HIV in Wisconsin

Wisconsin HIV Surveillance Annual Report, 2019

Diagnosis trends, new diagnoses, and prevalence through December 31, 2019

Wisconsin Department of Health Services | Division of Public Health | HIV Program
P-00484 (09/2020)

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Summary

This report describes HIV diagnosis trends, people newly diagnosed with HIV infection during 2019, and the population living with HIV in Wisconsin as of December 31, 2019.

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 2010–2019:

- 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, 2019

During 2019, 214 people were newly diagnosed with HIV infection 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 90% of cases were linked to care services within three months of diagnosis.

Prevalence

A total of 6,749 people known to be living with HIV resided in Wisconsin at the end of 2019. An estimated 1,100 additional people may be living with HIV in Wisconsin but are not currently aware of their diagnosis. The estimated HIV prevalence was 7,900 people when those who were not aware of their diagnosis were taken into account.

- Eighty-five people living with HIV died during 2018, primarily from causes other than HIV.
- More people living with HIV moved out of Wisconsin (759) compared to people moving into the state (218).
- Over half of people living with HIV in Wisconsin live in Milwaukee or Dane counties.
- Prevalent cases tend to be older than new diagnoses.
- Three out of four people living with HIV were virally suppressed during 2019.

HIV Diagnosis Trends

Number and Rate of New Diagnoses

Number of New Diagnoses

Since 1979, 10,473 Wisconsin residents were diagnosed with HIV infection. HIV diagnoses rose rapidly during the 1980s, peaking during 1990 at 588 new diagnoses, and then declining steeply until the early 2000s (Figure 1).

During 2010–2019, the number of diagnoses ranged from a low of 213 (2018) to a high of 257 (2017), with an average of 232 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, 1979–2019

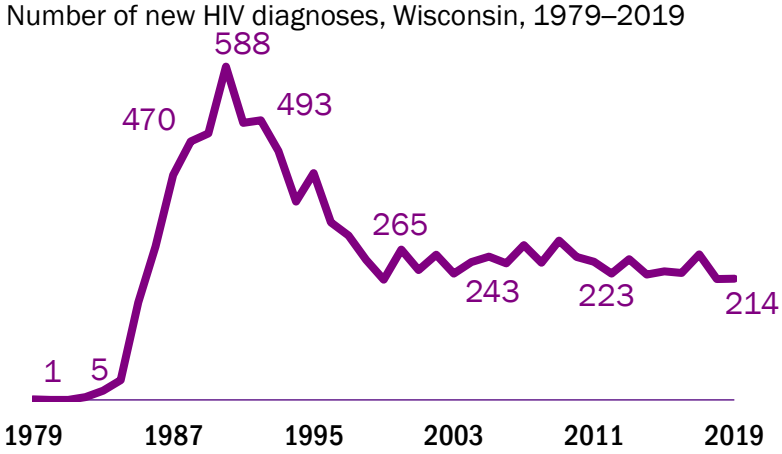
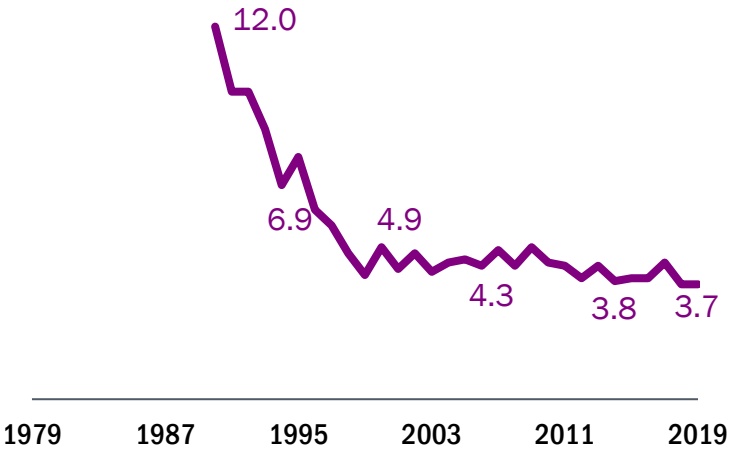


FIGURE 2

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

Rate of new HIV diagnoses per 100,000 people, Wisconsin, 1989–2019



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 3.7 per 100,000 people by 2019.

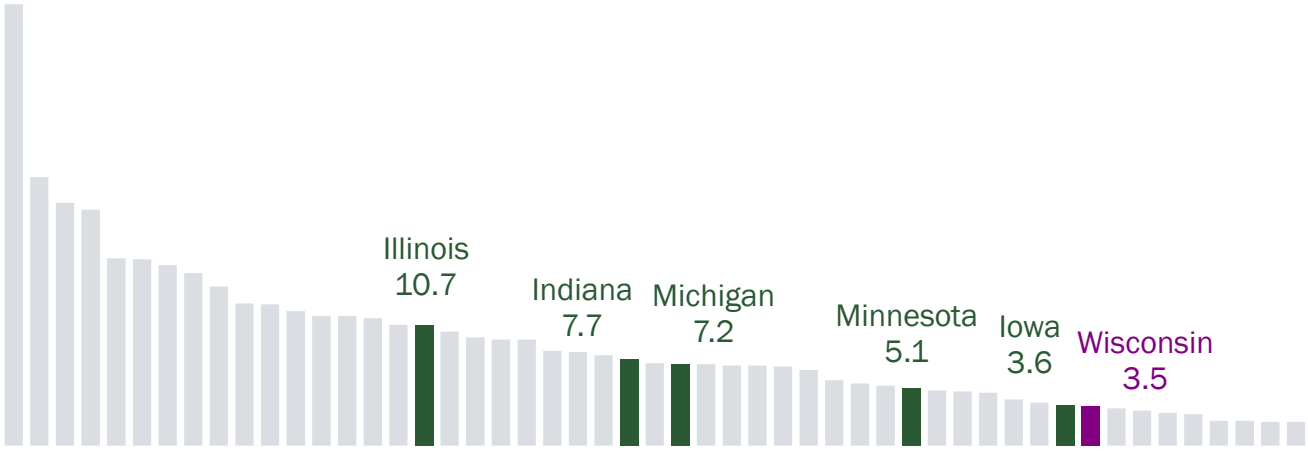
During 2010–2019, the annual diagnosis rate ranged from a low of 3.7 per 100,000 people (2019) to a high of 4.5 per 100,000 people (2017), with an average of 4.0 new HIV diagnoses per 100,000 people.

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, 2018*



*Centers for Disease Control and Prevention. *HIV Surveillance Report, 2018 (Updated)*; vol.31. http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html. Published May 2020. Accessed June 2020.

Demographics

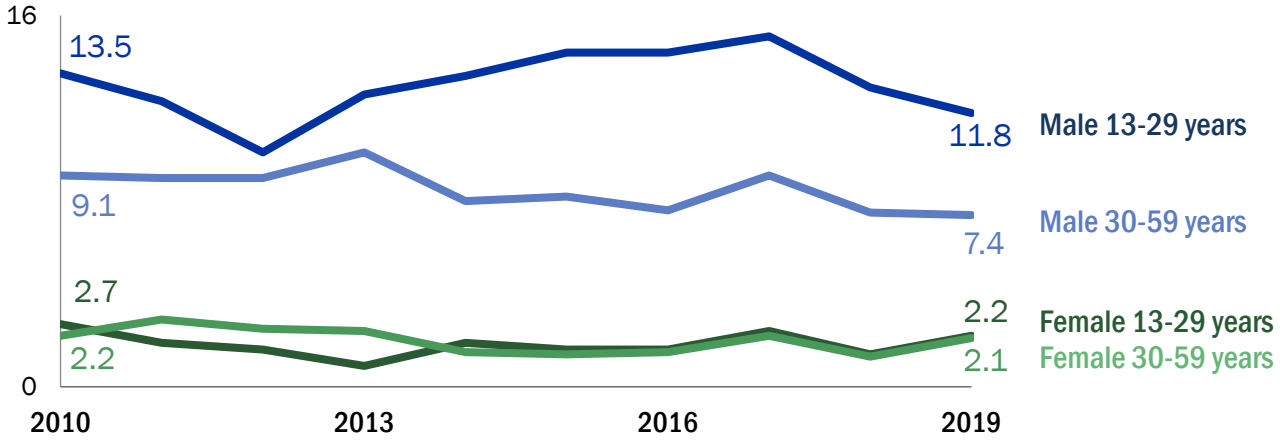
Age and Gender at Diagnosis

During 2010-2019, the HIV diagnosis rate decreased from 13.5 to 11.8 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, 2010-2019



*Diagnosis rates among males and females 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 68% in 2019 (Figure 5). During 2019, racial and ethnic minorities made up just 18% of Wisconsin's population, but accounted for 68% of new HIV diagnoses.

