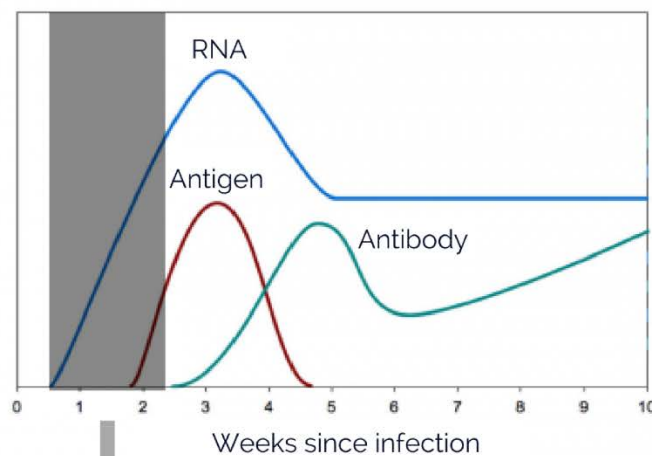
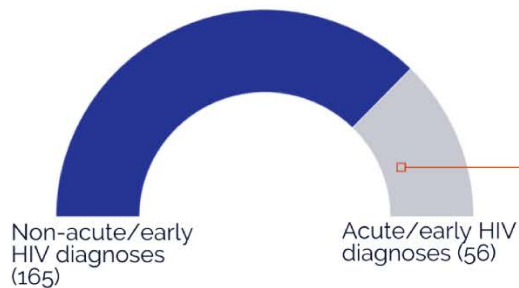


# Wisconsin HIV Surveillance Annual Review

New diagnoses, prevalent cases, and deaths through December 31, 2016



Acute/early HIV



Improved laboratory tests make it possible to diagnose HIV earlier than ever before, which is important for both HIV care and prevention activities. For the first time, data on acute/early HIV diagnoses are presented in the annual surveillance review.



Wisconsin  
Department of Health Services

Division of Public Health  
AIDS/HIV Program  
P-00484 (April 2017)

**Table of Contents**

List of Figures.....ii

List of Tables..... iii

Abbreviations.....iv

Executive Summary ..... 1

New Diagnoses and Prevalence Definitions .....5

New Diagnoses.....6

    Number and rate .....6

    Facility type of diagnosis.....8

    Sex and age at diagnosis.....8

    Race/ethnicity ..... 10

    Race/ethnicity and sex ..... 11

    American Indians and Asians..... 13

    Transmission category based on reported risk and sex..... 14

    Transmission category based on reported risk and age..... 15

    Estimated transmission category ..... 15

    Young men by race/ethnicity..... 17

    Pediatric HIV and perinatal exposure..... 17

    Birth country..... 18

    County of residence..... 18

HIV Stage at Diagnosis ..... 20

    Acute and recent HIV..... 20

    Late diagnosis..... 21

In-migration..... 23

Prevalence ..... 25

    State of diagnosis ..... 26

    Age ..... 27

    Estimated prevalence by demographic group..... 28

    Geography..... 29

Deaths..... 30

HIV Care Continuum..... 32

HIV-STI Co-infections..... 34

Detailed Tables ..... 35

Technical Notes ..... 44

**LIST OF FIGURES**

Figure 1: Flow of people with HIV in and out of Wisconsin, 2016 .....5

Figure 2: Number of new HIV diagnoses, Wisconsin, 1982 - 2016 .....6

Figure 3: Number and rate of new HIV diagnoses, Wisconsin, 2007-2016 .....7

Figure 4: Estimated HIV diagnosis rate by state, 2015 .....7

Figure 5: Percent of diagnoses by facility of HIV diagnosis, Wisconsin, 2016 .....8

Figure 6: Number of HIV diagnoses by age and sex, Wisconsin, 2016 .....8

Figure 7: Number of diagnoses among youth ages 15-19 years, Wisconsin, 1982-2016 .....9

Figure 8: HIV diagnosis rate by age at diagnosis and sex, Wisconsin, 2007-2016 .....9

Figure 9: Number of HIV diagnoses among transgender individuals by age at diagnosis and race/ethnicity, Wisconsin, 2007-2016 ..... 10

Figure 10: Percentage of new HIV diagnoses among Whites and persons of color, Wisconsin, 1982-2016 ..... 11

Figure 11: HIV diagnosis rate by sex and race/ethnicity, Wisconsin, 2012-2016 ..... 12

Figure 12: Number of HIV diagnoses among American Indians, Wisconsin, 1985-2016 ..... 13

Figure 13: Number of HIV diagnoses among Asians, Wisconsin, 1987-2016 ..... 14

Figure 14: Median age at HIV diagnosis by transmission category based on reported risk, and among men with diagnoses attributed to male-male sexual contact by race/ethnicity, Wisconsin, 2016 ..... 15

Figure 15: Percentage of HIV diagnoses by sex and estimated transmission category, Wisconsin, 2016 ..... 16

Figure 16: HIV diagnoses by estimated transmission category, Wisconsin, 2007-2016 ..... 16

Figure 17: HIV diagnoses attributed to male-male sexual contact, ages 13-29, by race/ethnicity, Wisconsin, 2007-2016 ..... 17

Figure 18: Diagnostic status of HIV-exposed infants born in Wisconsin or with undocumented state of birth, 2007-2016 ..... 18

Figure 19: Window of laboratory-confirmed acute HIV infection ..... 20

Figure 20: Facility of diagnosis among persons with lab-confirmed acute HIV, Wisconsin, 2016 21

Figure 21: Percentage of people first diagnosed with HIV during Stage 3 or who progressed to Stage 3 within one year of HIV diagnosis, by year of HIV diagnosis, Wisconsin, 2012-2016 ..... 22

Figure 22: Percentage of people first diagnosed with HIV during Stage 3 or who progressed to Stage 3 within one year of HIV diagnosis, by demographic group, Wisconsin, 2012-2015 ..... 23

Figure 23: Number of people previously diagnosed with HIV moving into Wisconsin, 2007-2016 ..... 23

Figure 24: Estimated percentage of those living with HIV who are unaware of their status, by demographic group, United States, 2013 ..... 26

Figure 25: Estimated number living with HIV who are unaware of their status, by demographic group, Wisconsin, 2016 ..... 26

Figure 26: Number of people living with HIV in Wisconsin who received their initial HIV diagnosis in another state, by top five states of initial HIV diagnosis, 2016 ..... 27

Figure 27: People living with HIV by current age as of December 31, 2016, and people diagnosed during 2016 by age at diagnosis, Wisconsin..... 27

Figure 28: Estimated prevalence of HIV in selected demographic groups, ages 15-59, Wisconsin, 2016 ..... 28

Figure 29: Prevalence of HIV by county, Wisconsin, 2016 ..... 29

Figure 30: Number of deaths due to any cause among people living with HIV in Wisconsin, 1982-2015 ..... 30

Figure 31: Number of deaths, by cause of death, among people living with HIV in Wisconsin, 1982-2016 ..... 30

Figure 32: Median age at death, by cause of death, among people living with HIV in Wisconsin, 1982-2015 ..... 31

Figure 33: Number of deaths, by race/ethnicity, among people living with HIV in Wisconsin, 2006-2015 ..... 31

Figure 34: HIV care continuum, Wisconsin, 2016..... 32

Figure 35: Sexually transmitted infections among people living with HIV, by timing of STI diagnosis, Wisconsin, 2016..... 34

**LIST OF TABLES**

Table 1: Number and percentage of new HIV diagnoses by sex and race/ethnicity, Wisconsin, 2016 ..... 11

Table 2: HIV diagnosis rate per 100,000 by sex and race/ethnicity, Wisconsin, 2007-2016..... 12

