

HIV in the city of Milwaukee

Supplement to the HIV Surveillance Annual Report, 2023

Diagnosis trends, new diagnoses, and prevalence through December 31, 2023



Table of Contents

Summary	1
HIV Diagnosis Trends	
Number and Rate of New Diagnoses	2
Demographics	3
People of Trans Experience	5
Transmission Category	6
Late Diagnosis	6
New Diagnoses, 2023	
Number of New HIV Diagnoses.....	8
Demographics.....	9
Transmission Category	10
Facility at Diagnosis.....	12
Linkage to Care.....	14
Prevalence	
Number of People Living with HIV	15
Migration	17
Demographics.....	18
Retention in Care.....	19
Technical Notes	21
Appendix	27

Summary

This report describes HIV diagnosis trends, people newly diagnosed with HIV during 2023, and the population living with HIV in Milwaukee, Wisconsin as of December 31, 2023. The HIV surveillance case definition for a new diagnosis in Milwaukee, Wisconsin was updated in 2023 (see Technical Notes). This case definition change is applied to HIV cases reported in Wisconsin from January 1, 2023, and onward.

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 (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 varied. Milwaukee has a relatively low diagnosis rate compared to cities of similar size and demographics. During 2014–2023:

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

New Diagnoses, 2023

During 2023, 83 people were newly diagnosed with HIV in Milwaukee.

- Five of the zip codes in Milwaukee made up 45% of the new HIV diagnoses.
- A disproportionate number of new HIV diagnoses were young cisgender men of color.
- Male–male sexual contact was the most commonly reported transmission mode for HIV.
- Approximately 94% of cases were linked to care services within three months of diagnosis.

Prevalence

A total of 2,781 people known to be living with HIV resided in Milwaukee at the end of 2023. An estimated 408 additional people may be living with HIV in Milwaukee but are not currently aware of their diagnosis. The estimated HIV prevalence was 3,189 people when those who were not aware of their diagnosis were taken into account.

- In 2023, 51 people living with HIV moved into Milwaukee.
- Almost half of people living with HIV reside in five of the Milwaukee zip codes.
- Prevalent cases tend to be older than new diagnoses.
- During 2023, 81% of people living with HIV were virally suppressed (having less than 200 copies of HIV per milliliter of blood).

HIV Diagnosis Trends

Number and Rate of New Diagnoses

Number of New Diagnoses

Since 1982, 5,535 Milwaukee residents were diagnosed with HIV. HIV diagnoses rose rapidly during the 1980s, peaking during 1990 at 303 new diagnoses, and then declining steeply until the early 2000s (Figure 1).

During 2014–2023, the number of diagnoses ranged from a low of 83 (2023) to a high of 117 (2017), with an average of 105 new HIV diagnoses per year.

FIGURE 1

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

Number of new HIV diagnoses, Milwaukee 1982–2023

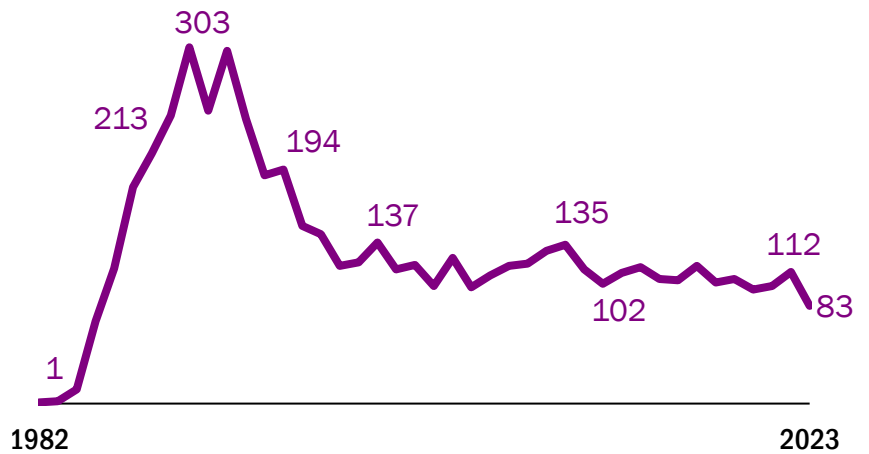
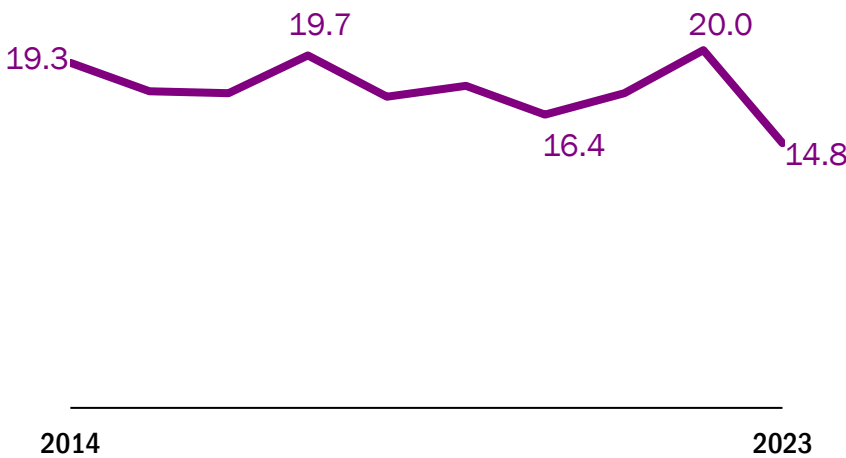


FIGURE 2

The HIV diagnosis rate in Milwaukee has varied over the past 10 years.

Rate of new HIV diagnoses per 100,000 people, Milwaukee 2014–2023



New Diagnosis Rate

During 2014, 19.3 new HIV cases were diagnosed per 100,000 Milwaukee residents (Figure 2). The new diagnosis rate varied over time to 14.8 per 100,000 people by 2023.

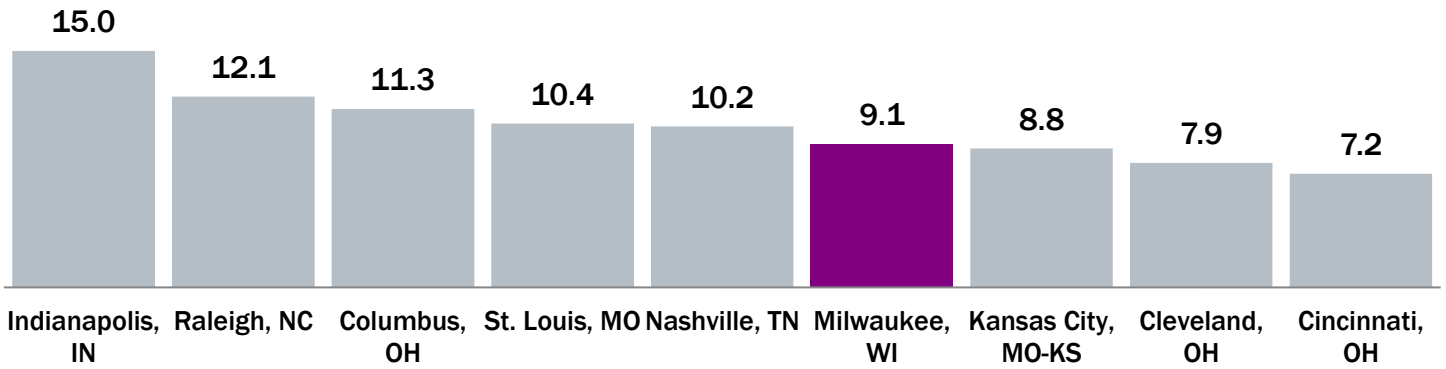
During 2014–2023, the annual diagnosis rate ranged from a low of 14.8 per 100,000 people (2023) to a high of 20.0 per 100,000 people (2022), with an average of 17.9 new HIV diagnoses per 100,000 people.

Figure 3 shows that Milwaukee’s HIV diagnosis rate is lower compared to other metropolitan statistical areas (MSA) of similar size, demographics, and economic factors.

FIGURE 3

Milwaukee has a lower HIV diagnosis rate compared to other metropolitan statistical areas with similar demographics.

Estimated number of HIV diagnoses per 100,000 people by metropolitan area, 2022



Centers for Disease Control and Prevention. *HIV Surveillance Report*, 2022; vol. 35. <https://stacks.cdc.gov/view/cdc/156509>. Published May 2024. Accessed [August 2024].

Demographics

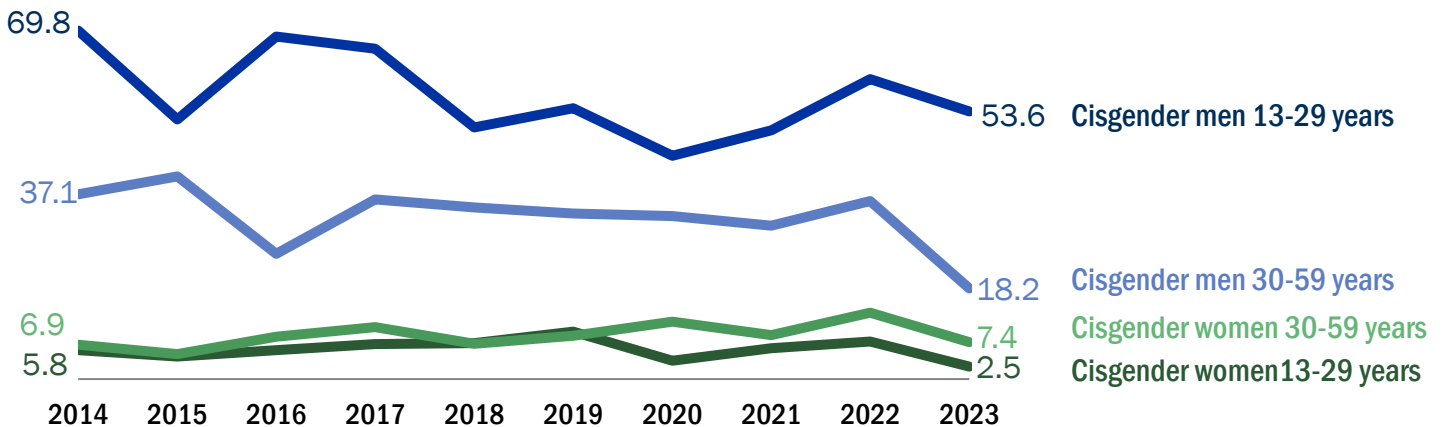
Age and Gender at Diagnosis

During 2014–2023, the HIV diagnosis rate fluctuated among young and older cisgender men, and remained steady among young and older cisgender women (Figure 4).