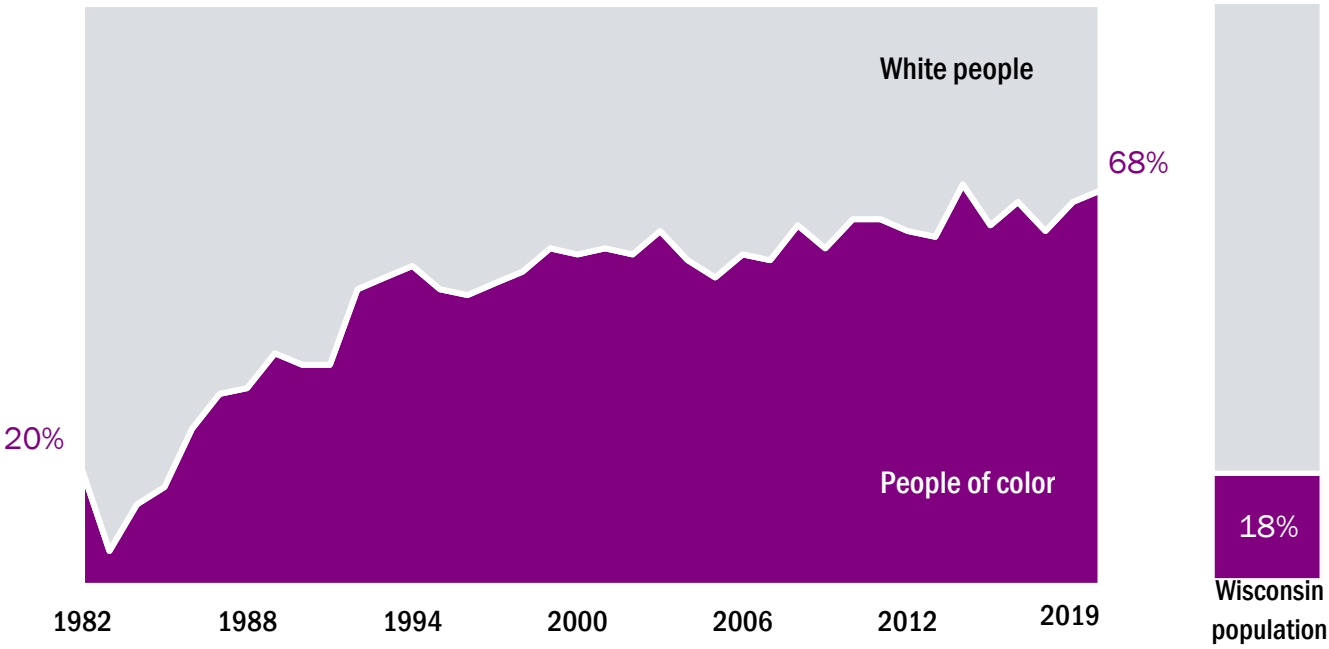
Addressing health disparities and inequities is a priority for public health. Race or ethnicity alone does not make someone more or less likely to acquire HIV. Many social and economic factors affect populations of color to a larger extent than white populations in Wisconsin, putting people of color 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, 1982–2019



This disparity is more pronounced among men (Figure 6, Appendix-Table A1). During 2010–2019, women of all racial or ethnic groups have had lower annual HIV diagnosis rates compared to men.

Black women have the highest rate among women but have also experienced the steepest decline in new diagnosis rates over the past 10 years. In contrast, HIV diagnosis rates have diverged by racial or ethnic groups for men, widening the disparity between black men and men of other racial or ethnic groups.

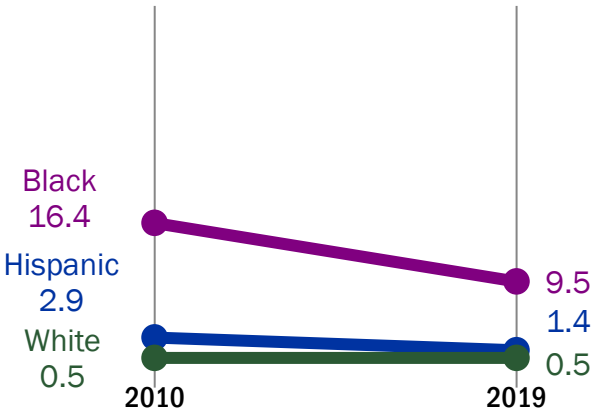
FIGURE 6

HIV Diagnosis Rates

The number of new HIV diagnoses per 100,000 people by gender and race or ethnicity, Wisconsin, 2010–2019

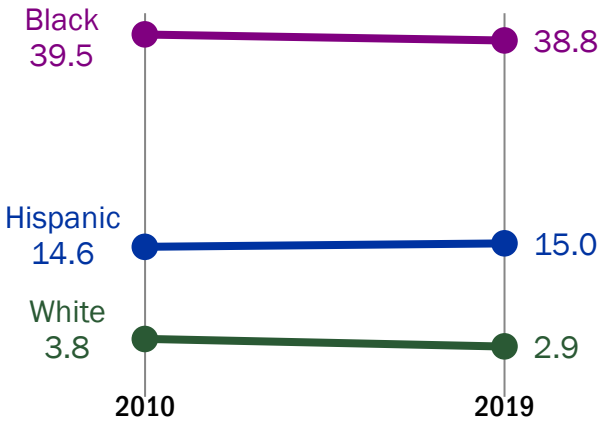
Female

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



Male

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



American Indian and Asian People

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

American Indian People

During 2010–2019, 15 American Indian people were diagnosed with HIV infection in Wisconsin (Figure 7).

- Three out of four of these recent diagnoses were male.
- Forty-seven percent were under 30 at the time of diagnosis.
- All but two were diagnosed in either the southeastern (53%) or northeastern (33%) regions.
- Nine diagnoses were attributed to male-male sexual contact (60%), two were attributed to injection drug use (13%), and four had an unknown transmission category (27%).

Asian People

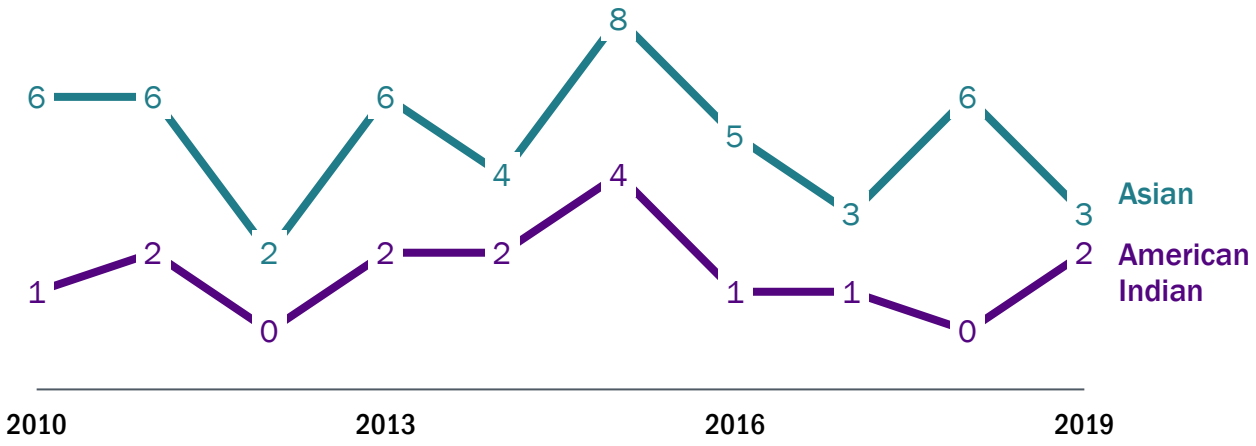
During 2010-2019, 49 Asian people were diagnosed with HIV infection in Wisconsin (Figure 7).

- Six out of seven of these recent diagnoses were male.
- Thirty-nine percent were under 30 at the time of diagnosis.
- The majority were diagnosed in the southeastern (45%), southern (22%), or northeastern (16%) regions.
- Thirty of these diagnoses were attributed to male-male sexual contact (61%), five were attributed to male-female (heterosexual) sexual contact (10%), one was attributed to perinatal exposure (2%) and 13 had an unknown transmission category (27%).

FIGURE 7

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

Number of HIV diagnoses among American Indians and Asians, Wisconsin, 2010–2019



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. A transgender person may have anatomy associated with their sex at birth, the anatomy associated with another sex, or a combination of these.

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 infection 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, 82 transgender individuals have been diagnosed with HIV in Wisconsin (eight transgender men and 74 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.

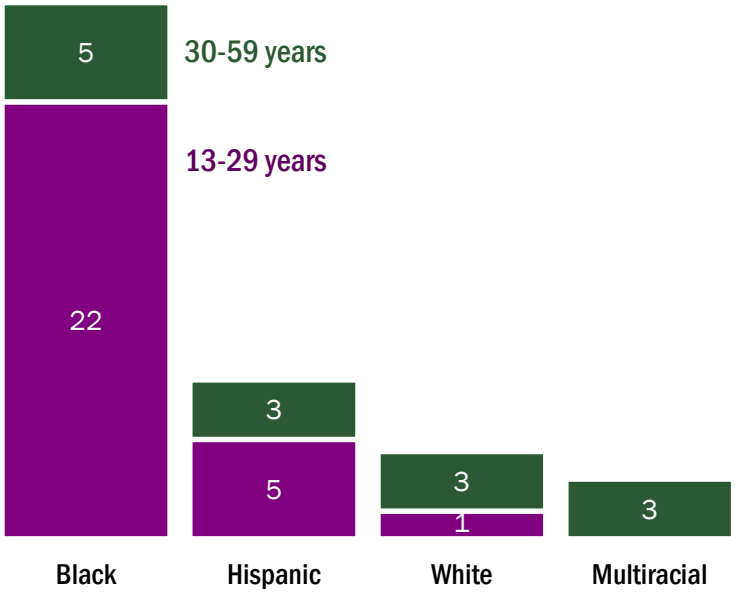
Of the 82 HIV diagnoses among transgender individuals, 42 occurred between 2010 and 2019 (Figure 8).

- The majority were from a racial or ethnic minority group (90%).
- Two out of three individuals were under age 30 (67%).
- Nearly 90% of recent diagnoses were attributed to sexual contact (36 of 42).

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, Wisconsin, 2010–2019



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).