Table 3: Number and percentage of new HIV diagnoses by sex and transmission category based on reported risk, Wisconsin, 2016..... 14

Table 4: Number, percent and rate of new HIV diagnoses by county of residence, Wisconsin, 2016 ..... 19

Table 5: Comparison of 2016 new HIV reports: Wisconsin HIV diagnoses versus in-migration... 24

Table 6: Reported HIV diagnoses, Wisconsin, 1982-2015 ..... 36

Table 7: Reported HIV diagnoses, males, Wisconsin, 1982-2015..... 37

Table 8: Reported HIV diagnoses, females, Wisconsin, 1982-2015..... 38

Table 9: Reported HIV diagnoses, Whites, Wisconsin, 1982-2015 ..... 39

Table 10: Reported HIV diagnoses, Blacks, Wisconsin, 1982-2015..... 40

Table 11: Reported HIV diagnoses, Hispanics, Wisconsin, 1982-2015 ..... 41

Table 12: Reported HIV diagnoses, American Indians, Wisconsin, 1982-2015 ..... 42

Table 13: Reported HIV diagnoses, Asians, 1982-2015..... 43

**ABBREVIATIONS**

CDC	Centers for Disease Control and Prevention
DHS	Department of Health Services
DPH	Division of Public Health
PLWH	People living with HIV

## Data Highlights

### New diagnoses in 2016:

 Diagnoses in men under age 30, especially Black men with transmission risk of male-male sexual contact

 Annual new diagnoses

 Diagnoses attributed to heterosexual contact or injection drug use

**80%** Attributed to male-male sexual contact

**88%** Linked to care within three months of diagnosis

### Prevalence in 2016:

**6,923** People living with diagnosed HIV

**71%** Received some care

**64%** Are virally suppressed

## EXECUTIVE SUMMARY

The annual Wisconsin HIV surveillance review presents data on people newly diagnosed with HIV during 2016, people living with HIV (PLWH) in Wisconsin as of December 31, 2016, and deaths among PLWH through 2016.

Reporting annually on HIV surveillance data is important for policy makers, program planners, HIV service providers, and the public to enable effective planning of HIV prevention and care services and ensure efficient use of resources. For planning HIV prevention, testing, and linkage strategies, it is important to focus on new diagnoses among Wisconsin residents—those individuals for whom HIV might have been prevented or identified earlier within the state. When planning care and treatment services, the focus should be on PLWH irrespective of where they were first diagnosed.

## NEW DIAGNOSES

**Trend:** During 2016, 221 people were newly diagnosed with HIV in Wisconsin. Between 2007 and 2016, both the number and the rate of new diagnoses declined. The number of new diagnoses over the last decade ranged from a

low of 221 (2014 and 2016) to a high of 283 (2009), with an average of 244 new diagnoses per year. The HIV diagnosis rate in Wisconsin was the 11th lowest among the 50 states in 2015.

**Sex:** Six times as many males as females were diagnosed with HIV (189 males and 32 females). Between 2007 and 2016, the HIV diagnosis rate increased among younger (ages 13-29) males, and declined among older (ages 30-59) males and females. The diagnosis rate fluctuated for younger females.



**Gender:** Since 1985, 52 transgender individuals have been diagnosed with HIV in Wisconsin. During 2007–2016, there were 37 new HIV diagnoses in transgender persons, of which 18 were Black, 11 were Hispanic, and 24 were under age 30 at the time of diagnosis.

**Racial/ethnic groups:** HIV disproportionately affects racial/ethnic minorities in Wisconsin. During 2016, 65% of new diagnoses were among racial/ethnic minorities, despite minorities making up just 17% of Wisconsin’s population. During 2012-2016, the HIV diagnosis rate for males was thirteenfold higher among Blacks, fivefold higher among Hispanics, and almost twofold higher among Asians and American Indians compared to Whites. For females, the HIV

diagnosis rate was twenty-threefold higher among Blacks and sixfold higher among Hispanics compared to Whites.



**Age:** The median age at HIV diagnosis was 31 years but varied considerably by transmission category. The median age at diagnosis was 29 years for males with diagnosed HIV attributed to male-male sexual contact, 37 years for males and females with HIV attributed to heterosexual contact, and 43 years for males and females with HIV attributed to injection drug use.

**Transmission category:** After adjusting for unknown transmission category, 80% of new diagnoses were attributed to male-male sexual contact, including 4% attributed to both male-male sexual contact and injection drug use; 14% were attributed to heterosexual contact; and 6% were attributed to injection drug use. From 2007 to 2016 the number of HIV diagnoses attributed to male-male sexual contact was stable, while diagnoses attributed to heterosexual contact and injection drug use declined.

**Geography:** During 2016, residents in 30 of Wisconsin's 72 counties were diagnosed with HIV. However, the distribution was uneven: Milwaukee County accounted for 52% of new diagnoses, Dane County for 10%, Kenosha County for 4.5%, and Racine County for 4%. The Department of Corrections and all other counties each accounted for fewer than 3% of diagnoses.

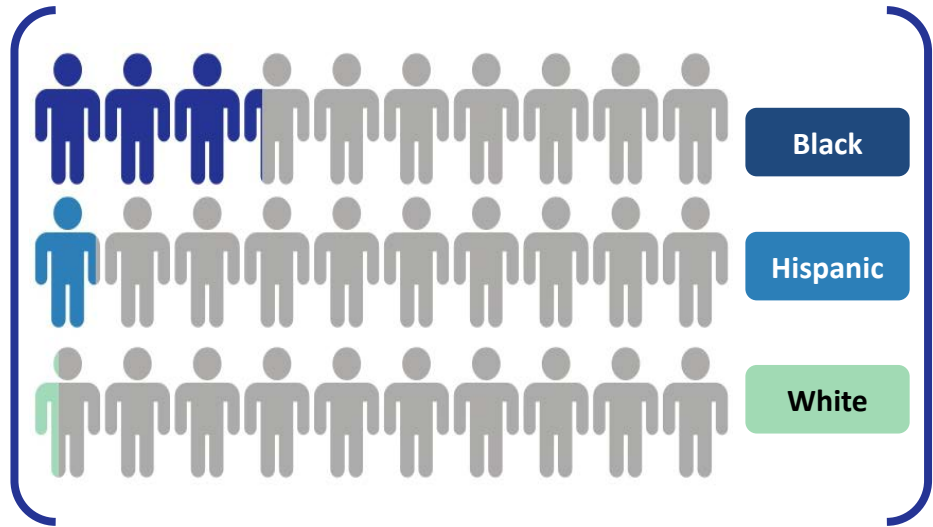
**HIV stage at diagnosis:** One in four people diagnosed with HIV during 2016 were identified within six months after acquiring HIV, which allows for early initiation of antiretroviral medications, and potentially less opportunity for transmission. On the other hand, one in four people were diagnosed long after acquiring HIV, and had already progressed to Stage 3 HIV (AIDS) by the time of diagnosis or within 12 months after diagnosis. However, the proportion of individuals with late diagnosis declined from 2012 (39%) to 2015 (23%).

**Diagnosed outside of Wisconsin:** In addition to the 221 Wisconsin residents diagnosed with HIV during 2016, 220 individuals previously diagnosed with HIV moved into Wisconsin from another state or country. The number of people living with HIV who migrate into Wisconsin continues to grow each year. This is important in that all states receive federal funding, based in part on the number of people diagnosed with HIV in the state, to support HIV care services for low income people living with HIV. People who receive care in Wisconsin but were not diagnosed in Wisconsin are not considered when determining the amount of federal funding Wisconsin receives to provide HIV care services.