FIGURE 4

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

Number of HIV diagnoses per 100,000 people by gender* and age** at diagnosis, Milwaukee, 2014-2023



*People of trans experience are excluded from these rates as population estimates are not available to calculate rates.

**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 Milwaukee. People of color includes people who identify as Black, Hispanic, Asian, Native American, Native Hawaiian or Pacific Islander, or Multiracial. The percentage of new HIV diagnoses affecting people of color rose from 50% in 1983 to 93% during 2023 (Figure 5). During 2023, racial and ethnic minorities made up 69% of Milwaukee's population and comprised 93% of new HIV diagnoses.

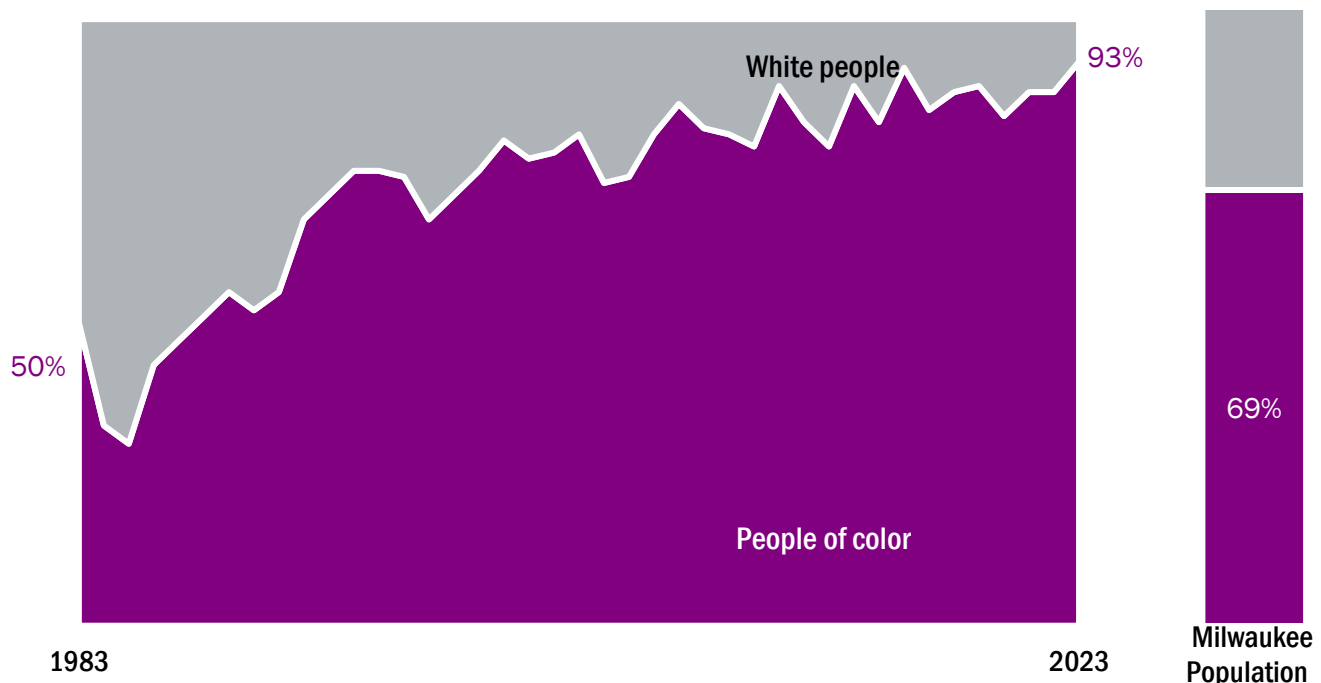
Addressing health disparities and inequities is a priority for public health. Race or ethnicity alone does not make someone more or less likely to acquire HIV. People of color have a greater likelihood of acquiring HIV due to many social and economic factors that affect people of color more than white people, 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 Milwaukee's racial and ethnic composition.

Percentage of new HIV diagnoses among white people and people of color, Milwaukee, 1983 -2023



This disparity is more pronounced among cisgender men (Appendix-Table A1). During 2014–2023, cisgender women of all racial or ethnic groups had lower annual HIV diagnosis rates compared to cisgender men.

People of Trans Experience

Cisgender people have a gender identity that corresponds with their sex assigned at birth. Conversely, people of trans experience 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 a person's sense of themselves and sexual orientation referring to a person's attractions and partnering.

People of trans experience face an increased risk for HIV due to stigma, discrimination, social rejection and exclusion, violence, and barriers in health care settings, such as lack of provider knowledge on people of trans experience's unique needs.¹

Since 1982, 107 people of trans experience have been diagnosed with HIV in Milwaukee (all 107 identified as transgender women). While collection of self-reported gender identity has improved over time, the number of diagnoses among people of trans experience in Milwaukee may be underreported.

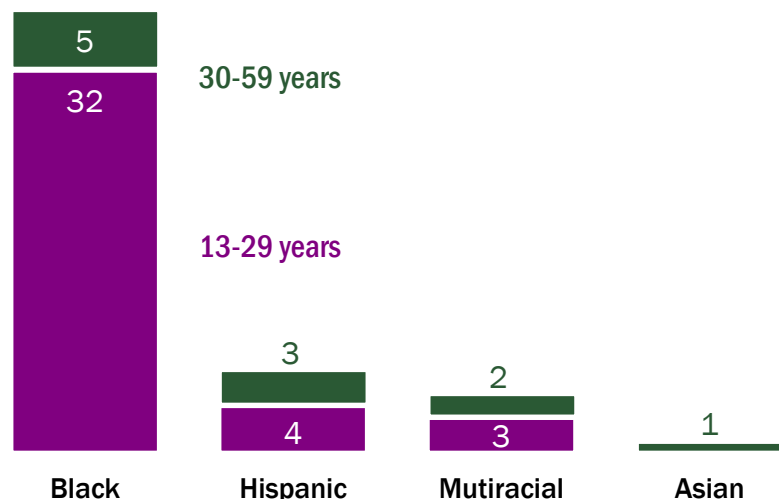
Of the 107 HIV diagnoses among people of trans experience, 50 occurred between 2014 and 2023 (Figure 6).

- All were from a racial or ethnic minority group.
- The majority of the people were under age 30 (78%).
- Ninety-eight percent of the diagnoses were attributed to sexual contact (49 of 50).

FIGURE 6

Eight out of 10 people of trans experience diagnosed with HIV in the last 10 years were young people of color.

Number of HIV diagnoses among people of trans experience by age at diagnosis and race and ethnicity, Milwaukee, 2014–2023



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

Transmission Category

Adult Transmission Categories

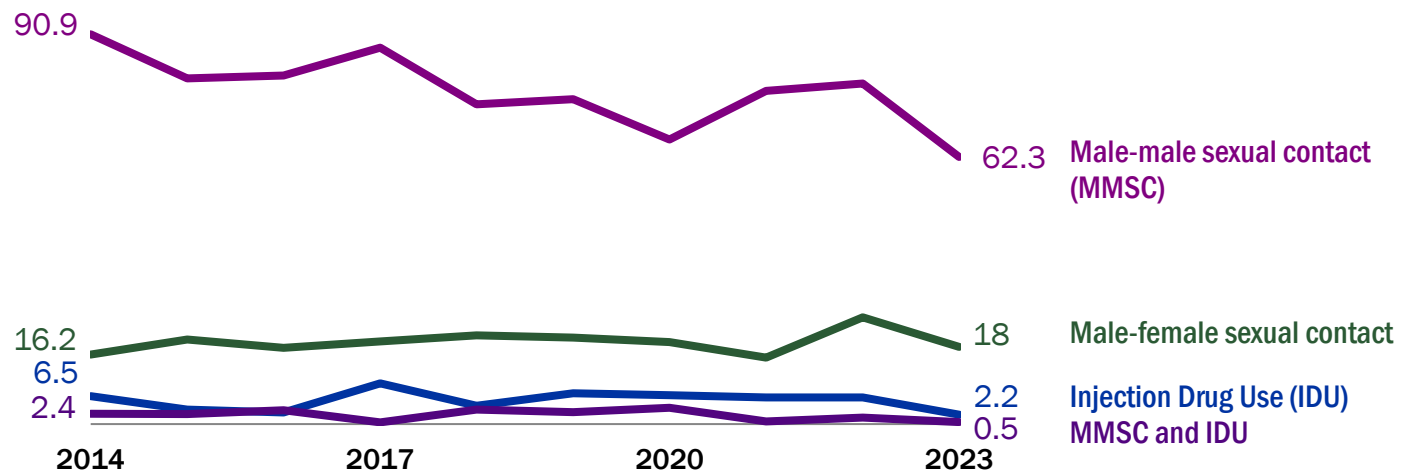
Some people newly diagnosed with HIV do not know for certain how they were exposed or do not choose to share their exposure factors for HIV with their provider. A statistical method called imputation is used to estimate the probable transmission category for people with an unknown transmission category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

During 2014–2023, the estimated number of new diagnoses attributed to male–male sexual contact decreased, while injection drug use and male–female sexual contact remained stable (Figure 7).

FIGURE 7

Male-male sexual contact is the most common HIV transmission mode.