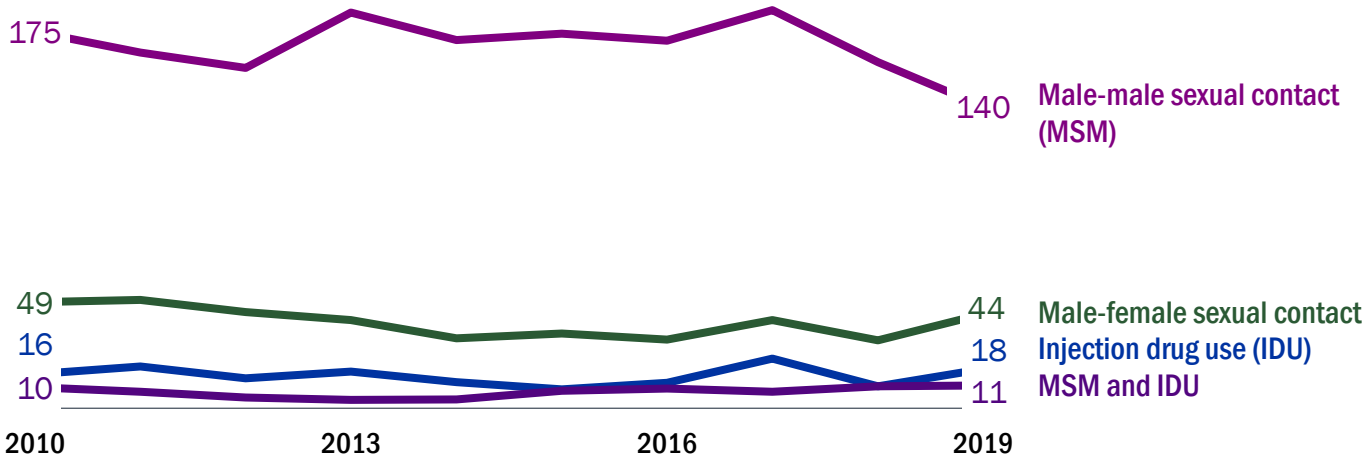
[1] Centers for Disease Control and Prevention. HIV Among Transgender People. https://www.cdc.gov/hiv/group/gender/transgender/. Published April 2017.

During 2010–2019, 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 transmission risk.

New HIV diagnoses by estimated transmission category*, Wisconsin, 2010–2019



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

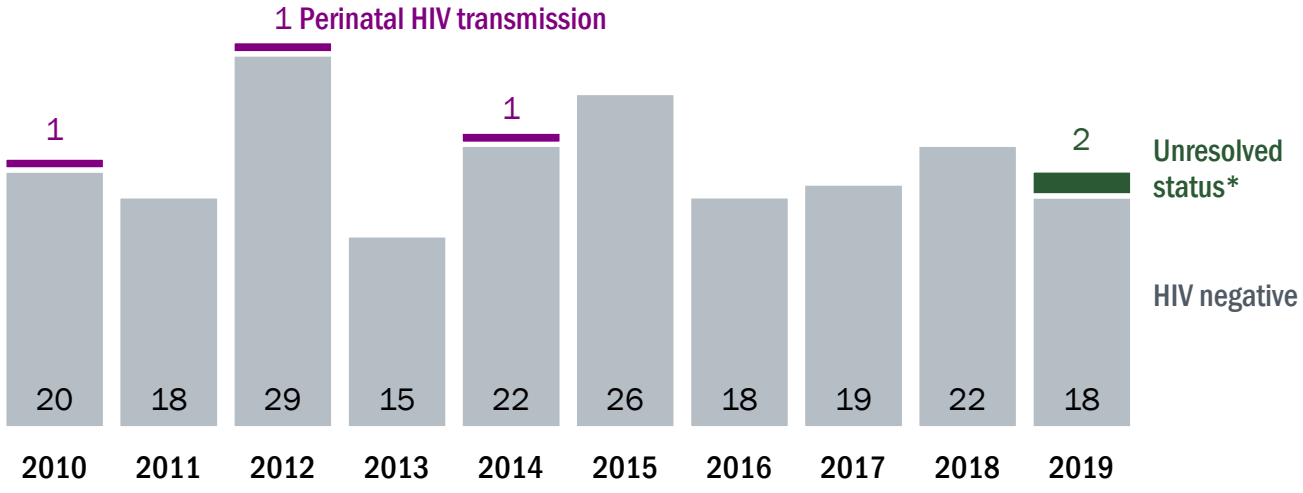
Perinatal Transmission

During 2010–2019, 212 infants were born to mothers living with HIV in Wisconsin. Of these infants, 207 (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 mothers living with HIV, Wisconsin, 2010–2019



* 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 declined from 25% in 2014 to 18% in 2017 (Figure 11). This decline may be partially due to a change in the case definition for Stage 3 diagnosis during 2014. The new Stage 3 case definition excludes people who have evidence of recent HIV infection, such as a negative HIV test within six months prior to diagnosis.

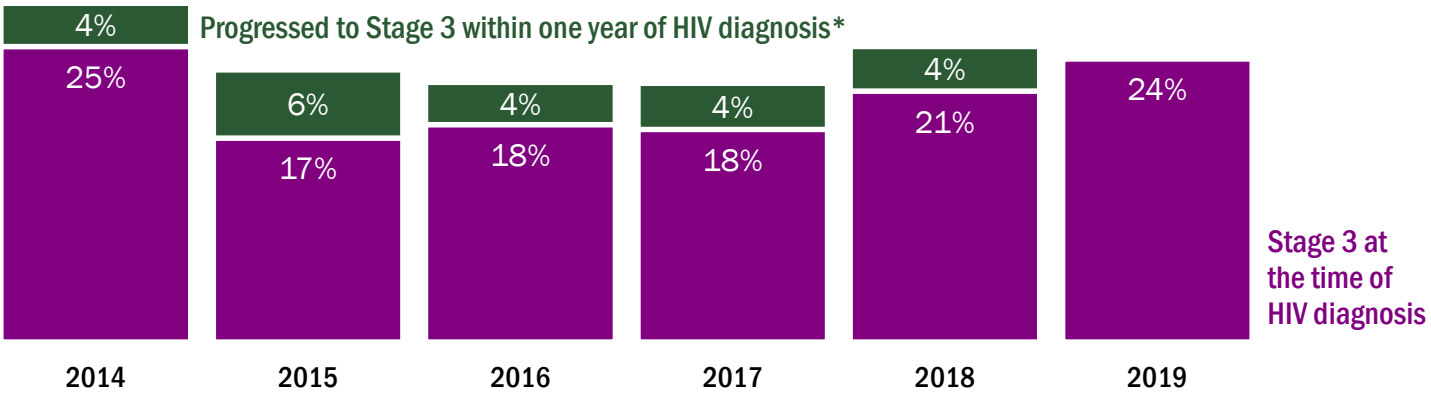
Late diagnoses were no longer in decline when 2018 data on late diagnoses (21%) were included.

The total percentage of people that had progressed to Stage 3 within one year of HIV diagnosis (including being first diagnosed during Stage 3) declined from 29% in 2014 to 22% in 2017.

FIGURE 11

The percentage of people who had progressed to Stage 3 at the time of diagnosis increased during 2015–2019.

Percentage of people who progressed to Stage 3 HIV infection within one year of diagnosis, Wisconsin, 2014–2019



*Those diagnosed with HIV during 2019 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 2014–2018:

- The majority (79%) were male.
- Three out of four (78%) were over 30 at the time of diagnosis.
- Thirty-eight percent were white, 37% were black, and 19% were Hispanic.
- About half (56%) 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, 2019