## PEOPLE LIVING WITH HIV

As of the end of 2016, 6,923 individuals reported with HIV were presumed to be alive and living in Wisconsin. Almost three-quarters (73%) of these were first diagnosed in Wisconsin; the others were initially diagnosed elsewhere. The Centers for Disease Control and Prevention (CDC) estimates that 13% of people living with HIV (PLWH) in the United States are unaware of their HIV status. An estimated 1,000 individuals in the state are living with undiagnosed HIV, so the total number of PLWH in Wisconsin is estimated to be about 7,900.

HIV prevalence varies by demographic group. One in three (33%) gay or bisexual Black men is estimated to be living with HIV, compared to 9% of Hispanic and 4% of White gay and bisexual men. Fewer than 1 in 1,000 females and heterosexual males in Wisconsin is HIV-positive.



Nearly half (47%) of all PLWH reside in Milwaukee County. Dane County has the second highest proportion (11%), followed by Kenosha and Brown counties, with 4% each.

### **Deaths**

Deaths occurring in Wisconsin among people living with HIV have declined markedly since the early 1990s. In 2015, the most recent year with complete data, 84 deaths among people living with HIV are known to have occurred in Wisconsin. HIV as the underlying cause of death is also on the decline—54 of the 84 reported deaths were attributed to causes other than HIV, while 30 had HIV indicated as the underlying cause of death. The median age at death rose from age 37 in 1990 to age 56 in 2015, indicating that people are living longer with HIV.

### **HIV Care Continuum**

Eighty-eight percent of people diagnosed with HIV during 2016 were linked to care within three months of diagnosis. Of people living with HIV in Wisconsin, 71% received some care during 2016, 54% had two or more visits, and 64% were virally suppressed.

## **IMPLICATIONS**

### **HIV diagnoses**

Trends in people first diagnosed in Wisconsin should guide planning for HIV prevention. The number of new diagnoses among young Black men attributed to male-male sexual contact continues to increase. In addition, the proportion of all new diagnoses attributed to male-male sexual contact continues to rise, meaning HIV in Wisconsin is increasingly becoming a health concern impacting gay and bisexual men. These results suggest that men who have sex with men, and especially young men of color, should continue to be the top priority for HIV prevention efforts in Wisconsin.

Maintaining efforts to prevent HIV attributed to heterosexual contact and injection drug use is also important. While the number of new HIV diagnoses attributed to injection drug use continues to decline, increases in hepatitis C diagnoses and heroin overdoses in young adults in rural parts of Wisconsin underscore the risk that HIV diagnoses could increase among people



who inject drugs. Thus it is important to support overall health among people who use drugs to prevent both HIV and hepatitis C.

### ***HIV prevalence***

HIV prevalence data should guide planning for HIV care and treatment services. The fact that 48% of the PLWH in Wisconsin are age 50 or older indicates that HIV care providers must attend to patients' health conditions related to aging as well as their HIV.

#### **For additional information**

The AIDS/HIV Program website (<https://www.dhs.wisconsin.gov/aids-hiv/data.htm>) includes annotated PowerPoint slides and county-level summary reports. Other reports regarding HIV are also available on this site.

CDC's HIV surveillance web page: <http://www.cdc.gov/hiv/statistics/index.html>

General information about HIV prevention and care services in Wisconsin:  
<https://www.dhs.wisconsin.gov/aids-hiv/index.htm>

Information about hepatitis C: <https://www.dhs.wisconsin.gov/viral-hepatitis/hcv-program.htm>

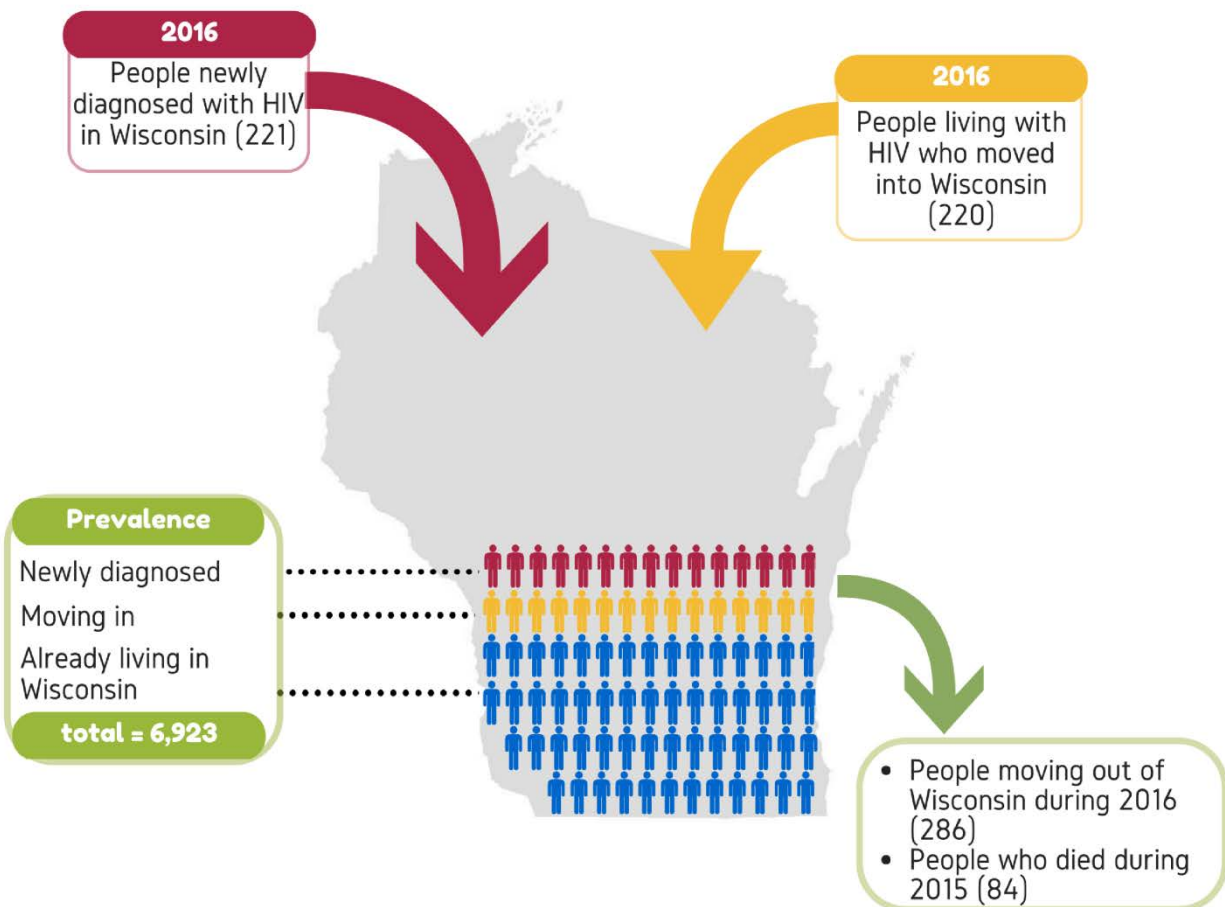
## NEW DIAGNOSES AND PREVALENCE DEFINITIONS

### Total HIV reports

Since the beginning of the HIV epidemic, 13,730 people have been reported with HIV in Wisconsin. Of these, 9,885 (72%) individuals received their first verifiable HIV diagnosis while residing in Wisconsin. The other 28% were first diagnosed with HIV while residing in another state or country and subsequently moved to, and were reported in, Wisconsin.

**New diagnoses** refer to those individuals who received their first verifiable HIV diagnosis while residing in Wisconsin. During 2016 there were 221 new diagnoses of HIV among Wisconsin residents (Figure 1). In addition, there were 220 individuals already diagnosed with HIV who moved into Wisconsin and were reported during 2016. These individuals are not included in the analysis of new diagnoses but are described in the In-Migration section of the report; they are also included in the prevalence estimate if they were still alive and living in Wisconsin at the end of 2016.