New HIV diagnoses by estimated transmission category*, Milwaukee, 2014–2023



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

Late Diagnosis

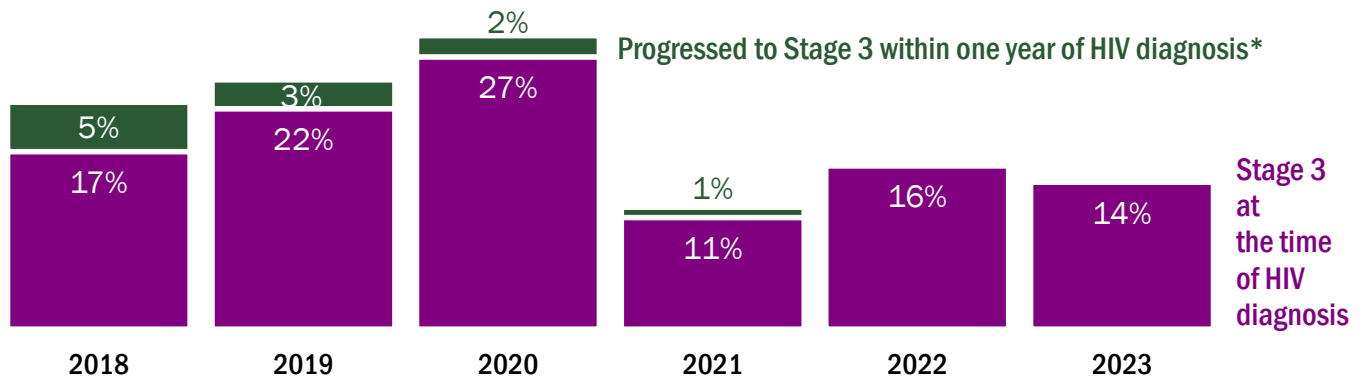
A late diagnosis occurs when a person living with HIV progresses to Stage 3 (AIDS) within one year of receiving their initial diagnosis. Without treatment, progression to Stage 3 typically occurs eight to 10 years after HIV was acquired. Stage 3 status is clinically defined by having a very low CD4 white 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 progressed to Stage 3 at the time they were first identified varied from 2017 to 2022, with a low of 12% in 2017 and 2021 and a high of 27% in 2020 (Figure 8).

FIGURE 8

The percentage of people who progressed to Stage 3 at the time of diagnosis varied from 2018 to 2023.

Percentage of people who progressed to Stage 3 HIV within one year of diagnosis, Milwaukee. 2018–2023



*Those diagnosed with HIV during 2023 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 2018–2023:

- The majority (69%) were cisgender men.
- Over half (57%) were Black, 23% were Hispanic, and 18% were white.
- The majority (72%) were over age 30 at the time of diagnosis.
- Approximately 47% reported a transmission category of male–male sexual contact, 10% reported male–female sexual contact, and 3% reported injection drug use.

New Diagnoses, 2023

Number of New HIV Diagnoses

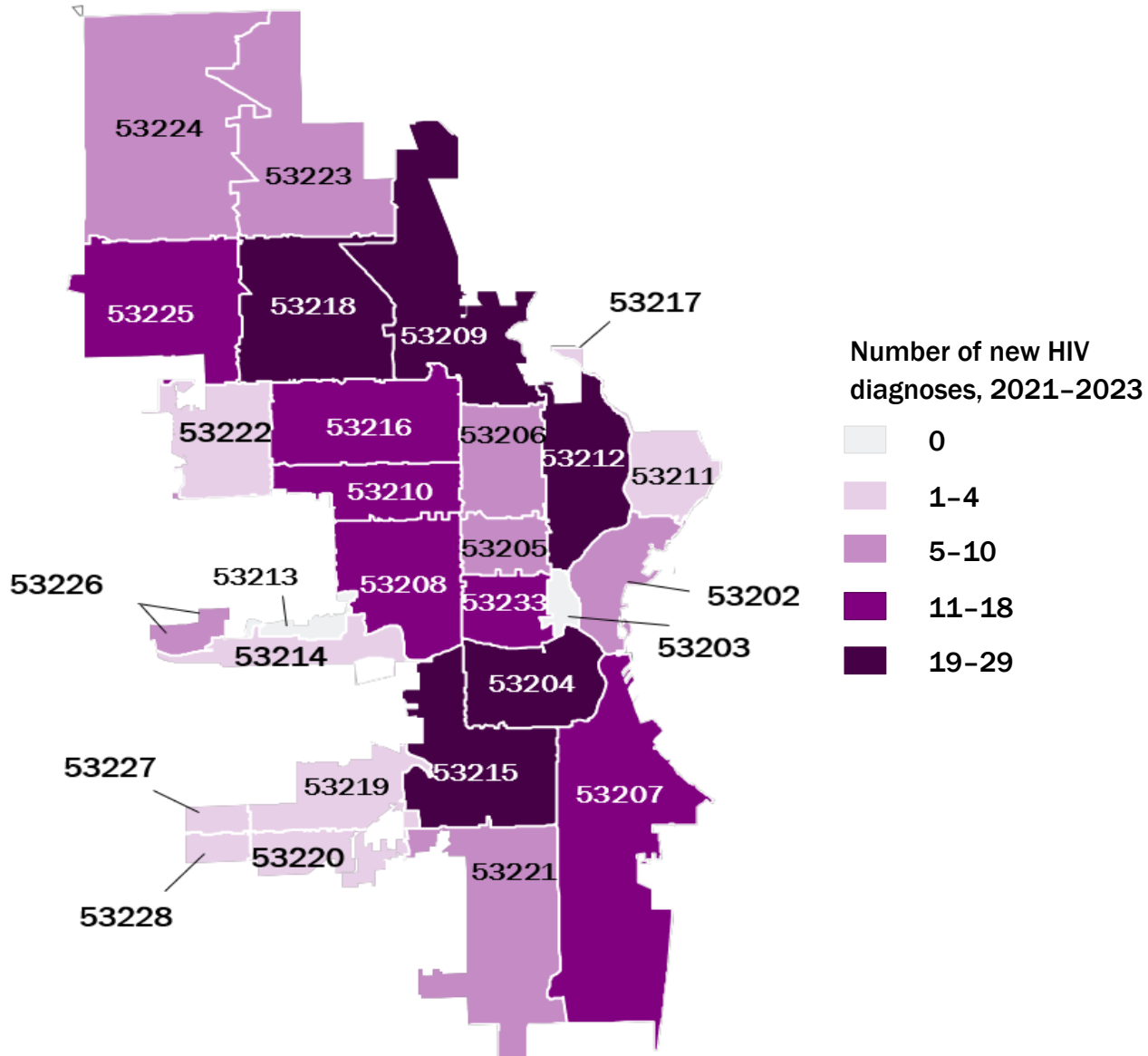
New HIV diagnoses are Milwaukee residents who received their first HIV diagnosis during the current reporting period. During 2023, 83 Milwaukee residents were newly diagnosed with HIV, or 14.8 new diagnoses per 100,000 Milwaukee residents.

During 2021–2023, new HIV diagnoses were reported among residents from 24 Milwaukee zip codes. The majority of new HIV cases were diagnosed in five zip codes: 53204 (29), 53209 (29), 53218 (26), 53212 (25), and 53215 (23) (Figure 9, Appendix-Table A2).

FIGURE 9

The majority of new HIV cases were identified in five zip codes.

Geographic distribution of new HIV diagnoses, Milwaukee, 2021–2023



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 HIV 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 levels of virus in the body. Rapid linkage of people with acute HIV diagnoses to partner services ensures that exposed partners receive timely HIV testing.

During 2023, eight people received a recent or acute HIV diagnosis in Milwaukee. Of these eight people, seven were considered acute HIV diagnoses based on laboratory testing algorithms or presence of acute symptoms.

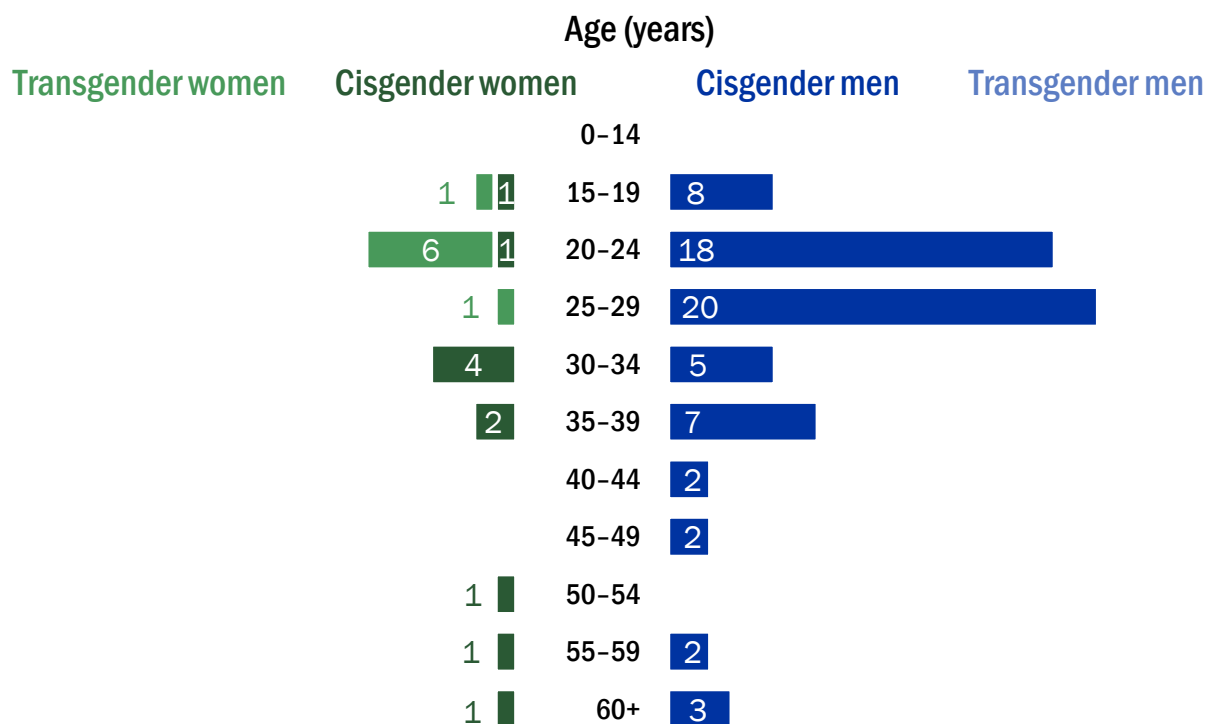
Demographics

During 2023, 64 cisgender men, 11 cisgender women, and 8 transgender women were diagnosed with HIV in Milwaukee (Figure 10, Appendix-Table A3).

FIGURE 10

Approximately 1 out of 2 new HIV diagnoses during 2023 were among cisgender men under 30.