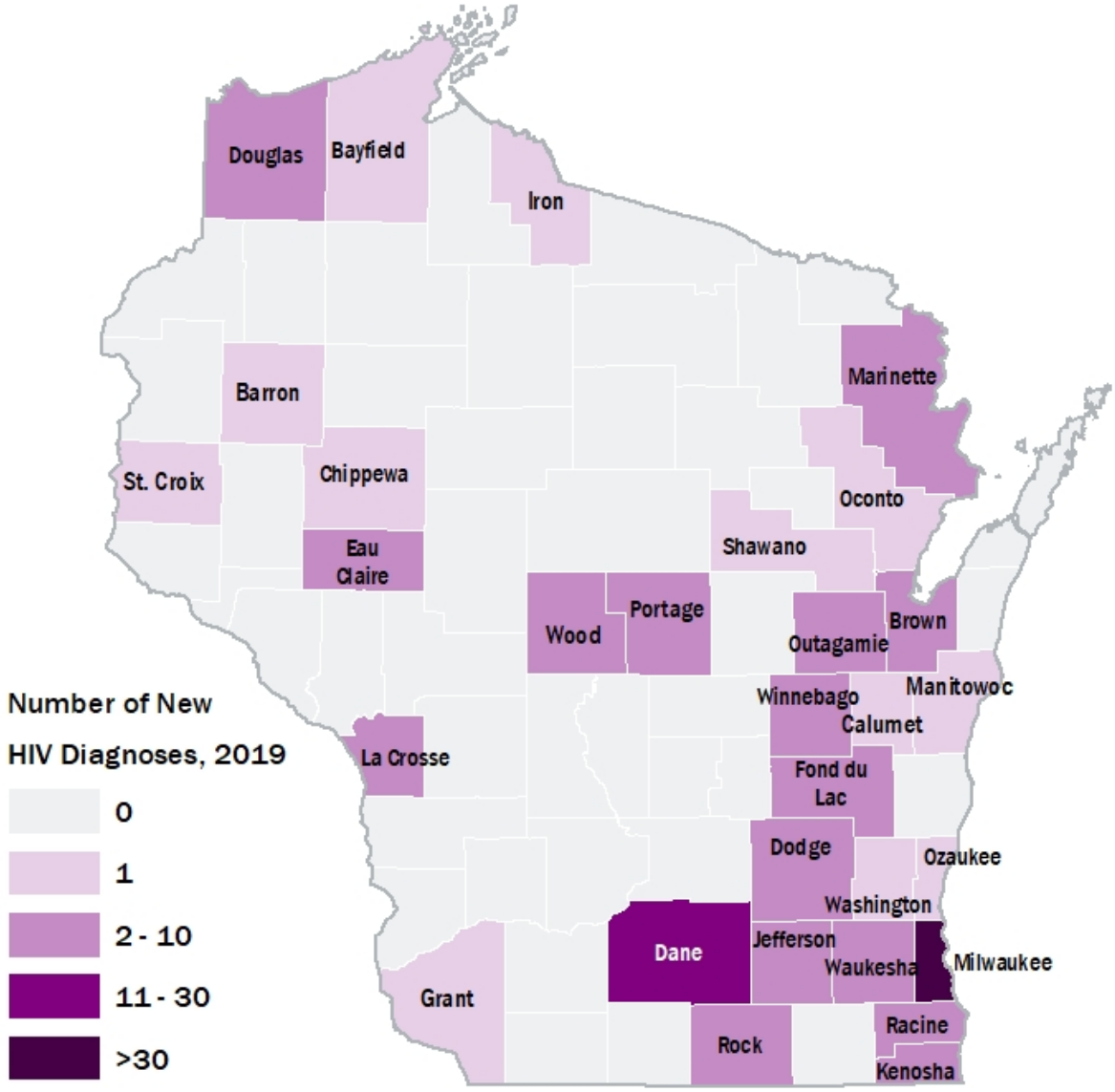
Number of New HIV Diagnoses

New HIV diagnoses are Wisconsin residents who received their first HIV diagnosis during the current reporting period. During 2019, 214 Wisconsin residents were newly diagnosed with HIV infection, or 3.7 new diagnoses per 100,000 Wisconsin residents. The majority of new HIV cases were diagnosed in Milwaukee County (113, 52%) and Dane County (17, 8%; Figure 12, Appendix-Table A2).

FIGURE 12

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

Geographic distribution of new HIV diagnoses, Wisconsin, 2019



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 2019, 34 people received a recent or acute HIV diagnosis. Of these, seven people were considered to have acute diagnoses based on laboratory testing algorithms or presence of acute symptoms.

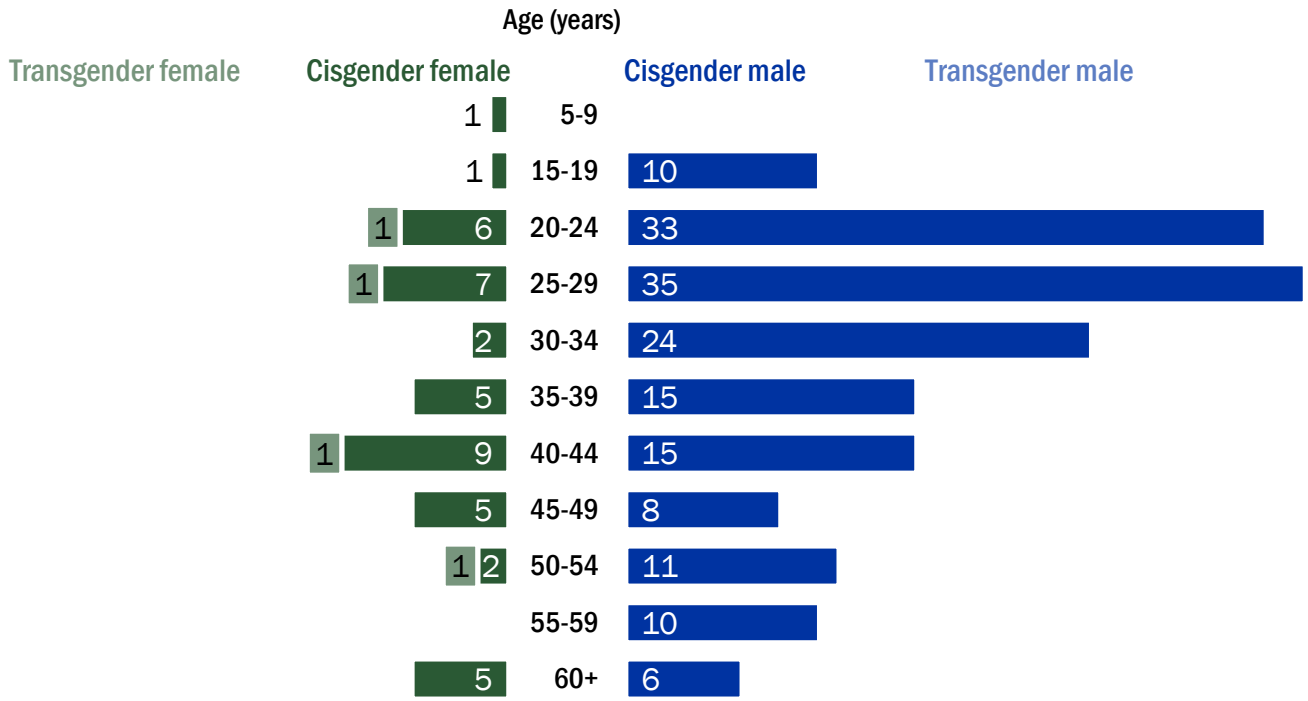
Demographics

During 2019, 167 men, 43 women, and four transgender individuals were diagnosed with HIV in Wisconsin (Figure 13, Appendix-Table A3).

FIGURE 13

Approximately 1 out of 3 new HIV diagnoses during 2019 were among young men under 30.

Number of HIV diagnoses by age and gender, Wisconsin, 2019



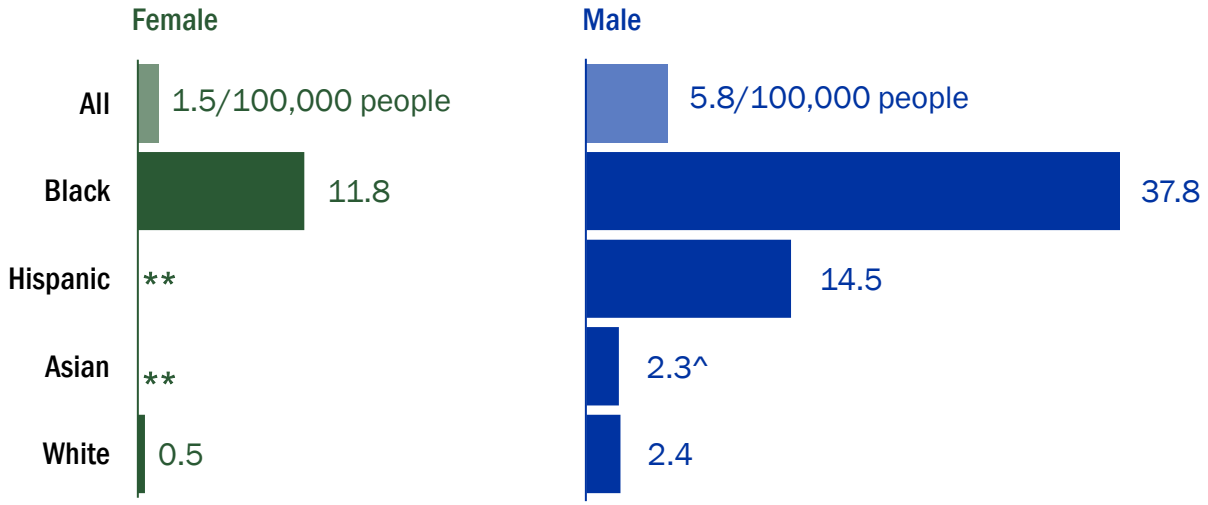
The average (median) age at diagnosis was 32, with a range of 7–85. During 2019, newly diagnosed men had a lower average age at diagnosis than women (men, 30; women, 39).

During 2019, 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 higher rate than other groups.

Number of new HIV diagnoses per 100,000 people by gender* and race or ethnicity, Wisconsin, 2019



*Four transgender persons diagnosed during 2019 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

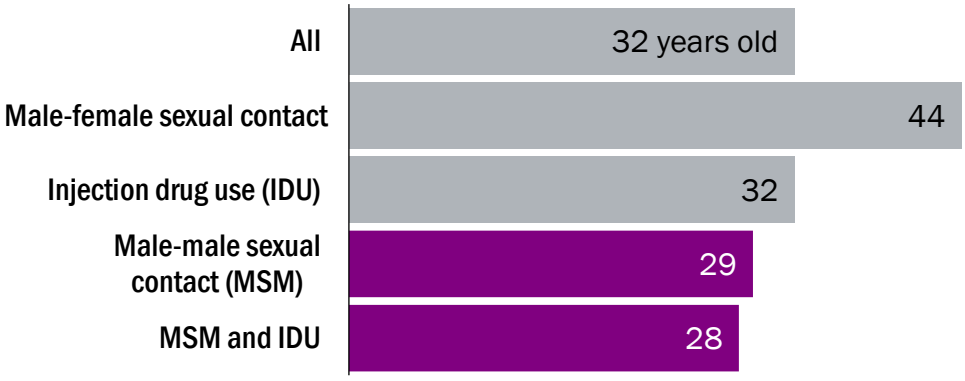
Age

Transmission categories are determined by what people tell their doctor about behaviors that might lead to HIV exposure. People who reported male-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, 2019

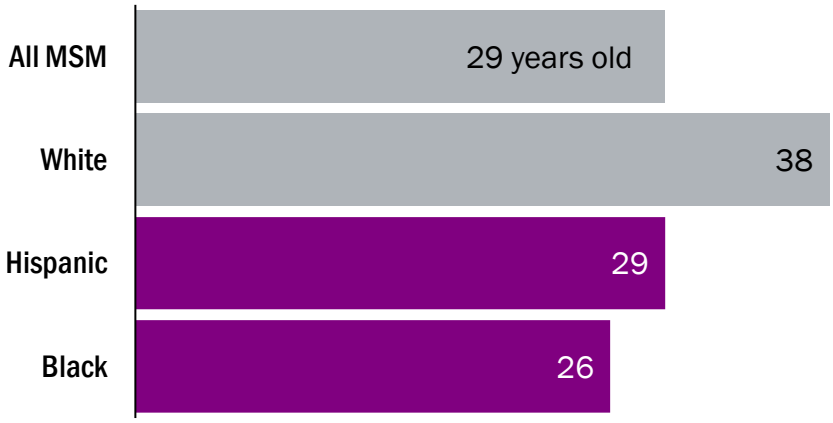


Within the male-male sexual contact transmission category, black and Hispanic men tended to be younger at diagnosis compared to white men (Figure 16).