**Figure 1: Flow of people with HIV in and out of Wisconsin, 2016**



Wisconsin does not receive federal funding to conduct incidence surveillance so data are not available to determine when HIV was *acquired*, only when it was *diagnosed*. Therefore, the term *incidence* is not used in this report.

**Prevalence** refers to PLWH whose last known address in the HIV surveillance database was in Wisconsin, and for whom the surveillance program has no evidence of death. Address information is obtained from HIV reports, laboratory records, death certificates, and other states' HIV surveillance programs.

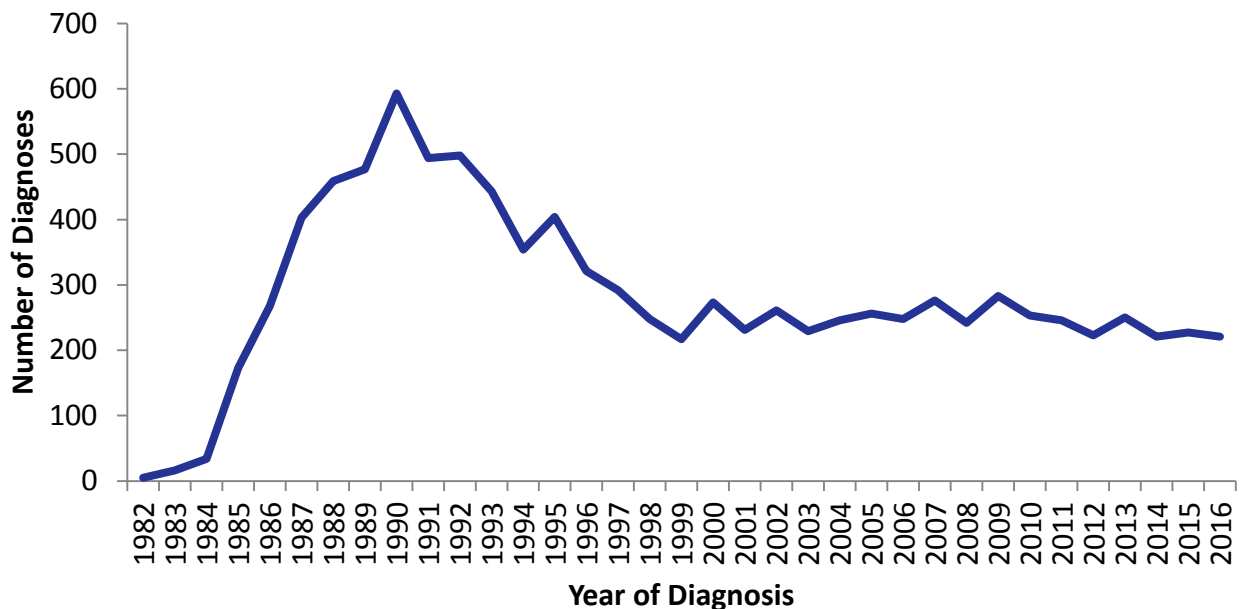
At the end of 2016 there were an estimated 6,923 people living with diagnosed HIV in Wisconsin. However, the CDC estimates that 13% of individuals living with HIV in the United States are unaware of their status, and therefore, the actual prevalence of HIV in Wisconsin is likely closer to 7,900.

## NEW DIAGNOSES

### Number and rate

A total of 9,885 individuals were first diagnosed and reported with HIV in Wisconsin. Diagnoses rose rapidly during the 1980s until peaking in 1992, then declined until about 2000 (Figure 2). After a period of stability, the annual number of new diagnoses has declined in recent years.

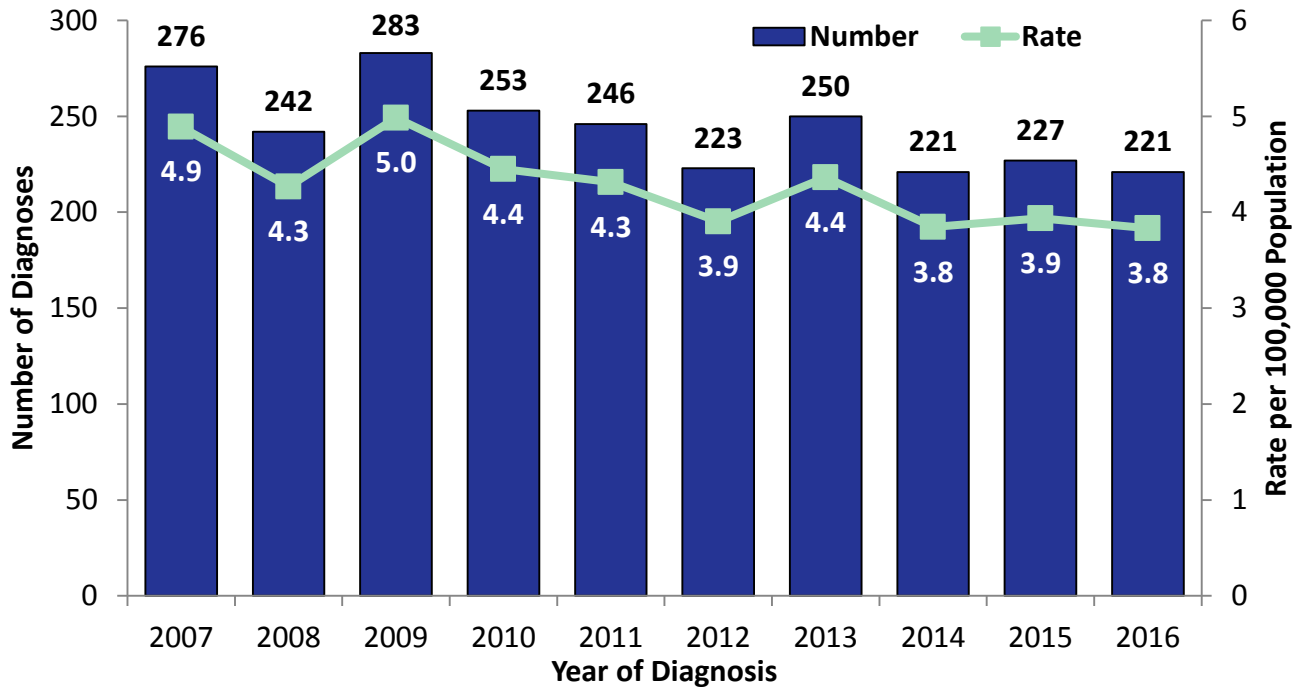
**Figure 2: Number of new HIV diagnoses, Wisconsin, 1982 - 2016**



There were 221 new HIV diagnoses among Wisconsin residents during 2016, corresponding to an HIV diagnosis rate of 3.8 per 100,000 population. Statewide, both the number and rate of HIV diagnoses declined since 2007 (Figure 3). Between 2007 and 2016, the number of diagnoses ranged from a low of 221 (in both 2014 and 2016) to a high of 283 (2009), with an average of 244 diagnoses per year.