Number of HIV diagnoses by age and gender, Milwaukee, 2023



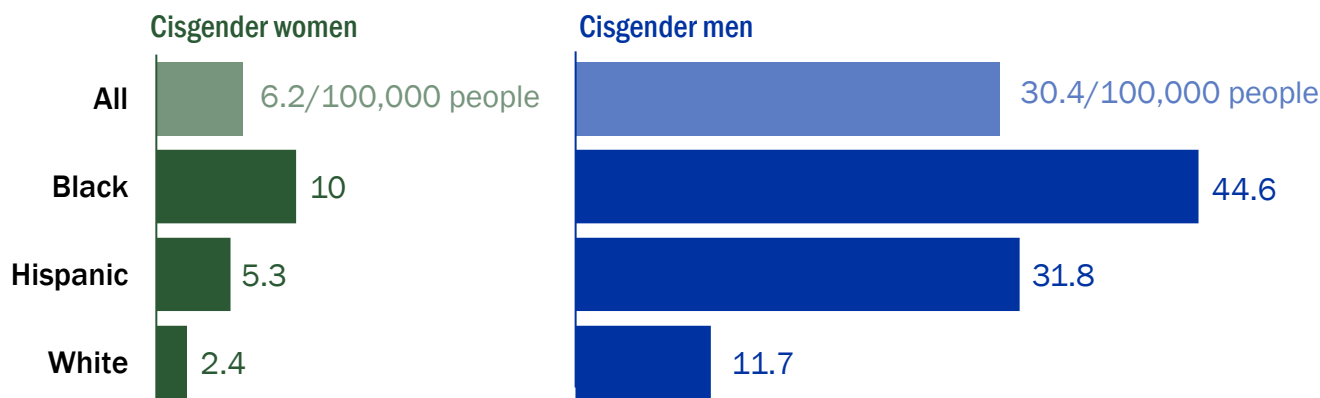
The median age at diagnosis was 27, with a range of 16–74. During 2023, newly diagnosed cisgender men had a lower median age at diagnosis than cisgender women (men, 26.5; women, 34).

During 2019–2023 (years have been combined due to the small numbers for some racial/ethnic groups), the new HIV diagnosis rate was higher for cisgender men and was higher among Black and Hispanic people compared to other race or ethnicity groups (Figure 11).

FIGURE 11

Black cisgender 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, Milwaukee, 2019–2023



*Thirty-three people of trans experience diagnosed during 2019–2023 are excluded from these rates as population denominators are not available to calculate rates.

Transmission Category

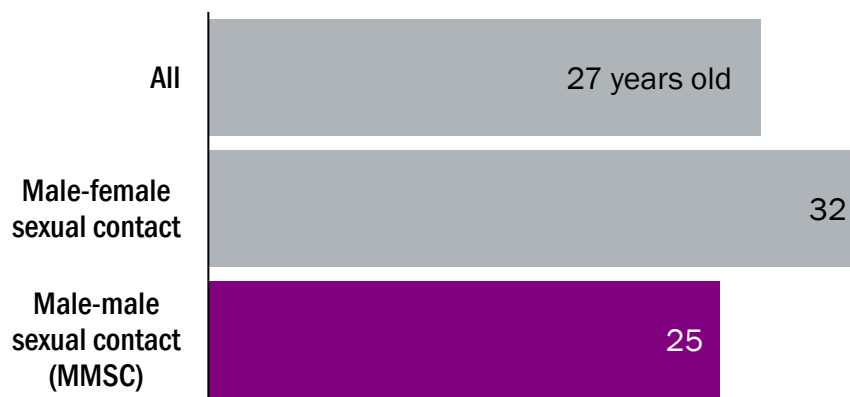
Age

Transmission categories are determined by what people disclose 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 (Figure 12).

FIGURE 12

People who reported male-male sexual contact tended to be younger at HIV diagnosis than those who reported male-female sexual contact.

Median age at HIV diagnosis by transmission category, Milwaukee, 2023



Of cisgender men who reported male-male sexual contact, Black men tended to be younger at diagnosis compared to Hispanic and white men (Figure 13).

Gender

Three out of four new diagnoses were attributed to an estimated transmission category of male-male sexual contact (Figure 14). The remainder was attributed to male-female sexual contact (22%), injection drug use (2.5%), or both male-male sexual contact and injection drug use (0.5%).

Among people of trans experience, all eight diagnoses were attributed to sexual contact.

FIGURE 13

Of cisgender men who reported male-male sexual contact (MMSC), Black men were younger at diagnosis than Hispanic and white men.

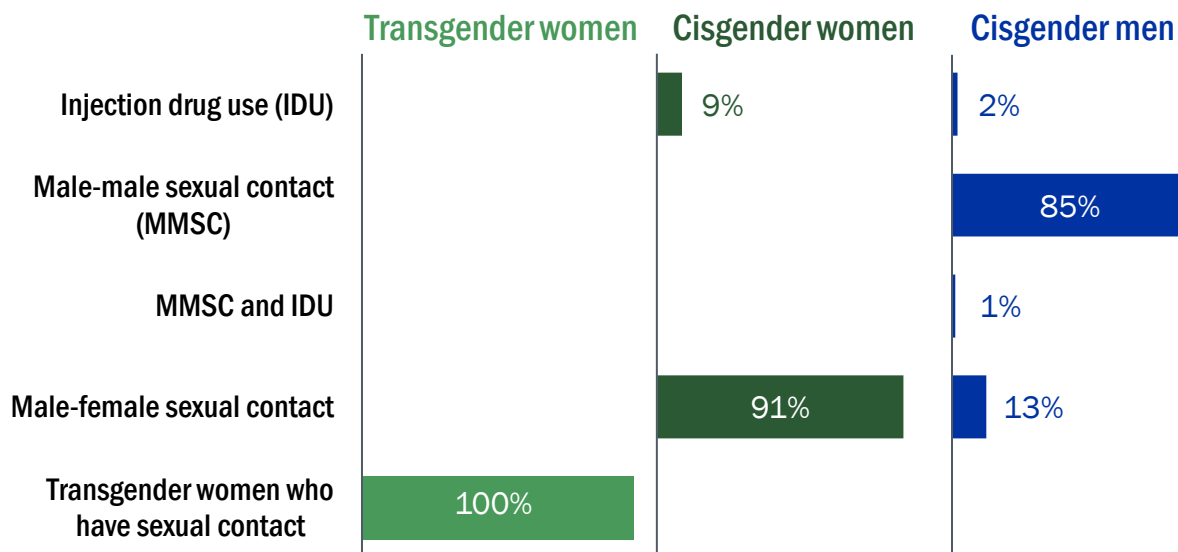
Median age at HIV diagnosis by race and ethnicity for cisgender men reporting male-male sexual contact, Milwaukee, 2023



FIGURE 14

Sexual contact was the most common HIV transmission mode.

Percentage of HIV diagnoses by gender* and estimated transmission category*, Milwaukee, 2023



*Data have been statistically adjusted to account for those with unknown transmission category. No cases for transgender men in 2023. This figure uses gender identity rather than sex assigned at birth.

Facility at Diagnosis

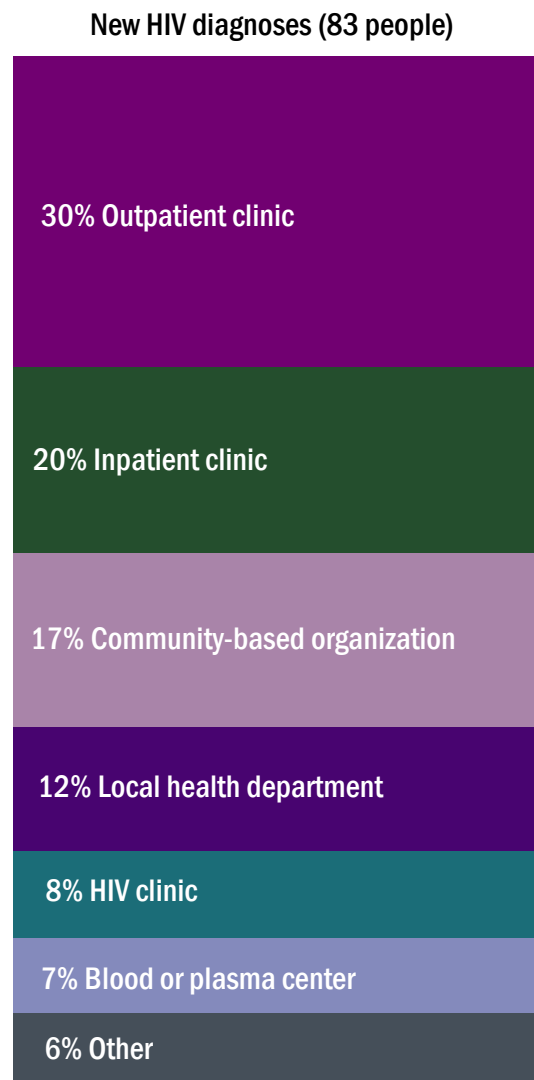
HIV testing occurs in a variety of settings, including publicly funded test sites and private medical clinics. Counseling, testing, and referral (CTR) sites in the city of Milwaukee are funded by the Division of Public Health. These CTR sites include community-based organizations and the city health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

During 2023, the most common settings for HIV diagnoses were outpatient clinics (30%); inpatient facilities (20%); and community-based organizations (17%; Figure 15).

FIGURE 15

One out of three people were newly diagnosed with HIV at **outpatient clinics** during 2023.

Percent of new HIV diagnoses by facility, Milwaukee, 2023

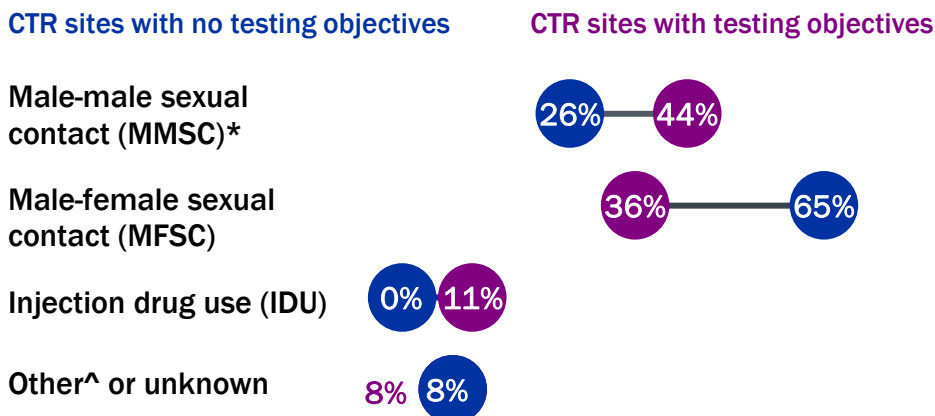


*Other includes diagnosis at a family planning clinic (2%), emergency room or urgent care (2%), or other locations (2%).