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, 2019



Gender

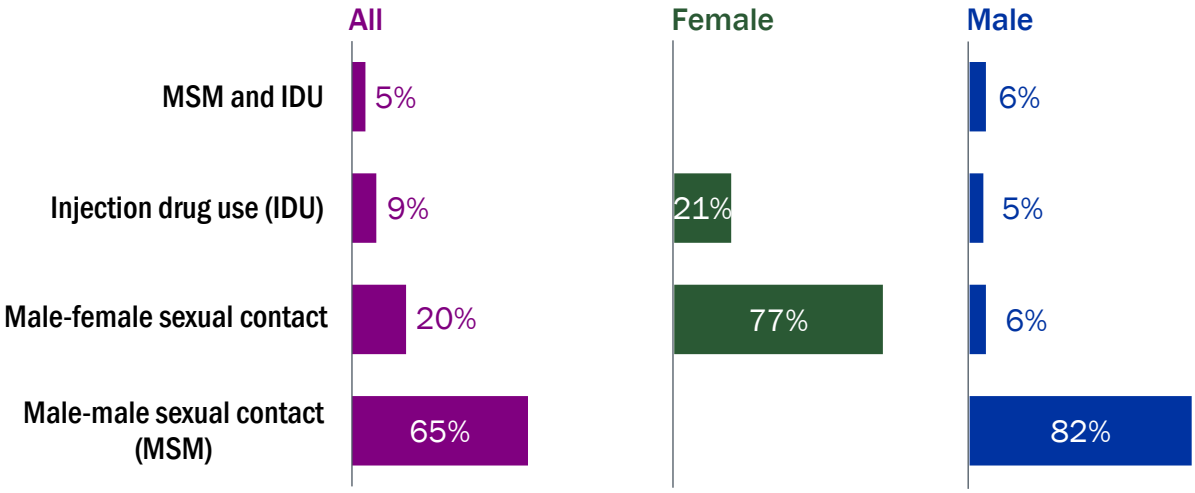
Two out of three new diagnoses were attributed to an estimated transmission category of male-male sexual contact (Figure 17). The remainder was attributed to male-female sexual contact (20%), injection drug use (9%), or both male-male sexual contact and injection drug use (5%).

Among transgender individuals, all four 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, 2019



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

During 2019, there were 11 diagnoses with a reported transmission category of injection drug use and nine 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 during 2019 compared to the previous year (four injection drug use, eight 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 2019, the most common settings for HIV diagnoses were outpatient clinics (51%), community based organizations (10%), and blood or plasma centers (9%; Figure 18).

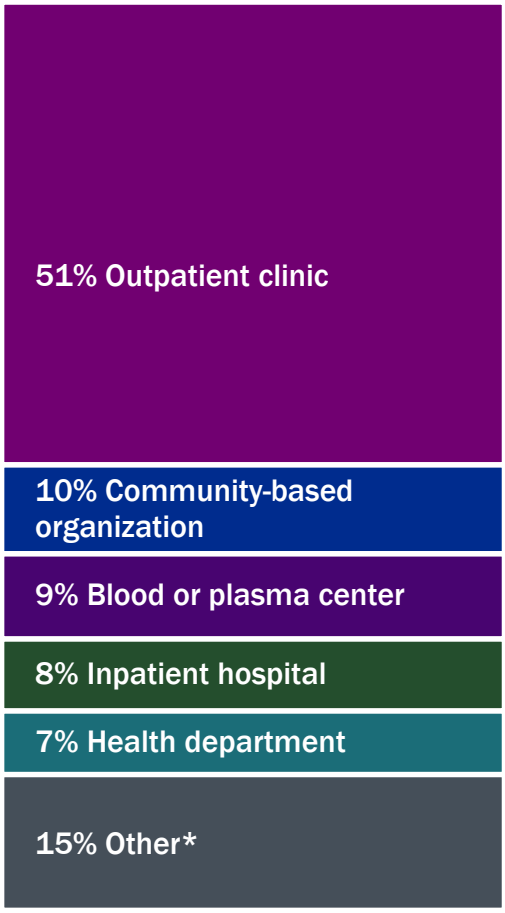
Of the seven people with evidence of acute HIV, almost half were diagnosed at an outpatient clinic (3).

FIGURE 18

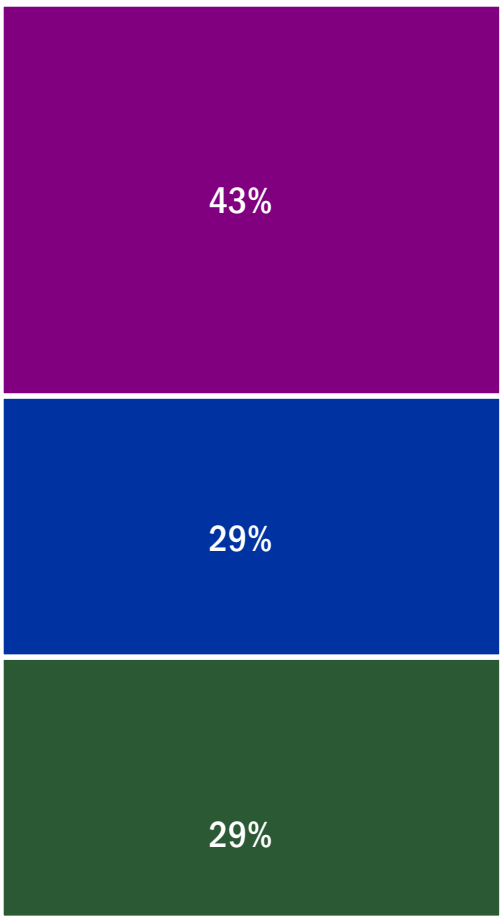
Facility at Diagnosis

Percent of new HIV diagnoses by facility and percent of acute HIV diagnoses by facility, Wisconsin, 2019

All new HIV diagnoses (214 people)
Over half of people were newly diagnosed with HIV infection at outpatient clinics during 2019.



Acute HIV diagnoses (7 people)
Acute HIV diagnoses were most commonly diagnosed at outpatient clinics during 2019.



*Other includes diagnosis at a family planning clinic (4%), HIV care clinic (4%), jail or prison (4%), emergency room or urgent care (3%), or other facility types including a psychiatric hospital and out-of-state facilities (1%).

Linkage to Care

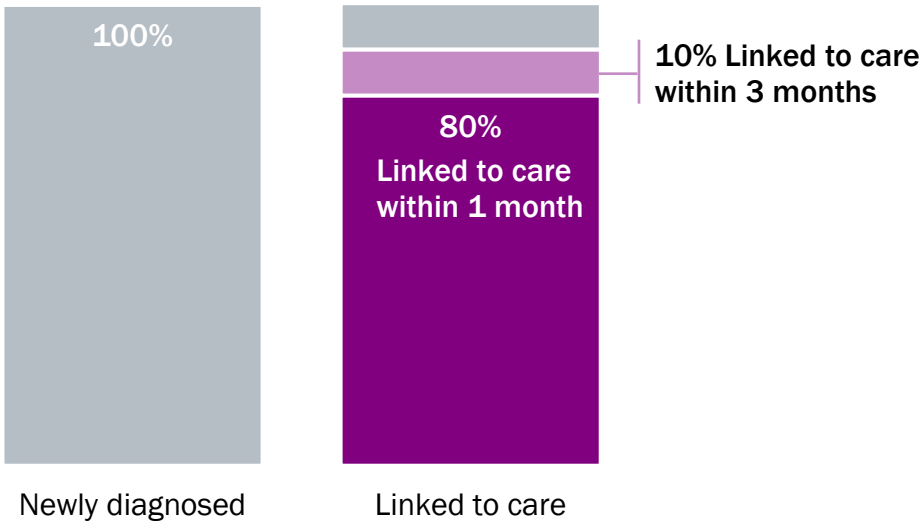
Timely linkage to care (visiting an HIV health care provider within one month (30 days) after learning they were living with HIV) can help people living with HIV have healthier lives and prevent further HIV transmission. Access to medications that reduce the amount of virus in the body can lower the 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, 2019



*Reflects laboratory data received through April 20, 2020

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.