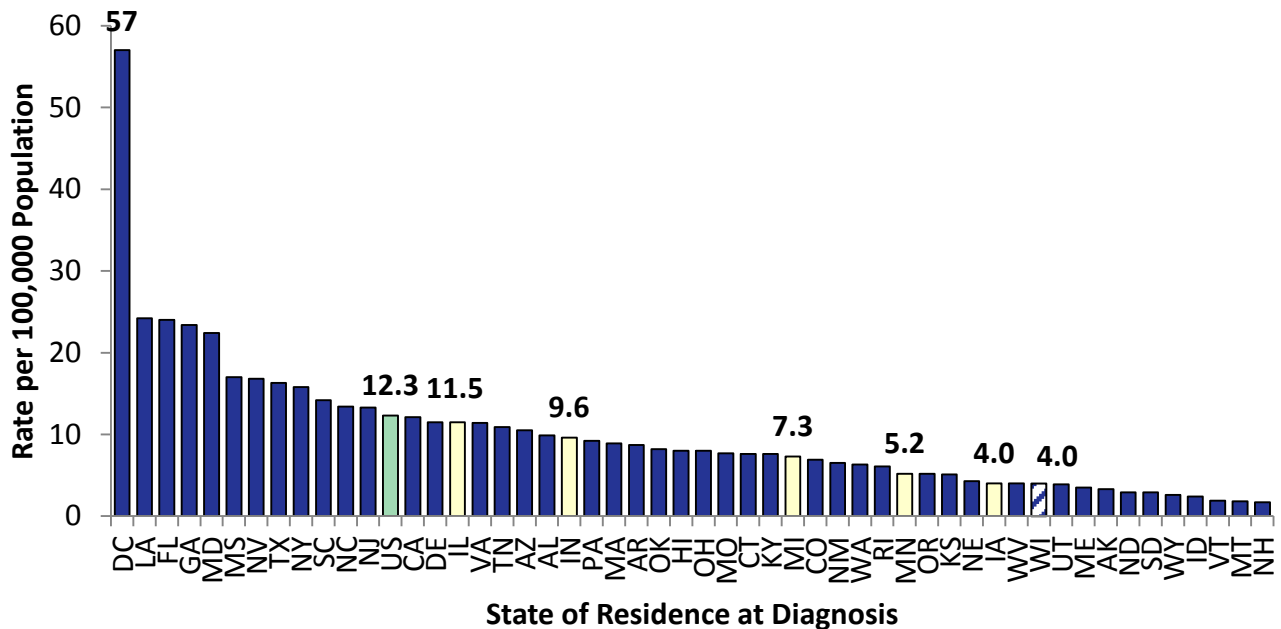


**Figure 3: Number and rate of new HIV diagnoses, Wisconsin, 2007-2016**



The HIV diagnosis rate in Wisconsin is low by national standards. The most recently available estimate for the national HIV diagnosis rate (2015)<sup>1</sup> is 12.3 diagnoses per 100,000 (Figure 4), while Wisconsin’s estimated diagnosis rate was 4.0 per 100,000 population.

**Figure 4: Estimated HIV diagnosis rate<sup>1</sup> by state, 2015**



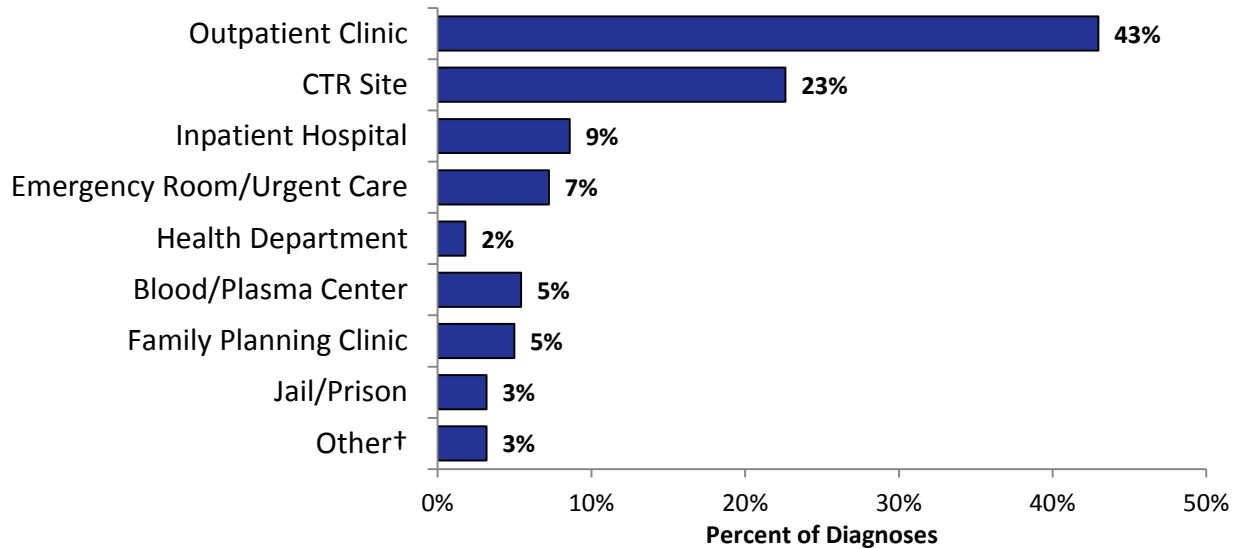
<sup>1</sup> Centers for Disease Control and Prevention. *HIV Surveillance Report, 2015*; vol. 27. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published November 2016.



**Facility type of diagnosis**

During 2016, the most common settings for HIV diagnoses were outpatient clinic (43%), Counseling, Testing and Referral (CTR) site (23%), and inpatient hospital or emergency room (16%) (Figure 5).

**Figure 5: Percent of diagnoses by facility of HIV diagnosis, Wisconsin, 2016**

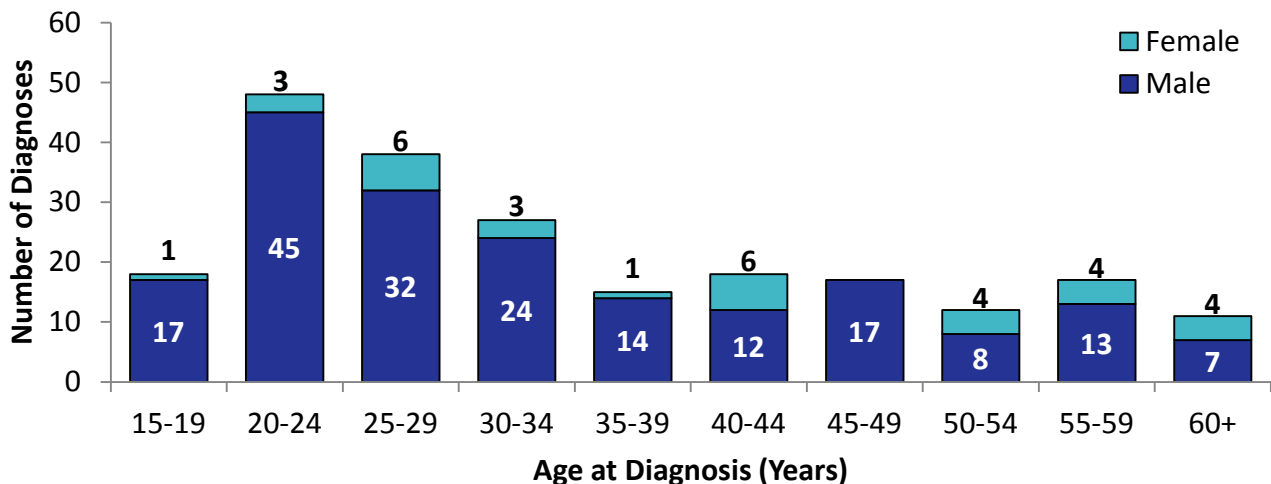


†Other includes diagnosis at an HIV clinic, out-of-state facility, military processing center, or mail-in testing facility.