FIGURE 16

CTR sites with testing objectives provided more HIV tests to people who reported male-male sexual contact and injection drug use.

Percentages of HIV test by CTR type and exposure type, Milwaukee, 2023



*This includes cis men who reported both MMSC and IDU. ^Other includes people of trans experience, people who have sexual contact with people of trans experience, and cis women who have sexual contact with women.

Counseling, Testing, and Referral (CTR) Sites

The Wisconsin HIV CTR Program is designed to serve people at increased risk for HIV because their reported exposures comprise the majority of HIV cases in Wisconsin—men who have sex with men, men who have sex with men and inject drugs, and people who inject drugs among other priority groups. During 2023, three out of 10 new diagnoses occurred at the CTR sites (Figure 15).

Depending on the funding source, some testing sites have testing objectives. Those sites with the testing objectives provided more HIV tests among cisgender men who reported male–male sexual contact including those who also reported injection drug use, and people who only reported injection drug use than the sites without the objectives (Figure 16). The sites without testing objectives primarily tested people with reported male-female sexual contact exposure (65%).

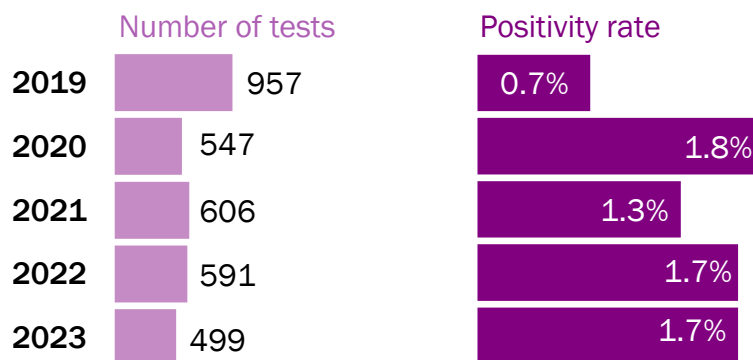
The overall positivity rate in Milwaukee—the number of new HIV diagnoses divided by the total number of HIV tests for each year—is higher among cisgender men who reported male–male sexual contact (MMSC). Of those, the positivity rate was specifically the highest among Black cisgender men followed by Hispanic cisgender men.

Among Black cisgender men who reported MMSC, the number of HIV tests conducted by CTR sites in Milwaukee has fluctuated around a median of 591 tests per year during 2019–2023. The overall positivity rates ranged from 0.7% to 1.8% during this time period with a median of 1.7% (Figure 17).

FIGURE 17

Among Black cisgender men who reported male-male sexual contact, the number of HIV tests conducted by CTR sites fluctuated during 2019–2023.

Number of CTR HIV tests and positivity rate among Black cisgender men who reported MMSC, Milwaukee, 2019–2023



Linkage to Care

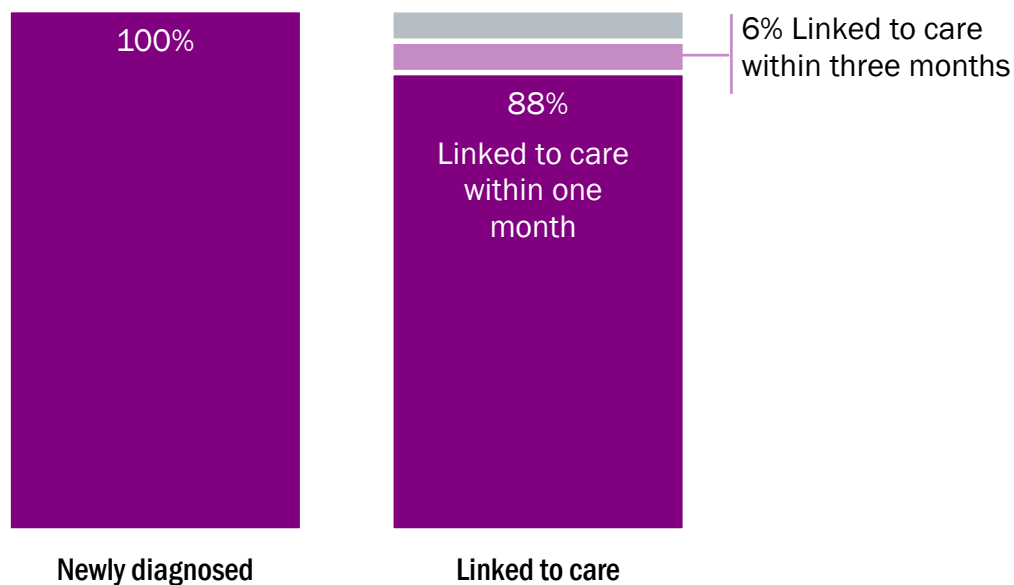
Timely linkage to care (visiting an HIV health care provider within one month [30 days] after learning they were living with HIV) can help people living with HIV have healthier lives and prevent further HIV transmission. Access to medications that reduce the amount of virus in the body can lower the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

The HIV care continuum is used at 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 18).

FIGURE 18

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

HIV Care Continuum* - Linkage to Care, Milwaukee, 2023



*Reflects laboratory data received through September 22, 2024

Prevalence

Number of People Living with HIV

Observed Prevalence

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

- Lived in Milwaukee according to lab results and report forms.
- Were alive at the end of the reporting period.

Prevalence fluctuates due to new diagnoses, migration, and deaths (Figure 19).

At the end of 2023, 2,781 people living with HIV resided in Milwaukee.

People who are Unaware of HIV Status

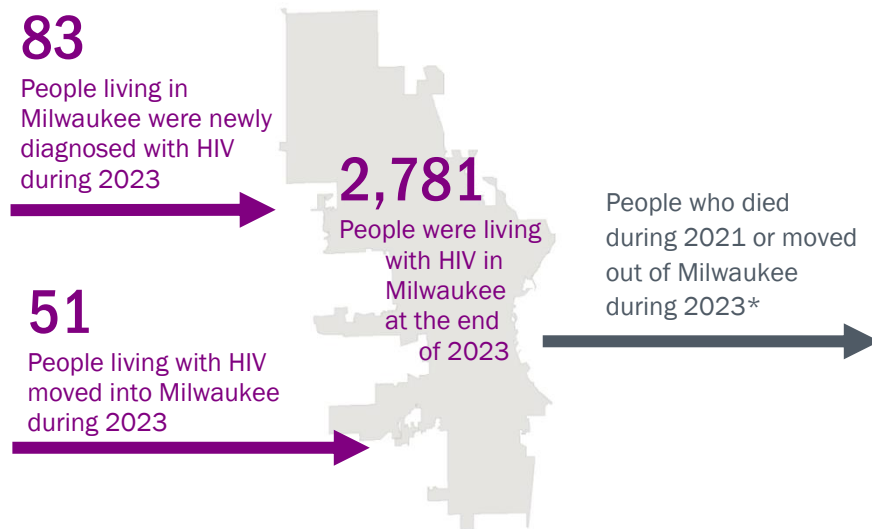
Not everyone living with HIV is aware of their HIV status. The estimated prevalence of HIV in Milwaukee that includes those unaware of their status is approximately 3,189 people.

The most recent CDC estimate² suggests that nationally, 12.8% of people (about one out of seven) living with HIV are unaware of their status. Given the CDC's estimate, the observed prevalence likely underestimates the total population of people living with HIV in Milwaukee by approximately 408 people who are not aware of their HIV status.

FIGURE 19

The number of people living with HIV in Milwaukee in 2023 remains similar to 2022.

Flow of people living with HIV into and out of Milwaukee, 2023



*Specific breakdown of the number of persons who died and moved to another city or state are not available at the city-level; see statewide report for summary of people living with HIV during 2023.

² Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2017 – 2021. *HIV Surveillance Supplemental Report*, 2023; 28 (No.3). <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2023. Accessed July 2023.

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.

