOTAL	258	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, 2021

	Diagnosis Location	
	Wisconsin	Outside of Wisconsin
	Number (%)	Number (%)
Total	258 (100%)	212 (100%)
Current Gender		
Cisgender Men	199 (77%)	180 (85%)
Cisgender Women	41 (16%)	25 (12%)
Transgender People	18 (7.0%)	7 (3.0%)
Median Current Age (Range)	32 (6–79)	40 (18–74)
Race and Ethnicity		
Native American	3 (1.0%)	0 (0.0%)
Asian	2 (1.0%)	2 (1.0%)
Black	97 (37.5%)	73 (34.5%)
Hispanic	59 (23%)	42 (20%)
Native Hawaiian/Pacific Islander	1 (0.5%)	1 (0.5%)
White	88 (34%)	83 (39%)
Multiracial	8 (3.0%)	11 (5.0%)
Transmission Category		
Male–Male Sexual Contact (MMSC)	139 (54%)	147 (69%)
Injection Drug Use (IDU)	11 (4.0%)	10 (5.0%)
MMSC and IDU	12 (5.0%)	11 (5.0%)
Male–Female Sexual Contact	13 (5.0%)	21 (10%)
Unknown	65 (25%)	23 (11%)

TABLE A4

Observed and estimated prevalence of people living with HIV in Wisconsin, 2021

	United States Estimated % Unaware*	Wisconsin		
		Observed Prevalence	Estimated # Unaware**	Estimated Prevalence
Total	13.3%	7,162	1,099	8,261
Age (years)				
13–24	44.3%	209	166	375
25–34	28.5%	1,169	466	1,635
35–44	15.4%	1,316	240	1,556
45–54	7.5%	1,561	127	1,688
Greater Than 55	4.6%	2,861	138	2,999
Race and Ethnicity				
White	10.8%	3,018	365	3,383
Black	13.4%	2,676	414	3,090
Hispanic or Latino	16.4%	1,081	212	1,293
Multiracial	11.2%	243	31	274
Asian	13.5%	98	15	113
Native American	20.4%	35	9	44
Transmission Category				
Male–Male Sexual Contact (MMSC)	15.2%	4,554	816	5,370
Male–Female Sexual Contact	12.9%	1,423	211	1,634
Injection Drug Use (IDU)	6.8%	647	47	694
MMSC and IDU	8.2%	412	37	449

* Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States 2015-2019. *HIV Surveillance Supplemental Report* 2021;26 (No. 1). <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2021. Accessed August 2022.

** 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, 2012–2021

		Native American Standard Classification*	Native American Revised Classification**
	Total	18 (100%)	54 (100%)
Year of Diagnosis			
	2012	0 (0%)	4 (7.0%)
	2013	2 (11%)	3 (5.5%)
	2014	2 (11%)	8 (15%)
	2015	4 (22%)	9 (17%)
	2016	1 (5.5%)	6 (11%)
	2017	1 (5.5%)	6 (11%)
	2018	0 (0%)	1 (2.0%)
	2019	2 (11%)	6 (11%)
	2020	3 (17%)	5 (9.0%)
	2021	3 (17%)	6 (11%)
Gender			
	Cisgender Men	12 (67%)	43 (79%)
	Cisgender Women	6 (33%)	8 (15%)
	Transgender Men	0 (0%)	1 (2.0%)
	Transgender Women	0 (0%)	2 (4.0%)
Age at Diagnosis (years)			
	0–19	1 (5.5%)	2 (4.0%)
	20–24	1 (5.5%)	13 (24%)
	25–29	5 (28%)	13 (24%)
	30–39	4 (22%)	12 (22%)
	40–49	3 (17%)	10 (19%)
	50+	4 (22%)	5 (7.0%)
Transmission Category			
	Male–Male Sexual Contact (MMSC)	9 (50%)	39 (72%)
	Injection Drug Use (IDU)	2 (11%)	3 (5.5%)
	MMSC & IDU	2 (11%)	3 (5.5%)
	Male–Female Sexual Contact	0 (0%)	0 (0%)
	None Reported	5 (28%)	9 (17%)
Region			
	Northeastern	9 (50%)	13 (24%)
	Southeastern	6 (33.3%)	24 (44.5%)
	North	1 (5.6%)	3 (5.5%)
	South	1 (5.6%)	11 (20.5%)
	West	1 (5.6%)	3 (5.5%)

*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 2012–2021 is 200% greater (18 to 54) 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 2021 is 359% greater (34 to 156) when using the same reclassification method.