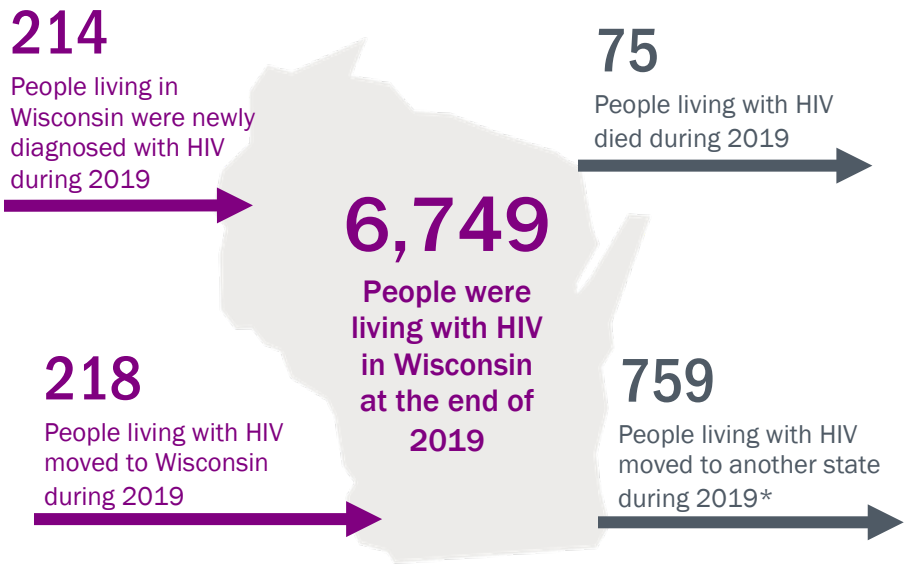
Prevalence fluctuates due to new diagnoses, migration, and deaths (Figure 20).

At the end of 2019, 6,749 people living with HIV resided in Wisconsin.

FIGURE 20

More people living with HIV left Wisconsin than entered during 2019.

Flow of people living with HIV into and out of Wisconsin, 2019



*This number is based on the date the information was received, not the date the person moved out of state. Due to clean-up efforts done in 2019, this number is higher than in previous years.

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 7,900 people.

The most recent CDC estimate[2] suggests that nationally, 14% 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 1,100 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 2010-2016. *HIV Surveillance Supplemental Report* 2019;24 (No. 1). https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-24-1.pdf. Published February 2019. Accessed April 2020.

According to the CDC, awareness of HIV infection 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.

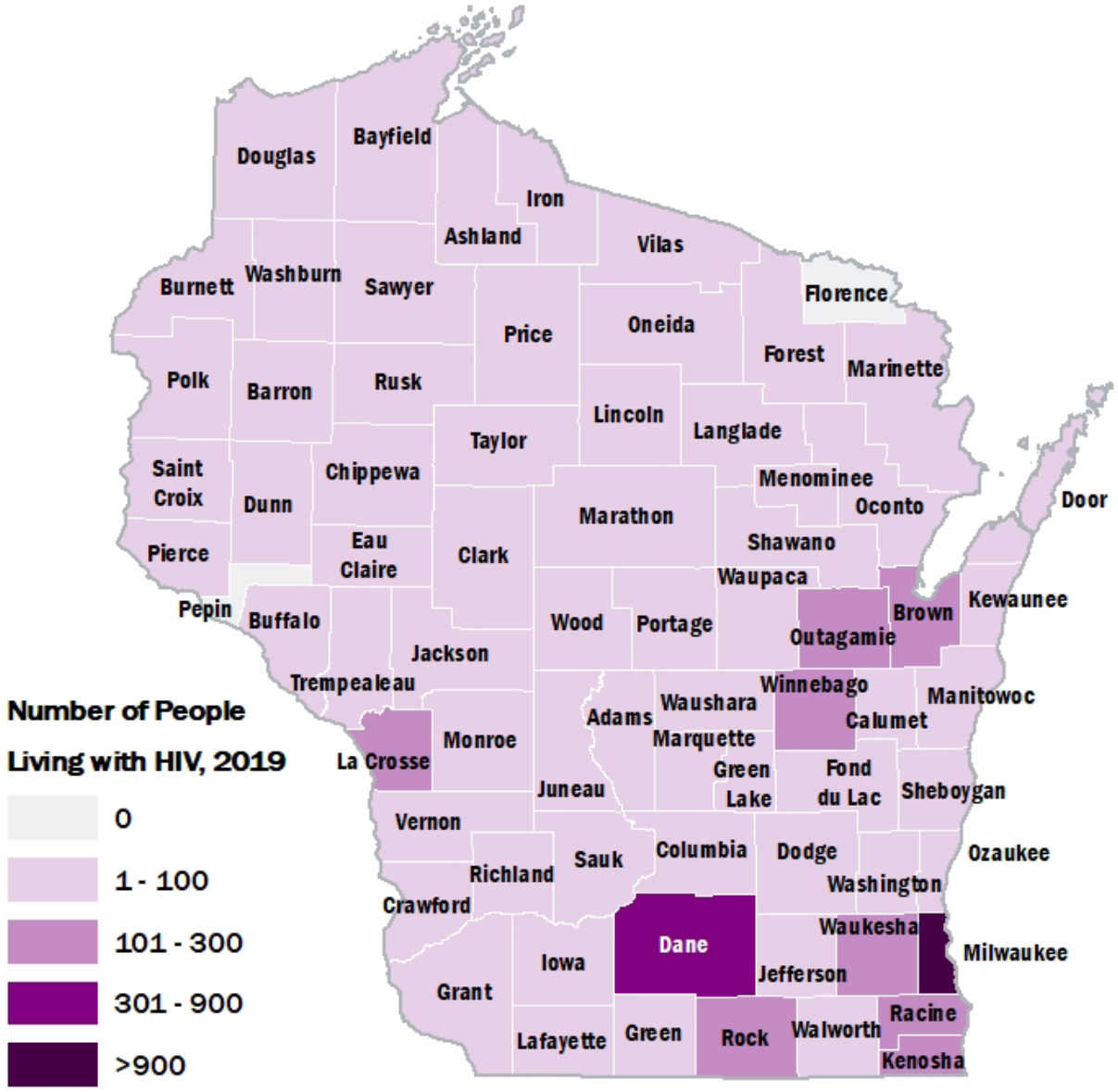
Geographic Distribution of People Living with HIV

Nearly half (48%) of all individuals living with HIV in Wisconsin currently reside in Milwaukee County, 12% live in Dane County, and 4% each live in Racine, Kenosha, 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, 2019



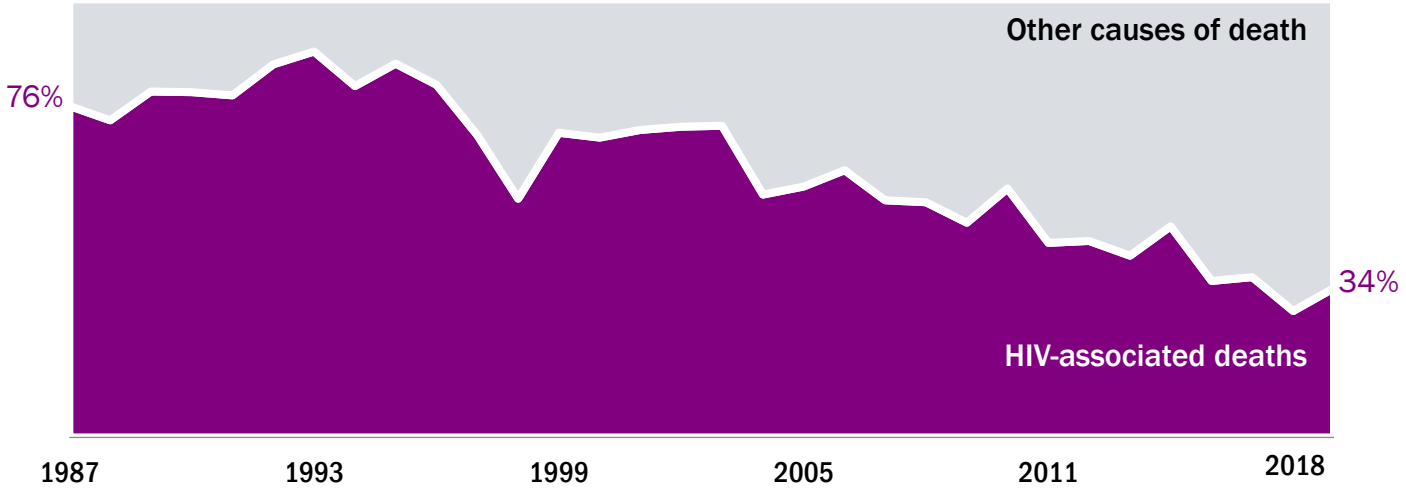
Deaths

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 among people living with HIV attributed to HIV as primary cause of death, Wisconsin, 1987–2018



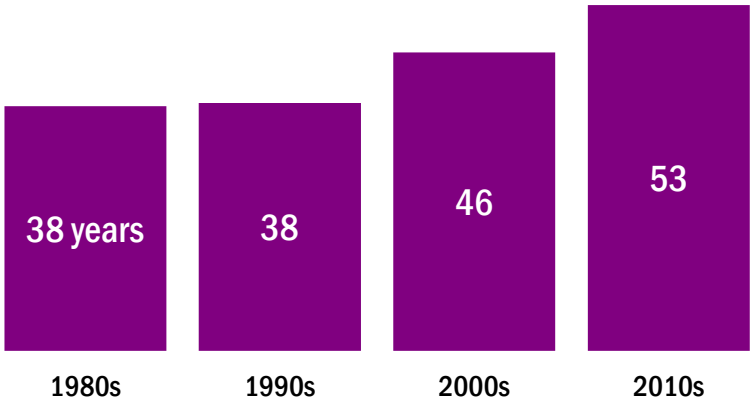
During 2018, 85 deaths occurred in Wisconsin among people living with HIV. Approximately one out of three deaths (34%) had HIV listed as the primary cause of death. The remaining 66% were attributed to another cause that are in line with the national leading causes of death[3].