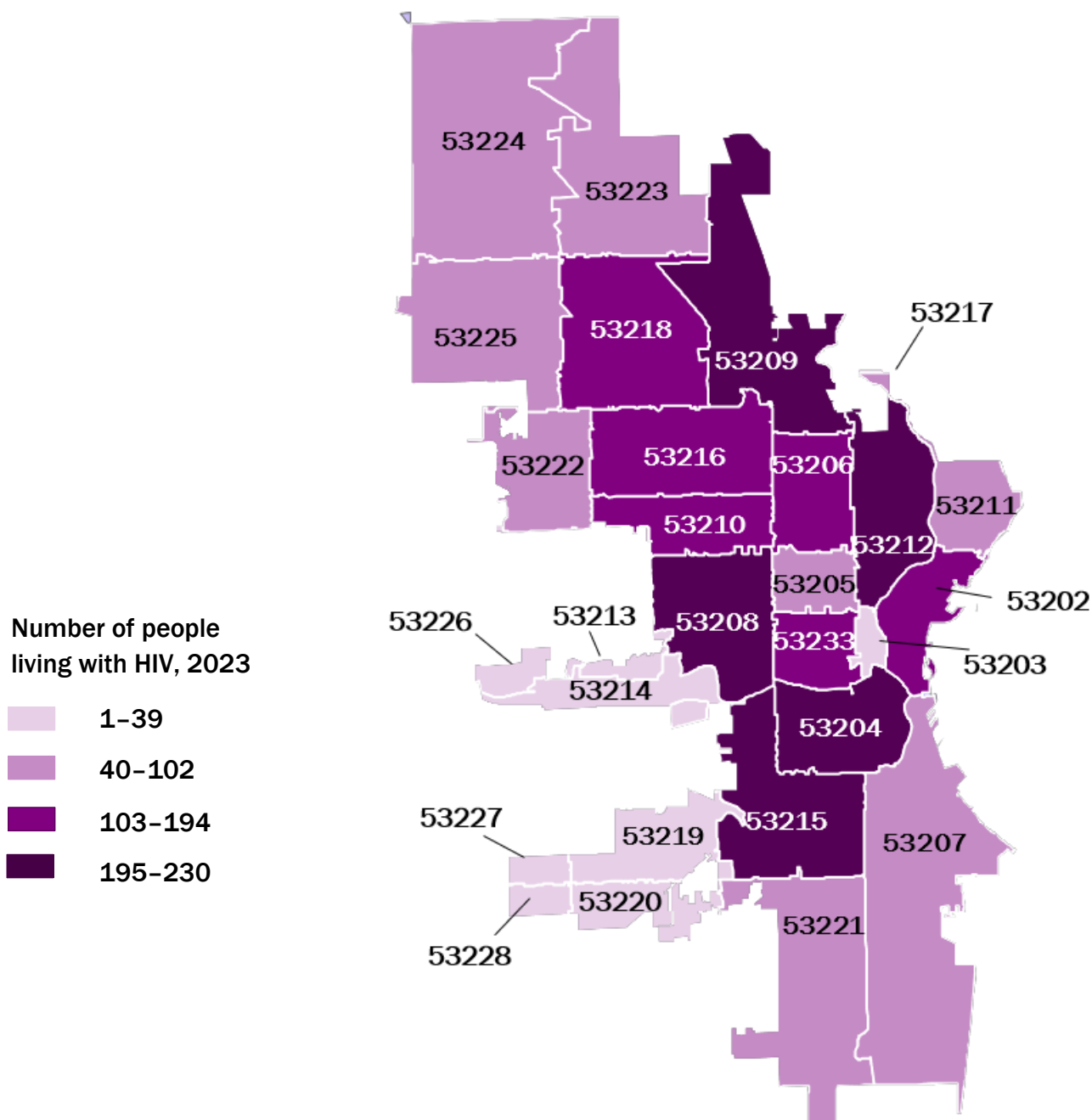
Geographic Distribution of People Living with HIV

Four out of 10 people (39%) living with HIV in Milwaukee resided in five zip codes: 53204 (8%), 53208 (8%), 53212 (8%), 53215 (8%), 53209 (7%; Figure 20).

FIGURE 20

The majority of people living with HIV resided in the central part of the city in 2023.

Geographic distribution of people living with HIV in Milwaukee, 2023



Migration

New HIV reports refer to Milwaukee 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 Milwaukee.

Of the 134 new HIV reports received during 2023, 51 (38%) were previously diagnosed in another state or country prior to moving to Milwaukee. People living with HIV who moved to Milwaukee during 2023 tended to be older and a higher percentage were white compared to new HIV diagnoses in Milwaukee (Appendix-Table A3).

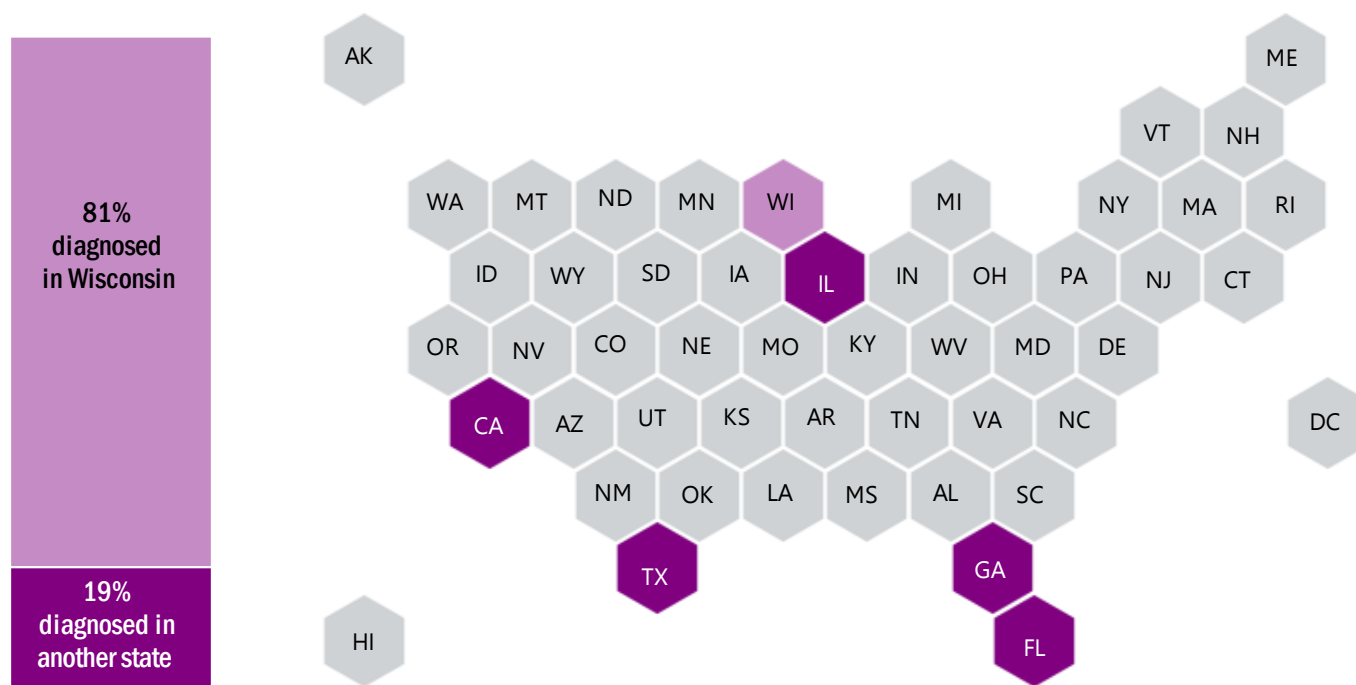
Approximately four out of five (81%) of the 2,781 people living with HIV in Milwaukee during 2023 were diagnosed in the state. The remaining 533 people (19%) were diagnosed in these locations (Figure 21):

- Illinois (126)
- California (39)
- Georgia (31)
- Florida (31)
- Texas (27)
- Another state (206)
- Other country (73)

FIGURE 21

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

Diagnosis location of people living with HIV in Milwaukee during 2023.



Demographics

Of people living with HIV in Milwaukee during 2023:

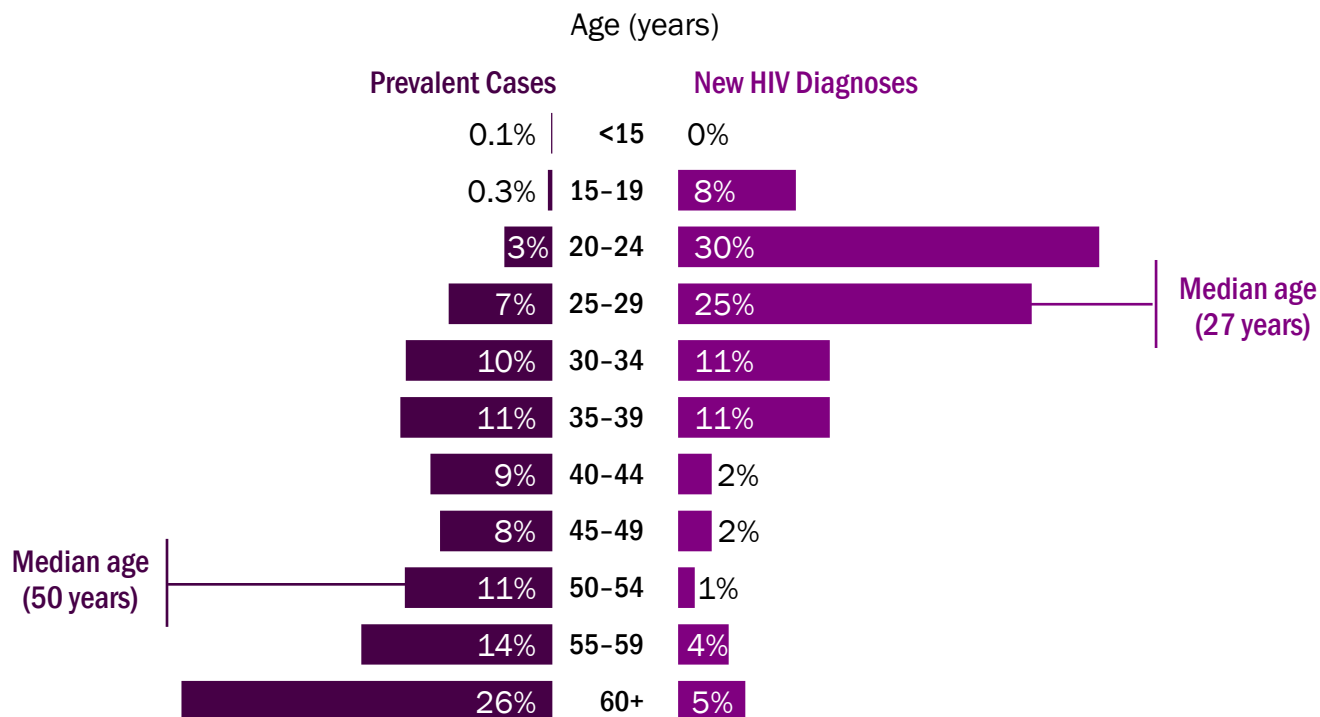
- The majority (76%) were cisgender men.
- The majority were over age 30 (89%) and half (51%) were over age 50.
- Three out of five (59%) were Black, 18% were white, and 18% were Hispanic.
- Over half (56%) had a transmission category of male–male sexual contact, 14% had a transmission category of male–female sexual contact, and 9% 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 median age of prevalent cases compared to those being newly diagnosed (Figure 22). 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 22

The population of all people living with HIV in Wisconsin tends to be older than people newly diagnosed with HIV infection during 2023.