⁷Great 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.

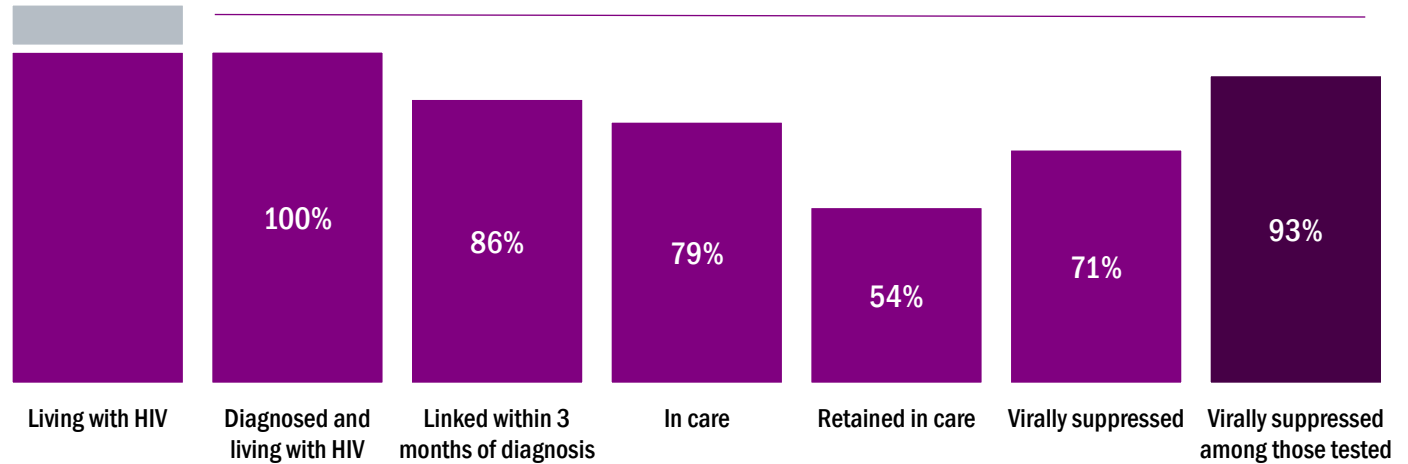
FIGURE A1

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

HIV care continuum*, Wisconsin, 2021

Estimated values

Values based on surveillance data



*Reflects laboratory data received through August 29, 2022

Estimated Values

Living with HIV: CDC estimates that 13.3% of individuals living with HIV in the U.S. are unaware of their status. This bar shows both those aware and diagnosed (purple) and those unaware of their HIV diagnosis (gray).

Values Based on Surveillance Data

Diagnosed and living with HIV: All individuals reported living with HIV in Wisconsin by the end of 2020 who were still alive and living in Wisconsin by the end of 2021 (6,626 people).

Linked within three months of diagnosis: Of 258 people diagnosed with HIV in Wisconsin during 2021, 86% (222 people) were linked to care within three months of diagnosis. Four out of five (194/258 people or 75%) newly diagnosed individuals were linked to care within the one-month priority timeframe described in the most recent National HIV/AIDS Strategy⁶.

In care: Of 6,626 individuals diagnosed and living with HIV in Wisconsin during 2021, 79% 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.

⁶The White House. 2021. National HIV/AIDS Strategy for the United States 2022–2025. Washington, DC. <https://files.hiv.gov/s3fs-public/NHAS-2022-2025.pdf>. Accessed September 2022.

Retained in care: Of 6,626 individuals diagnosed and living with HIV in Wisconsin during 2021, 54% 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 6,626 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 2021 or who did not have a viral load test recorded were considered to have unsuppressed viral loads.

Virally suppressed among those tested: Of 5,064 people who had a viral load test during 2021, 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>