**Sex and age at diagnosis**

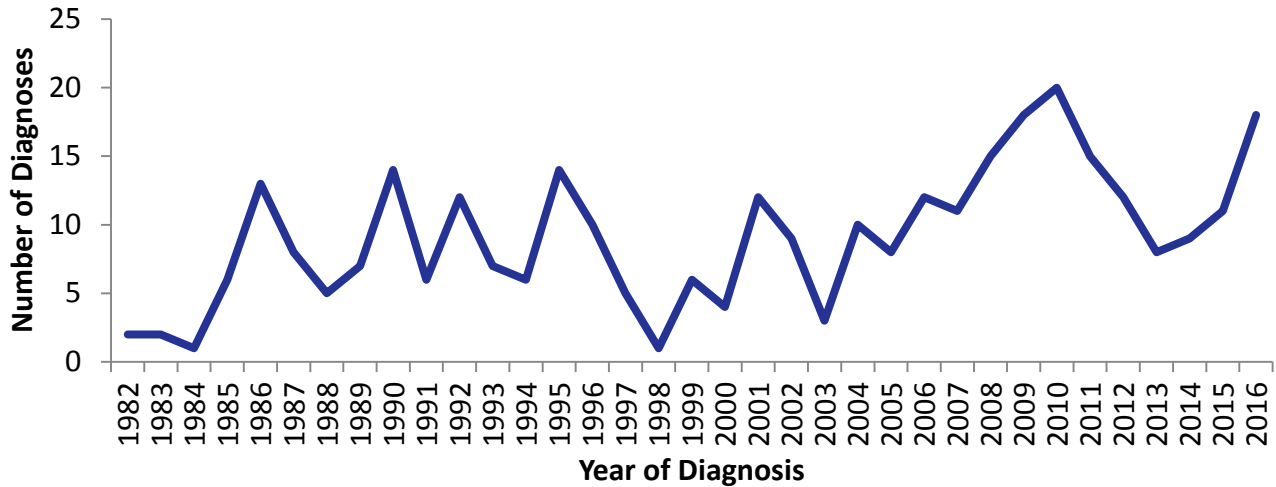
During 2016, 189 males and 32 females were diagnosed with HIV in Wisconsin (see Technical Notes for definition of “Sex”). The median age at diagnosis (the age at which half of people were older at the time of diagnosis and half were younger) was 31 years, with a range of 16-66 years. Newly diagnosed males were generally younger than newly diagnosed females. The median age at diagnosis was 30 years for males and 41 years for females. Age at diagnosis by sex is shown in Figure 6.

**Figure 6: Number of HIV diagnoses by age and sex, Wisconsin, 2016**



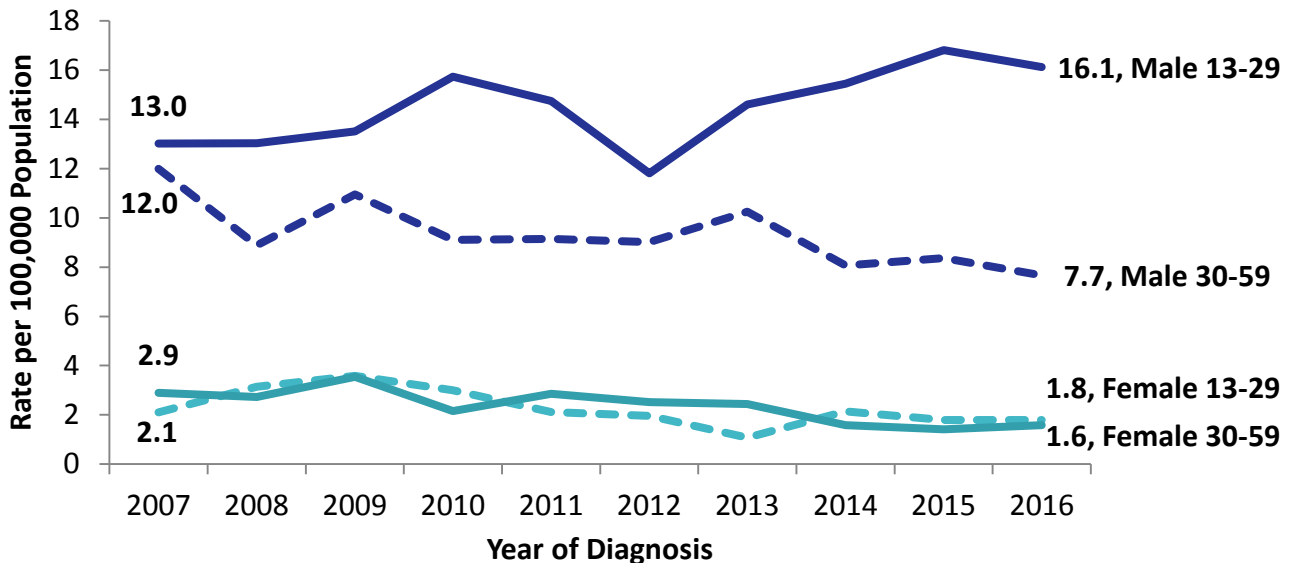
There were 18 individuals ages 15-19 years diagnosed with HIV during 2016. While there was no clear trend from 2007-2016, the number of diagnoses among youth has increased since 1998 (Figure 7). Ten of the 18 individuals were residents of Milwaukee County; seven were diagnosed in an outpatient facility and four were diagnosed at a CTR site; the remaining people were diagnosed at other types of facilities.

**Figure 7: Number of diagnoses among youth ages 15-19 years, Wisconsin, 1982-2016**



Over the last decade (2007-2016) the HIV diagnosis rate increased among younger males (ages 13-29) from 13 per 100,000 to 16.1 per 100,000, and declined among older males (ages 30-59) (Figure 8). The diagnosis rate also declined among older females and fluctuated among younger females. Diagnosis rates among males and females ages 60 and older are unreliable due to small numbers.

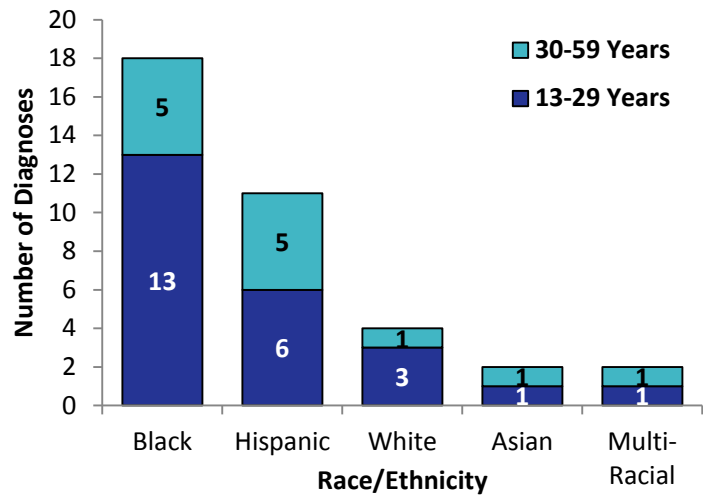
**Figure 8: HIV diagnosis rate by age at diagnosis and sex, Wisconsin, 2007-2016**



**Transgender identity**

The term “transgender” refers to people whose gender identity does not conform to their sex assigned at birth. It includes people who self-identify as male-to-female or transgender women, female-to-male or transgender men, and many other gender nonconforming identities. A transgender person may have the anatomy of their sex at birth, the other sex, or a combination. 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.

**Figure 9: Number of HIV diagnoses among transgender individuals by age at diagnosis and race/ethnicity, Wisconsin, 2007-2016**



A total of 52 transgender individuals have been diagnosed with HIV in Wisconsin since the beginning of the epidemic (5 female-to-male and 47 male-to-female). While the data collection of self-reported gender identity has improved over time, this likely underestimates the true number of transgender individuals diagnosed with HIV in Wisconsin. Of the 52 transgender individuals, 37 of the diagnoses occurred between 2007 and 2016 (Figure 9). Of these, the majority were from a racial or ethnic minority group (n=33) and were under age 30 (n=24). The 37 recent diagnoses were attributed to sexual contact (n=33) or both sexual contact and injection drug use (n=1); transmission category was unknown for three people.