Age distribution of people living with HIV in Wisconsin (prevalent cases) compared to age at diagnosis for people newly diagnosed during 2023



Retention in Care

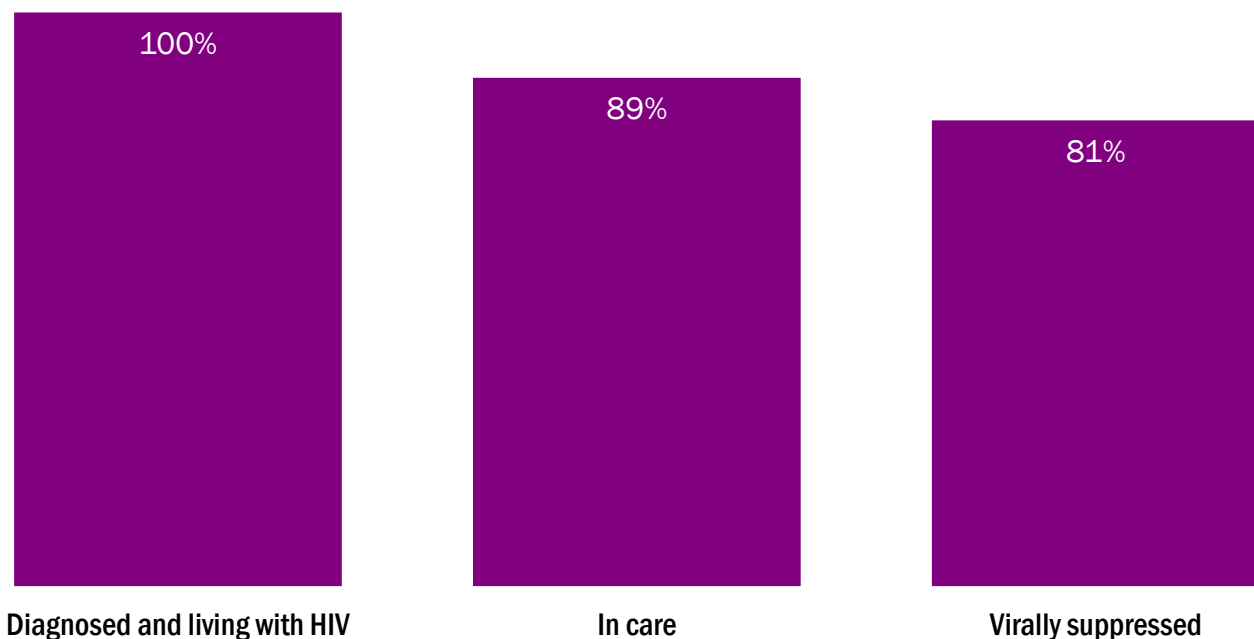
Access to HIV care and medications that reduce the amount of virus in the body benefit both the health of people living with HIV and HIV prevention efforts. People with a viral load that cannot be detected by standard laboratory diagnostic testing (that is, are virally suppressed) have a negligible risk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

The HIV care continuum is used at state, regional, and local levels to measure and monitor HIV engagement in care and health outcomes (Appendix-Figure A1). A portion of the care continuum specifically measures engagement in care and successful attainment of viral suppression (Figure 23).

FIGURE 23

Eight out of 10 people living with HIV in Milwaukee were virally suppressed during 2023.

HIV Care Continuum* - Retention and Care Outcomes, Milwaukee, 2023



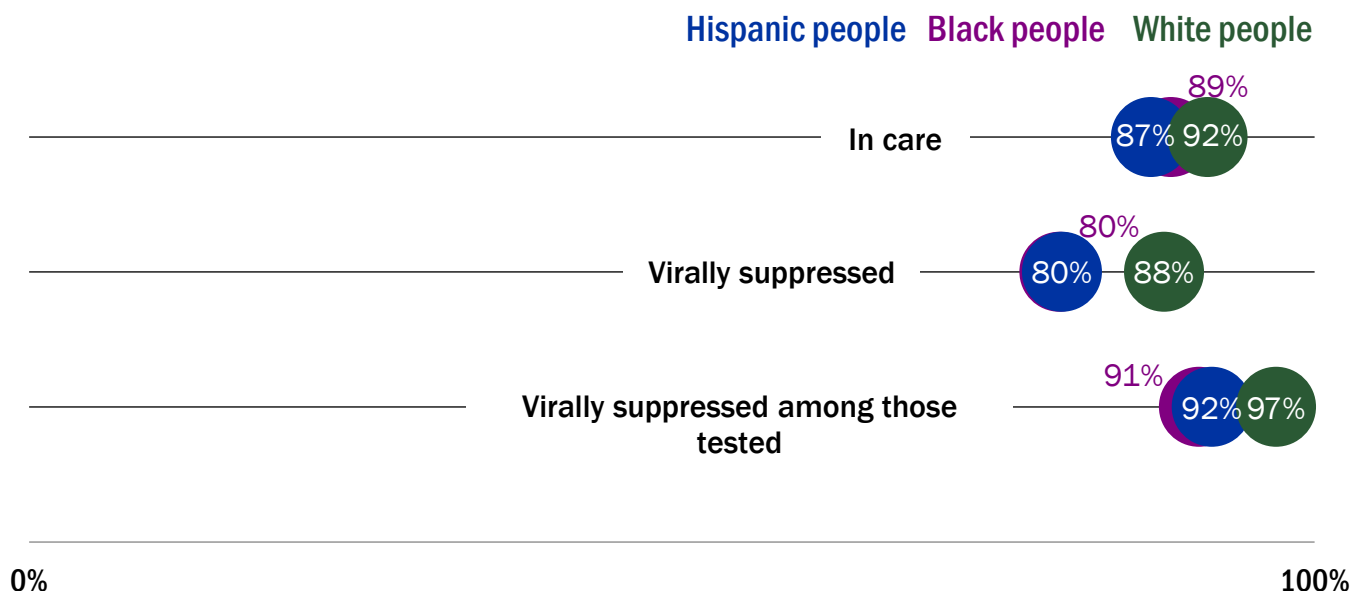
*Reflects laboratory data received through September 22, 2024

Similar to national data, there are disparities in HIV care by race and ethnicity in Milwaukee. Hispanic and Black people are less likely than white people to meet the desired outcomes across the care continuum with the exception of timely linkage to care. Black people were also the least likely of the three racial and ethnic groups to be virally suppressed among those with a viral load test done.

FIGURE 24

With the exception of in care, white people over the age of 30 had better care continuum outcomes than Black and Hispanic people over the age of 30.

HIV Care Continuum* - Retention and Care Outcomes by age and race and ethnicity, Milwaukee, 2023



The overall trends by race and ethnicity mostly held true for adults ages 30 and older (Figure 24). White people were more likely to be in care, virally suppressed, and virally suppressed among those with a viral load test done than both Black and Hispanic people. The only meaningful differences in care outcomes between racial and ethnic groups for younger people, ages 13–29, was that white people were more likely to be virally suppressed than Black or Hispanic people.

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 Milwaukee is estimated to reflect 99% of diagnosed people, 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 August 2024. Results are provisional and subject to change as additional information becomes available.

New Diagnoses

Prior to 2023, 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 the city of Milwaukee 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 the CDC's guidelines for residency assignment.

Starting in 2023, 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 the city of Milwaukee 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 **year** of diagnosis cannot be definitively documented, are included as new diagnoses. These practices conform to the 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 Milwaukee 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 people thought to be living with HIV in Milwaukee are found to be deceased or living elsewhere.

Estimated Prevalence

The estimated prevalence is a measure that takes into account that a proportion of people 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 Milwaukee 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 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,³ this report uses gender identity rather than sex at birth.

Gender is determined based on information in case records. People 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 or difference in sex assigned at birth and the sex or gender reported on any of the previously mentioned documents. Some people 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.

Race and Ethnicity

Generally, the CDC uses race and ethnicity terminology aligning with the 1997 Office of Management and Budget (OMB) standards⁴ 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 this report, Native American is used to describe people 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 people for whom multiple race categories are reported. In this report, people 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.

³ 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 May 10, 2019.

⁴ 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 2022.

Transmission Category

Observed Transmission Category

Transmission category is the term that the CDC uses to summarize a person's possible HIV exposure factors; the summary category results from selecting, from a hierarchical order of probability, the single exposure factor most likely to have been responsible for transmission. For monitoring HIV burden in Wisconsin, an HIV diagnosis is counted only once in the hierarchy of transmission categories. People with more than one reported exposure factor for HIV are classified in the transmission category listed first in the hierarchy. The exception is people who have had male-male sexual contact and injected drugs; this group makes up a separate transmission category. Transmission categories are defined as follows:

- **Male–male sexual contact** includes people assigned male sex at birth, regardless of current gender identity, who have ever had sexual contact with other males and who have ever had sexual contact with both males and females (bisexual contact).
- **Injection drug use** includes people who have ever reported injecting drugs or sharing injection equipment.
- **Male–male sexual contact and injection drug use** includes people assigned male sex at birth, regardless of current gender identity, who have had sexual contact with other males and injected drugs or shared injection equipment.
- **Male–female sexual contact** includes people who have ever had male–female sexual contact with a person known to have been diagnosed as living with HIV or a potential exposure factor for HIV (for example, someone who injects drugs). This category does not include males who have ever had sexual contact with both males and females.
- **Perinatal transmission** refers to HIV transmitted from birthing parents to babies during pregnancy, childbirth, or breastfeeding/chestfeeding.
- **Other** is used to group less common transmission categories, including people with hemophilia and people who were exposed to HIV through a blood transfusion or tissue/organ transplant.
- **Unknown** includes people without an exposure factor listed in the hierarchy of transmission categories. People may have an unknown transmission category because they did not identify potential exposure modes, identified exposure factors were not part of the transmission hierarchy, died before they could be interviewed, or were lost to follow-up and could not be interviewed.

The Wisconsin HIV Program recognizes current gender identity when trying to understand HIV transmission. When this report presents the data by both transmission category and gender, additional categories are defined as follows:

- **Transgender women who have sexual contact** includes transgender women who have had sexual contact with people.
- **Transgender men who have sexual contact** includes transgender men who have had sexual contact with people.