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, 1982–2019



[3] Heron M. Deaths: Leading causes for 2017. National Vital Statistics Reports; vol 68 no 6. Hyattsville, MD: National Center for Health Statistics. 2019.

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 432 new HIV reports received during 2019, 218 (50%) were previously diagnosed in another state prior to moving to Wisconsin. People living with HIV who moved to Wisconsin during 2019 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).

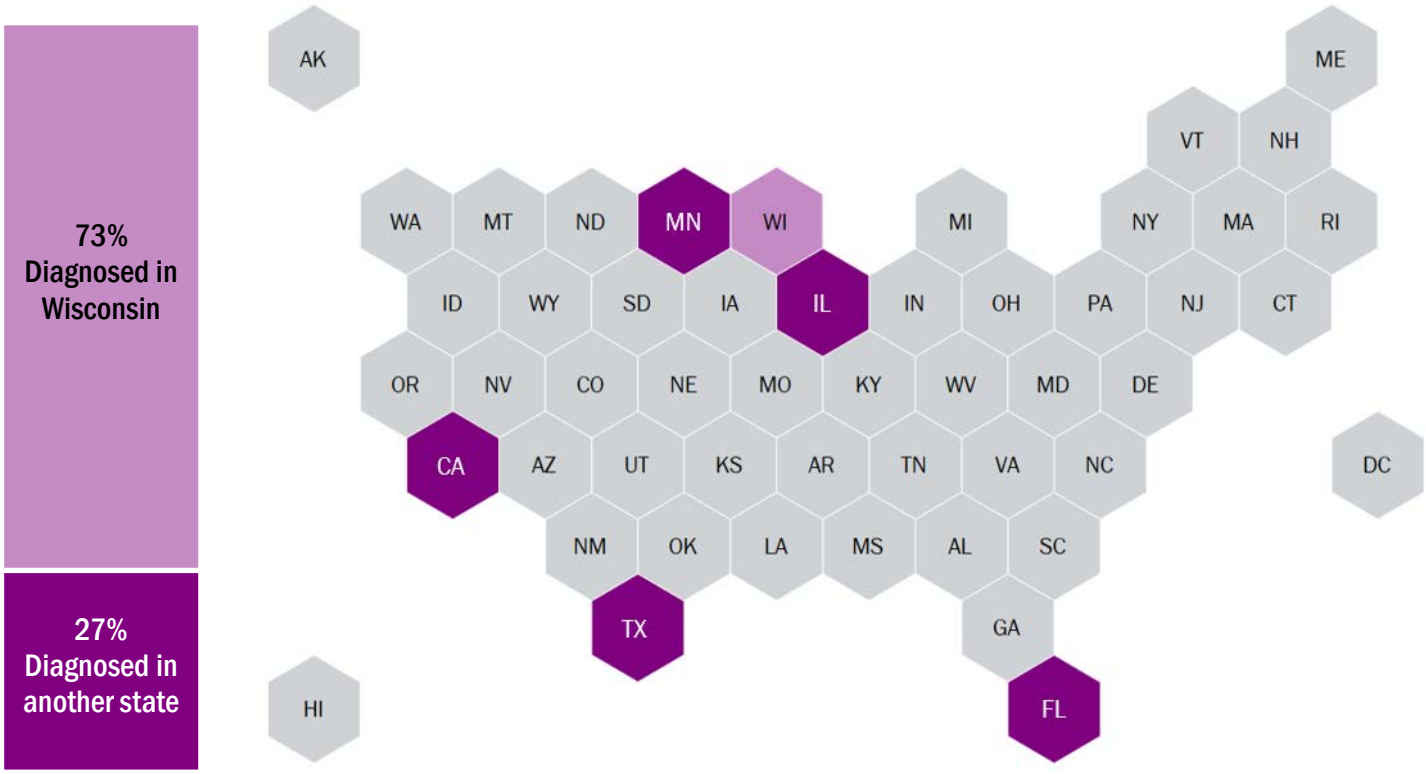
Approximately three out of four (73%) of the 6,749 people living with HIV in Wisconsin during 2019 were diagnosed in the state (Figure 24). The remaining 1,821 people (27%) were diagnosed in:

- Illinois (443)
- California (156)
- Florida (138)
- Minnesota (112)
- Texas (91)
- Another state (710)
- A foreign country (171)

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 2019



Demographics

Of people living with HIV in Wisconsin during 2019:

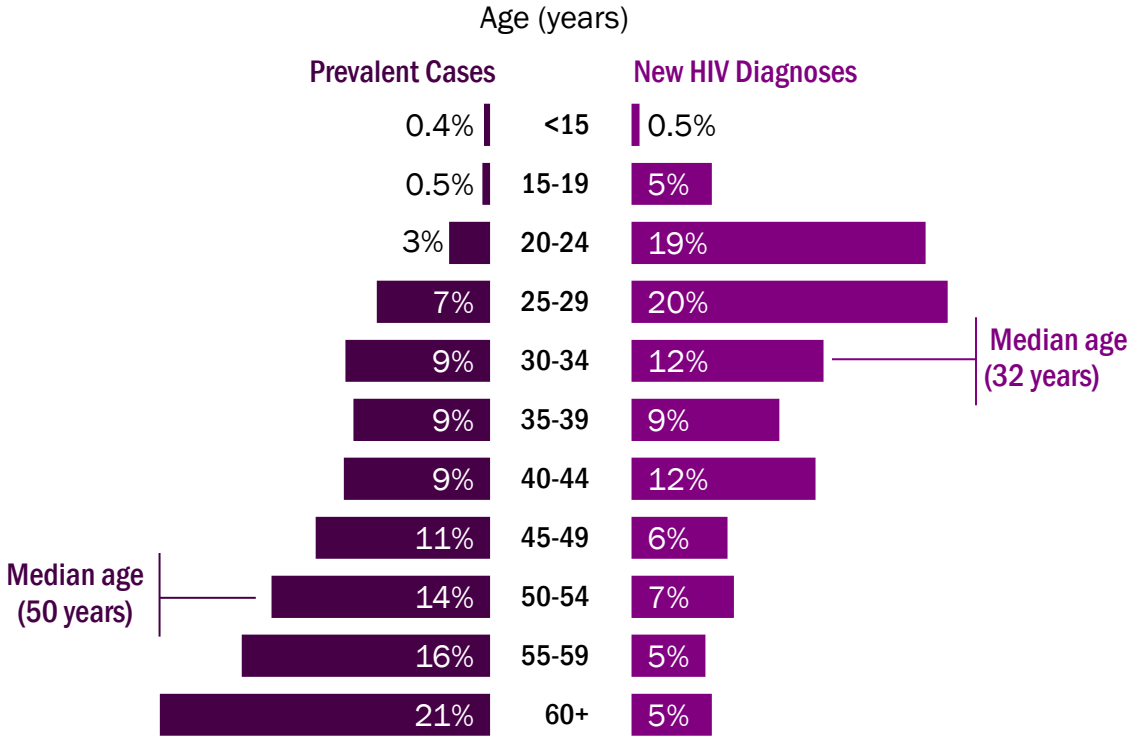
- The majority (79%) are male.
- The majority are over age 30 (89%) and half (51%) are over age 50.
- Three out of seven (43%) are white, 38% are black, and 14% are Hispanic.
- Two out of three (62%) had a transmission category of male-male sexual contact, 21% had a transmission category of male-female sexual (heterosexual) contact, and 16% 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 target 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 2019.

Age distribution of people currently living with HIV in Wisconsin (prevalent cases) compared to age at diagnosis for people newly diagnosed during 2019



Retention in Care

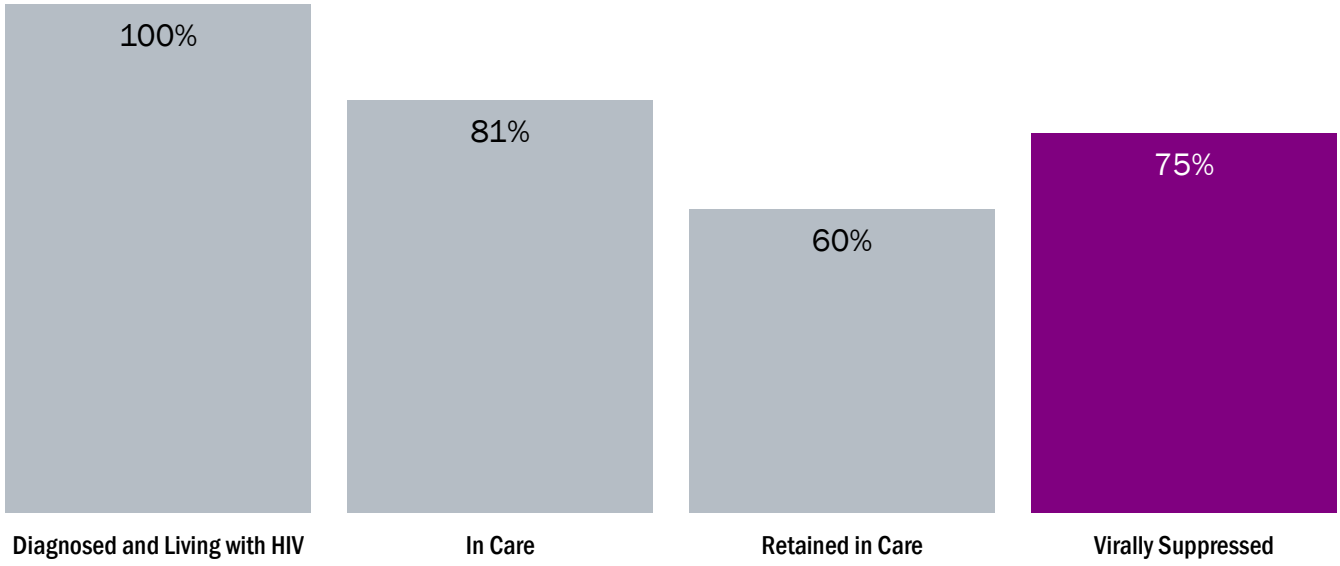
Access to HIV care and medications that reduce the amount of virus in the body (that is, the viral load) benefit both the health of people living with HIV and HIV prevention efforts. Individuals with a viral load that cannot be detected by standard laboratory diagnostic testing (that is, are virally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

Three out of four people known to be living with HIV in Wisconsin were virally suppressed during 2019.