**Race/ethnicity**

During 2016, two-thirds of individuals (65%) newly diagnosed with HIV were members of minority racial or ethnic groups, yet racial/ethnic minorities made up just 17% of the state’s population. This health disparity is not due to innate biologic factors—one’s race or ethnicity alone does not make one more or less susceptible to HIV. Rather, other determinants of health such as poverty, unequal access to health care, lack of education, stigma, homelessness, and racism can disproportionately affect persons of color and can put individuals at greater risk for acquiring HIV<sup>2</sup>.

The number and percent of new diagnoses in each racial/ethnic group are shown in Table 1. Since the early 1990s, the disproportionate impact of HIV on racial/ethnic minorities has continued to grow (Figure 10).

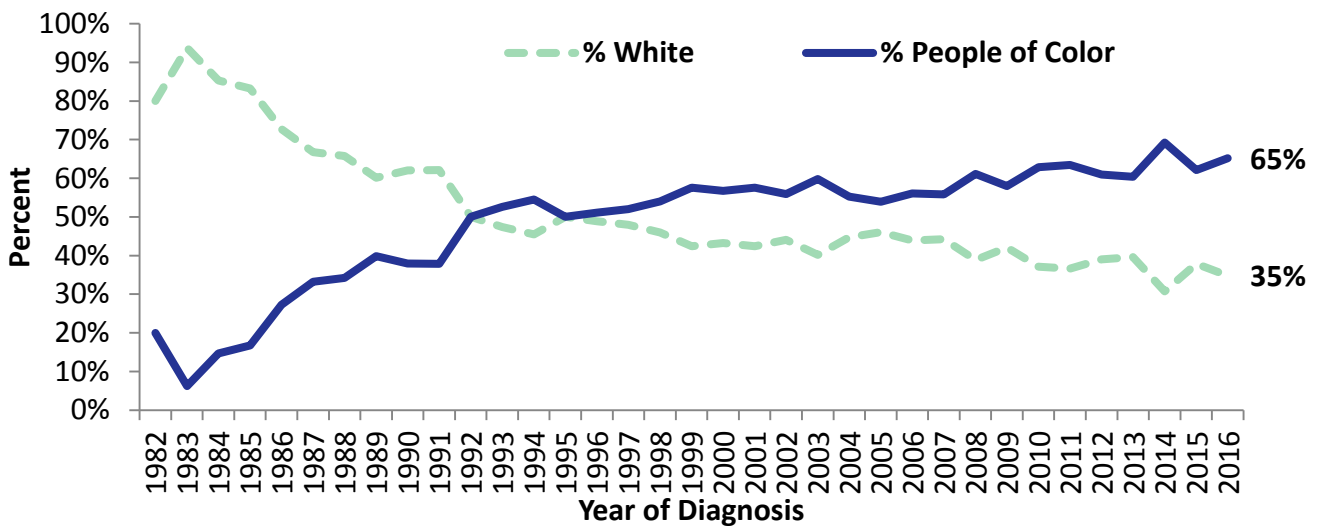
<sup>2</sup> Centers for Disease Control and Prevention. Disparities in HIV/AIDS, Viral Hepatitis, STDs, and TB. *Defining Health Disparities*. <http://www.cdc.gov/nchhstp/healthdisparities/>. Published March 2014. Accessed April 2015.



**Table 1: Number and percentage of new HIV diagnoses by sex and race/ethnicity, Wisconsin, 2016**

	Black	White	Hispanic	American Indian	Asian	Multi-Racial	Total
Male	92 (49%)	68 (36%)	20 (11%)	1 (<1%)	4 (2%)	4 (2%)	189
Female	17 (53%)	9 (28%)	3 (9%)	-	-	3 (9%)	32
<b>TOTAL</b>	<b>109 (49%)</b>	<b>77 (35%)</b>	<b>23 (10%)</b>	<b>1 (0.5%)</b>	<b>4 (2%)</b>	<b>7 (3%)</b>	<b>221</b>

**Figure 10: Percentage of new HIV diagnoses among Whites and persons of color, Wisconsin, 1982-2016**



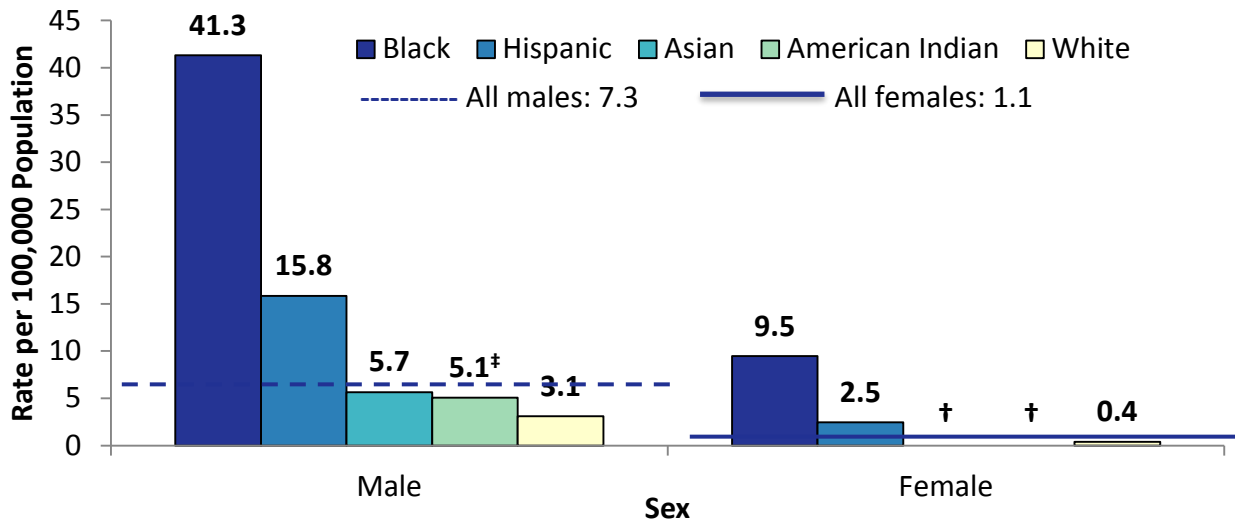
**Race/ethnicity and sex**

The HIV diagnosis rate further highlights the disproportionate impact of HIV on racial/ethnic minorities. During 2012-2016, the average annual HIV diagnosis rate for males was thirteenfold higher among Blacks, fivefold higher among Hispanics, and almost twofold higher among Asians and American Indians compared to Whites (Figure 11). For females, the HIV diagnosis rate was twenty-threefold higher among Blacks and sixfold higher among Hispanics compared to Whites. A comparison to Whites is presented because this is the population group with the lowest, stable rate.





**Figure 11: HIV diagnosis rate by sex and race/ethnicity, Wisconsin, 2012-2016**



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

‡Rates are statistically unreliable due to counts <12.

Annual HIV diagnosis rates for the larger racial/ethnic groups are shown in Table 2. The HIV diagnosis rate declined from 2007-2016 among Black females and White males. There were no statistically significant changes among the other groups.

**Table 2: HIV diagnosis rate per 100,000 by sex and race/ethnicity, Wisconsin, 2007-2016**

Year of Diagnosis	Black Male	White Male	Hispanic Male	Black Female	White Female	Hispanic Female
2007	39.9	4.6	26.6	15.2	0.5	†
2008	39.4	3.4	17.0	17.2	0.5	3.4 <sup>‡</sup>
2009	40.5	4.3	18.1	18.6	0.7	3.9 <sup>‡</sup>
2010	46.5	3.6	14.2	15.1	0.4 <sup>‡</sup>	†
2011	41.6	3.3	17.7	11.4	0.5	5.5 <sup>‡</sup>
2012	36.7	3.1	16.2	12.8	0.6	3.0 <sup>‡</sup>
2013	41.5	3.8	18.5	10.2	0.3 <sup>‡</sup>	3.4 <sup>‡</sup>
2014	41.1	2.5	20.2	9.1	0.3 <sup>‡</sup>	2.8 <sup>‡</sup>
2015	40.3	3.2	14.7	7.0	0.4 <sup>‡</sup>	†
2016	47.6	2.9	10.1	8.5	0.4 <sup>‡</sup>	†

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

‡Rates are statistically unreliable due to counts <12.