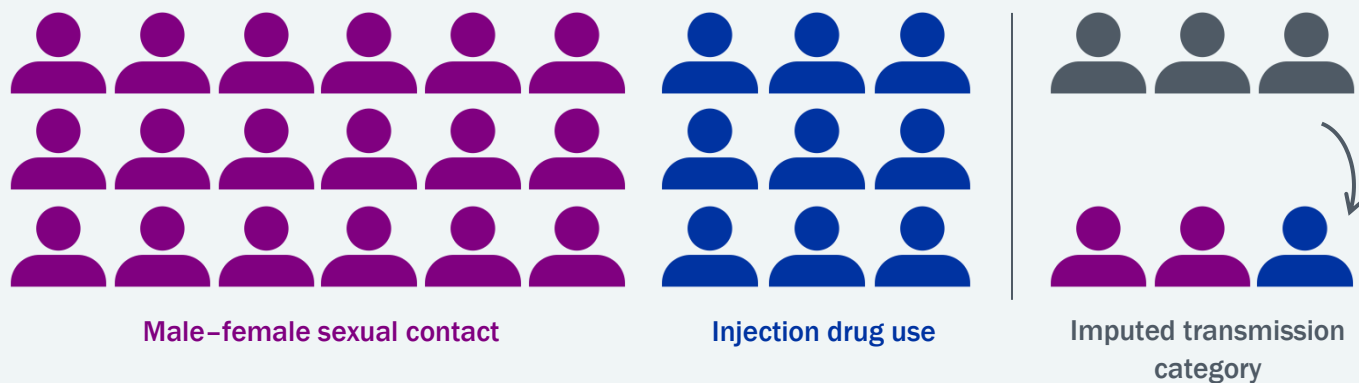
Imputed Transmission Category

Some people diagnosed with HIV are reported in Milwaukee with insufficient risk information to assign a transmission category. Multiple imputation is a statistical method in which the known transmission categories of people 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 were applied to the three people with an unknown transmission category. Of the three persons with unknown transmission categories, two were assigned male–female sexual contact (67%) and one was assigned injection drug use (33%). To conclude, two persons with unknown transmission categories were estimated to have male–female sexual contact and one person with injection drug use.



HIV Stage at Diagnosis

Recent and Acute HIV Diagnoses

Recent HIV is defined as having been diagnosed during the six months after HIV was acquired. Recent HIV is suspected when a newly diagnosed person 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 a laboratory-confirmed HIV diagnosis. This includes Stage 3 HIV (AIDS). People diagnosed with Stage 3 HIV include only those that meet the CDC's Stage 3 HIV surveillance definition.

According to the CDC, a late diagnosis occurs among people who progress to Stage 3 HIV 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 HIV surveillance definition changed to exclude people 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. People 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, Milwaukee, 2014–2023

Year	Cisgender Men			Cisgender Women		
	Black	White	Hispanic	Black	White	Hispanic
2014	60.6	11.7	30.8	7.0**	*	9.4**
2015	51.7	16.2	21.2	6.3**	*	*
2016	58.7	5.8**	22.5	9.6	*	*
2017	55.0	15.7	29.8	10.2	*	*
2018	50.8	8.9**	31.3	9.0**	*	*
2019	55.1	9.9	25.7	13.0	*	*
2020	43.8	12.1	20.3	11.5	*	*
2021	36.1	11.1**	40.9	9.0**	*	*
2022	48.7	9.5**	40.5	10.6	*	*
2023	36.8	6.5**	32.1	5.7**	*	*

* 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 zip code of diagnosis, Milwaukee, 2021–2023

Zip Code of Residence	Number	Percent of Cases
53204	29	9.8%
53209	29	9.8%
53218	26	8.8%
53212	25	8.5%
53215	23	7.8%
53216	18	6.1%
53225	17	5.8%
53210	16	5.4%
53233	15	5.1%
53208	14	4.7%
53207	13	4.4%
53206	10	3.4%
53224	10	3.4%
53205	8	2.7%
53202	7	2.4%
53221	7	2.4%
53223	7	2.4%
53226	5	1.7%
53214	4	1.4%
53228	4	1.4%
53211	2	0.7%
53219	2	0.7%
53211	2	0.65%
53213	1	0.32%
53227	1	0.32%
TOTAL	295	100%

TABLE A3

Comparison of new HIV reports by location of diagnosis, Milwaukee, 2023

	Diagnosis Location	
	Milwaukee Number (%)	Migration into Milwaukee Number (%)
Total	83 (100%)	51 (100%)
Gender		
Cisgender Men	64 (77%)	45 (80%)
Cisgender Women	11 (13%)	6 (12%)
Transgender Women	8 (10%)	4 (8%)
Median Age (Range)	27 (16–74)	35 (20–63)
Race and Ethnicity		
Asian	1 (1%)	4 (8%)
Black	50 (60%)	23 (45%)
Hispanic	23 (28%)	16 (31%)
White	6 (7%)	6 (12%)
Multiracial	3 (4%)	2 (4%)
Transmission Category		
Male–Male Sexual Contact (MMSC)	52 (63%)	36 (71%)
Injection Drug Use (IDU)	0 (0%)	3 (6%)
MMSC and IDU	0 (0%)	2 (4%)
Male–Female Sexual Contact	12 (14%)	4 (8%)
Unknown	19 (23%)	6 (12%)

TABLE A4

Observed and Estimated Prevalence of People Living with HIV in Milwaukee, 2023

	United States Estimated % Unaware*	Milwaukee		
		Observed Prevalence	Estimated # Unaware**	Estimated Prevalence
Total	12.8%	2,781	408	3,329
Age (years)				
13–24	43.7%	106	82	222
25–34	28.4%	497	197	732
35–44	15.7%	544	101	646
45–54	8.0%	516	45	636
55–64	4.4%	775	36	1164
Greater than 65 years	2.3%	342	8	
Race and Ethnicity				
White	10.8%	510	62	572
Black	12.4%	1633	231	1864
Hispanic or Latino	16.0%	507	97	604
Multiracial	11.3%	77	10	87
Asian	7.2%	48	4	52
Native American	22.7%	5	1	6
Transmission Category				
Male–Male Sexual Contact (MMSM)	14.3%	1,795	300	2095
Male–Female Sexual Contact	12.0%	616	84	700
Injection Drug Use (IDU)	8.5%	246	23	269
MMSM and IDU	8.3%	95	9	104

* Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2017–2021. *HIV Surveillance Supplemental Report*, 2023; 28 (No.3). <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2023. Accessed July 2023.

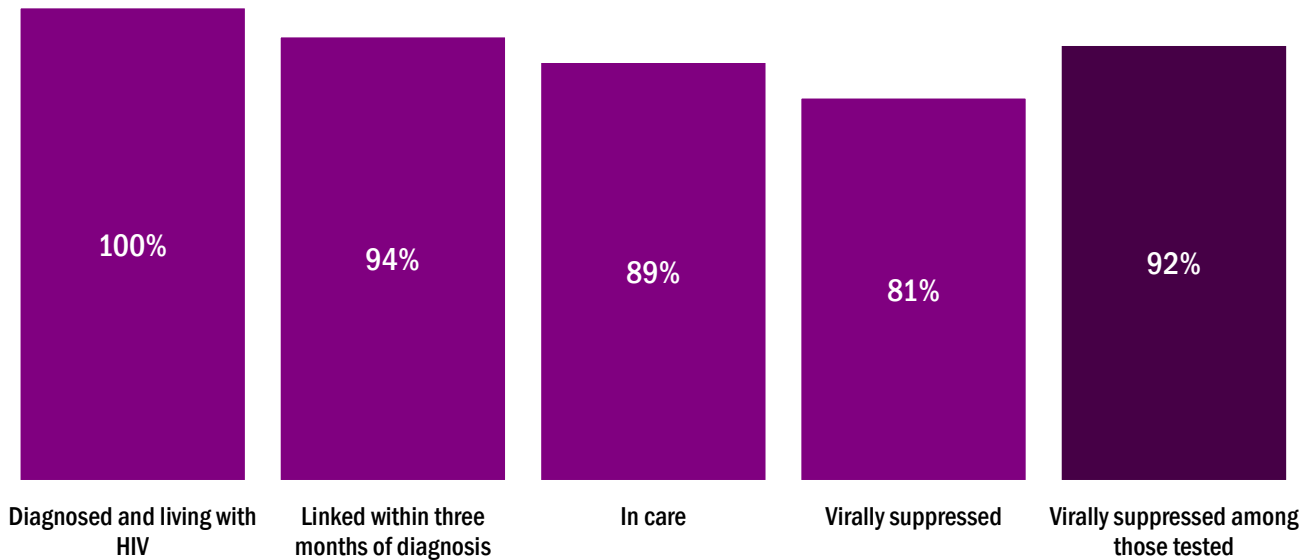
** Details about calculation of estimated unaware and estimated prevalence can be found in the Technical Notes.

^ Estimate is suppressed due to a high relative standard error (RSE).

FIGURE A1

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

HIV Care Continuum*, Milwaukee, 2023



*Reflects laboratory data received through September 22, 2024

Values Based on Surveillance Data

Diagnosed and living with HIV: All people reported living with HIV in Milwaukee by the end of 2022 who were still alive and living in Milwaukee by the end of 2023 (2,459 people) who had been in care in Wisconsin in the last 10 years.

Linked within three months of diagnosis: Of 83 people diagnosed with HIV in Milwaukee during 2023, 94% (78 people) were linked to care within three months of diagnosis. Seven out of eight (73/83 people or 88%) newly diagnosed people were linked to care within one month of diagnosis. Linkage is defined as one or more CD4 or quantitative viral load or genotype test on or after the date of diagnosis.

In care: Of 2,459 people diagnosed and living with HIV in Milwaukee during 2023 who had care in Wisconsin in the last 10 years, 89% had at least one medical visit that included one or more laboratory test that was available in the HIV surveillance system as evidence of receiving care.

Virally suppressed: Of 2,459 people living with HIV in Milwaukee during 2023 who had care in Wisconsin in the last 10 years, 81% 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. People whose last viral load test was prior to 2023 or who did not have a viral load test recorded were considered to have unsuppressed viral loads.

Virally suppressed among those tested: Of 2,167 people who had a viral load test during 2023, 92% were virally suppressed at their last measurement. This suggests that most people receiving some medical care are achieving viral suppression. Viral suppression improves the health of the person living with HIV and prevents them from transmitting HIV sexually to partners.

For more information, contact:

[Wisconsin HIV Program](#)

HIV Surveillance Unit

Email: dhshivsurveillance@dhs.wisconsin.gov