HIV Care Continuum*–Retention and Care Outcomes, Wisconsin, 2019



*Reflects laboratory data received through April 20, 2020

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 20, 2020. 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 website (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 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. http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2017PS/2017PSFinal/17-ID-06.pdf. Accessed June 2020.

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 2019, 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. 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 2020.

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, 2010-2019

	Male			Female		
Year	Black	White	Hispanic	Black	White	Hispanic
2010	44.9	3.6	13.6	14.6	0.4**	*
2011	40.0	3.2	16.0	11.4	0.5	5.5**
2012	35.6	3.1	16.2	12.3	0.6	3.0**
2013	40.5	3.8	16.9	10.2	0.3**	3.4**
2014	40.6	2.5	19.7	8.6	0.3**	2.8**
2015	39.3	3.2	13.7	7.0	0.4**	*
2016	44.2	2.8	10.0	8.5	0.4**	*
2017	42.2	3.6	15.1	9.9	0.6	*
2018	36.8	2.8	15.5	6.9	0.3**	*
2019	37.8	2.4	14.5	11.8	0.5	*

* 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, 2019

County of Residence	Number	Percent of Cases	Rate/100,000 people *
Barron	1	0.5%	-
Bayfield	1	0.5%	-
Brown	10	5.0%	3.8 **
Calumet	1	0.5%	-
Chippewa	1	0.5%	-
Dane	17	8.0%	3.2
Dodge	1	1.0%	-
Douglas	2	1.0%	-
Eau Claire	2	1.0%	-
Fond du Lac	3	1.0%	-
Grant	1	0.5%	-
Iron	1	0.5%	-
Jefferson	2	1.0%	-
Kenosha	9	4.0%	5.3 **
La Crosse	4	2.0%	-
Manitowoc	1	0.5%	-
Marinette	3	1.0%	-
Milwaukee	112	52.0%	11.9
Oconto	1	0.5%	-
Outagamie	4	2.0%	-
Ozaukee	1	0.5%	-
Portage	2	1.0%	-
Racine	5	2.0%	2.2 **
Rock	3	1.0%	-
Saint Croix	1	0.5%	-
Shawano	1	0.5%	-
Washington	1	0.5%	-
Waukesha	7	3.0%	1.8 **
Winnebago	7	3.0%	4.1 **
Wood	2	1.0%	-
Department of Corrections	7	3.0%	-
TOTAL	**214**	**100%**	**3.7**

* 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, 2019

	Diagnosis Location	
	Wisconsin	Outside of Wisconsin
	Number (%)	Number (%)
Total	214 (100%)	218 (100%)
Current Gender		
Male	167 (78%)	164 (75%)
Female	43 (20%)	48 (22%)
Transgender	4 (2%)	6 (3%)
Median Age (Range)	32 (7-85)	39 (14-71)
Race/Ethnicity		
American Indian/Alaska Native	2 (1%)	0 (0%)
Asian	3 (1%)	8 (4%)
Black	101 (47%)	94 (43%)
Hispanic	33 (15%)	26 (12%)
Native Hawaiian/Pacific Islander	0 (0%)	1 (0.5%)
White	68 (32%)	76 (35%)
Multi-Racial	7 (3%)	13 (6%)
Transmission Category		
Male-Male Sexual Contact (MSM)	118 (55%)	122 (56%)
Injection Drug Use (IDU)	11 (5%)	10 (5%)
MSM and IDU	9 (4%)	18 (8%)
Male-Female Sexual Contact	22 (10%)	37 (17%)
Perinatal Exposure	1 (0.5%)	0 (0%)
Unknown	53 (25%)	31 (14%)

TABLE A4

Observed and Estimated Prevalence of People Living with HIV in Wisconsin, 2019

		Wisconsin		
	United States Estimated % Unaware*	Observed Prevalence	Estimated # Unaware**	Estimated Prevalence
Total	14.3%	6,749	1,126	7,875
Age				
13-24 years	44.0%	221	174	395
25-34 years	29.1%	1,104	453	1,557
35-44 years	15.3%	1,215	219	1,434
45-54 years	8.2%	1,686	151	1,837
Greater than 55 years	5.8%	2,491	153	2,644
Race and Ethnicity				
White	11.5%	2,885	375	3,260
Black	14.8%	2,591	450	3,041
Hispanic or Latino	16.7%	946	190	1,136
Multiracial	13.6%	191	30	221
Asian	19.2%	96	23	119
American Indian	18.6%	32	7	39
Transmission Category				
Male-Male Sexual Contact (MSM)	16.4%	4,210	826	5,036
Male-Female Sexual Contact	14.5%	1,385	235	1,620
Injection Drug Use (IDU)	6.5%	651	45	696
MSM and IDU	7.6%	386	32	418

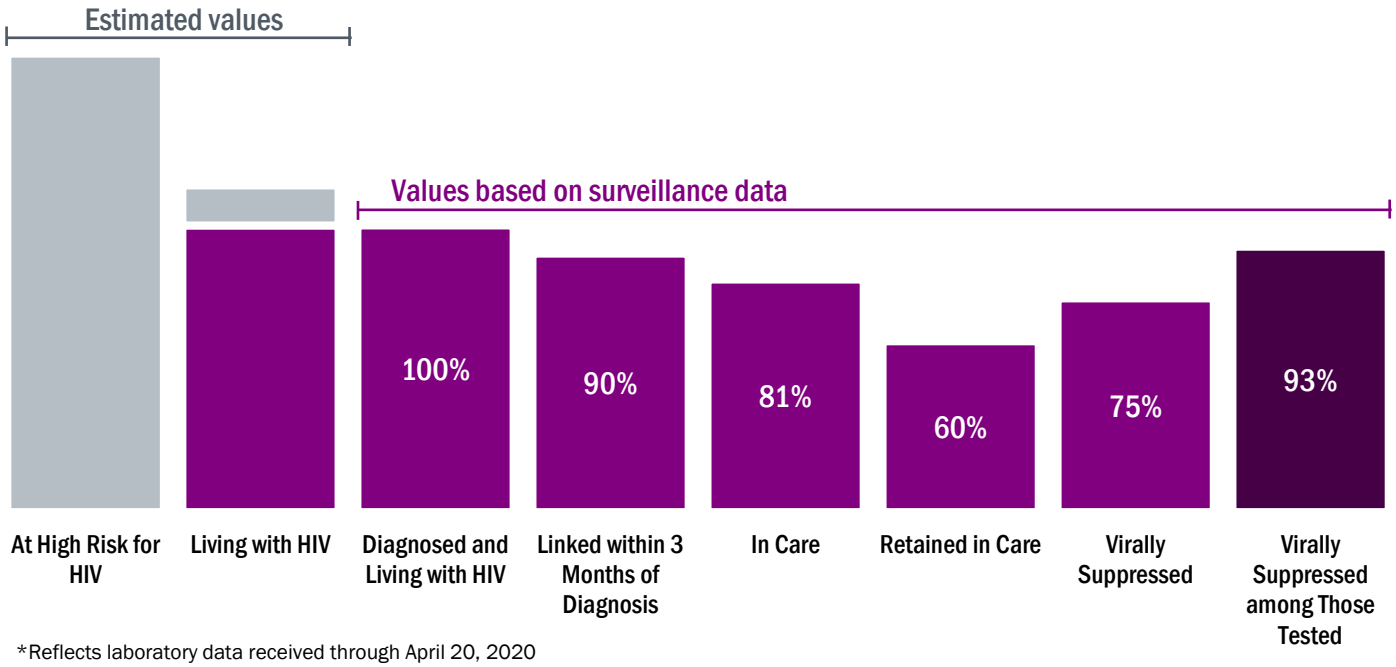
* Centers for Disease Control and Prevention. Estimated HIV Incidence and Prevalence in the United States 2010-2016. *HIV Surveillance Supplemental Report* 2019;24 (No. 1). https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-24-1.pdf. Published February 2019. Accessed April 2020.

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

FIGURE A1

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

HIV Care Continuum*, Wisconsin, 2019



*Reflects laboratory data received through April 20, 2020

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 14.3% 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 2018 who were still alive and living in Wisconsin by the end of 2019 (6,252 people).

Linked within Three Months of Diagnosis: Of 214 people diagnosed with HIV in Wisconsin during 2019, 90% (193 people) were linked to care within three months of diagnosis. Four out of five (172/214 people or 80%) 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 6,252 individuals diagnosed and living with HIV in Wisconsin during 2019, 81% 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 6,252 individuals diagnosed and living with HIV in Wisconsin during 2019, 60% 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 6,252 people living with HIV in Wisconsin, 75% 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 2019 or who did not have a viral load test recorded were considered to have unsuppressed viral loads.

Virally Suppressed among those Tested: Of 5,036 people who had a viral load test during 2019, 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:

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https://www.dhs.wisconsin.gov/aids-hiv/index.htm