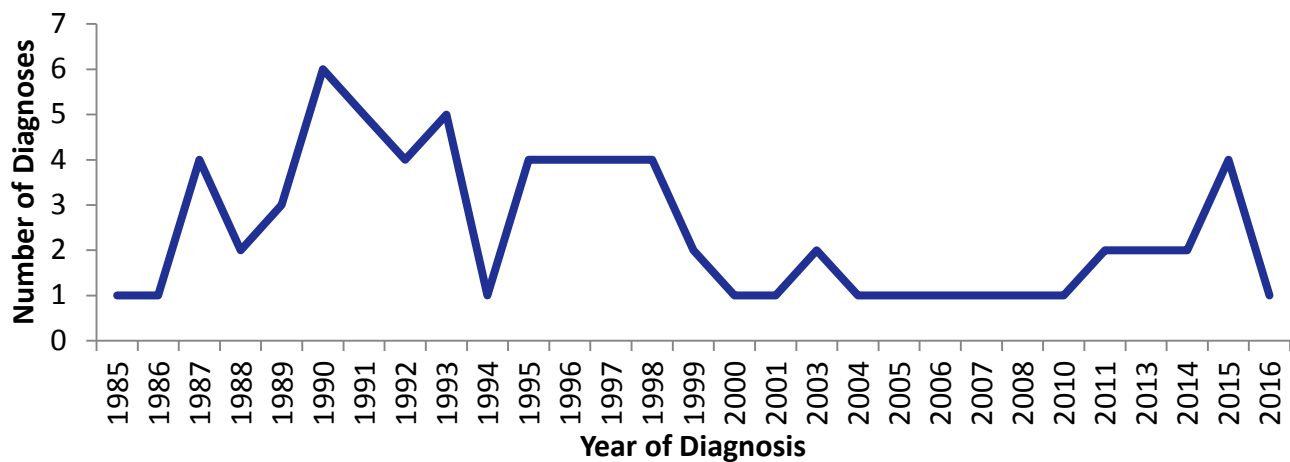
### ***American Indians and Asians***

Due to the small number of American Indians and Asians diagnosed in Wisconsin each year, these populations are excluded from many sections of the HIV Surveillance Annual Review. Therefore, additional information for these populations is presented here, some of which covers a longer period of time than the rest of this report.

#### ***American Indians***

During 1985-2016, 71 American Indians were diagnosed with HIV in Wisconsin, of whom 14 were diagnosed during the recent decade (2007-2016). The number of new diagnoses has fluctuated over time (Figure 12).

**Figure 12: Number of HIV diagnoses among American Indians, Wisconsin, 1985-2016**



Of the 71 American Indians diagnosed with HIV in Wisconsin since 1985:

- Two-thirds were male and one-third was female.
- 50% were under age 30 at the time of diagnosis.
- 36% were diagnosed in the northeastern region, 34% in the southeastern region, 14% in the southern region, 11% in the northern region, and 4% in the western region.
- 35% of diagnoses were attributed to male-male sexual contact, 10% to both male-male sexual contact and injection drug use, 21% to injection drug use, and 20% to heterosexual contact; 10% had unknown transmission category, and 4% were perinatally acquired (in utero or during birth).

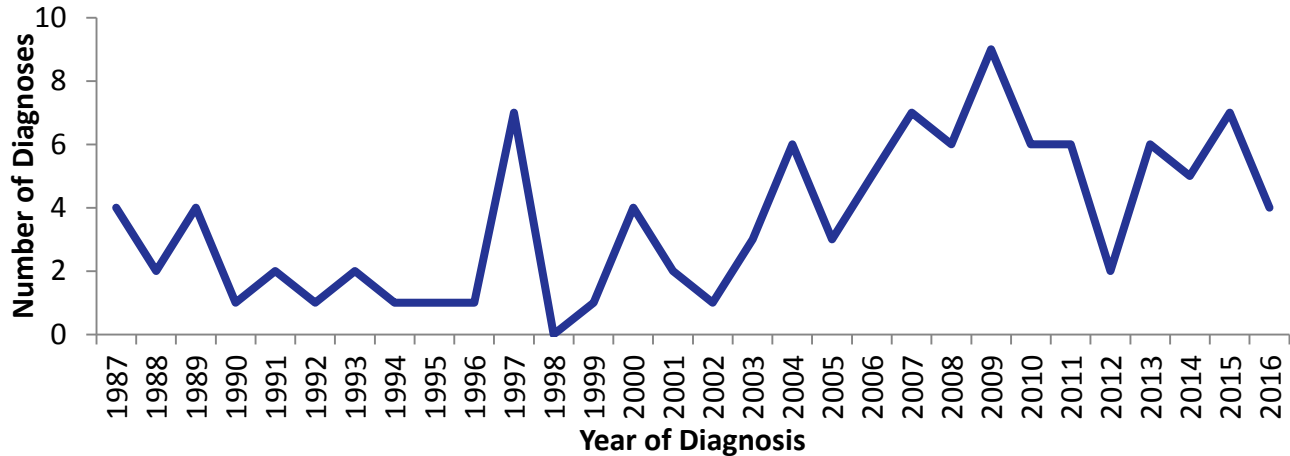
Of the 14 people diagnosed during the recent decade (2007-2016):

- 50% were under age 30 at the time of diagnosis.
- 43% were diagnosed in the southeastern region, 36% in the northeastern region, and 7% in each the southern, western, and northern regions.
- Nine of the diagnoses were attributed to male-male sexual contact and one to injection drug use; four had unknown transmission category.

**Asians**

During 1985-2016, 109 Asians were diagnosed with HIV in Wisconsin, of whom 58 were diagnosed during the recent decade (2007-2016). The number of Asians diagnosed with HIV has increased since 1998, with no definitive trend during 2007-2016 (Figure 13).

**Figure 13: Number of HIV diagnoses among Asians, Wisconsin, 1987-2016**



Of the 58 people diagnosed during the recent decade (2007-2016):

- 75% were male and 25% were female.
- 38% were under age 30 at the time of diagnosis.
- 52% were diagnosed in the Southeastern region, 24% in the Southern region, 10% in the Northeastern region, and 7% in each the Northern and Western regions.
- 48% of diagnoses were attributed to male-male sexual contact, 3% to both male-male sexual contact and injection drug use, 2% to injection drug use, and 16% to heterosexual contact; 31% had unknown transmission category.

**Transmission category based on reported risk and sex**

Transmission categories for HIV include male-male sexual contact, both male-male sexual contact and injection drug use, injection drug use, heterosexual contact, and perinatal exposure (see Technical Notes for transmission category definitions). The transmission category for people diagnosed with HIV in Wisconsin during 2016 is shown in Table 3.

**Table 3: Number and percentage of new HIV diagnoses by sex and transmission category based on reported risk, Wisconsin, 2016**

	Male-Male Sexual Contact†	Injection Drug Use	Heterosexual Contact	Unknown	Total
Male	138 (73%)	6 (3%)	-	45 (24%)	189
Female	-	2 (6%)	12 (38%)	18 (56%)	29
<b>TOTAL</b>	<b>138 (62%)</b>	<b>8 (4%)</b>	<b>12 (5%)</b>	<b>63 (29%)</b>	<b>221</b>

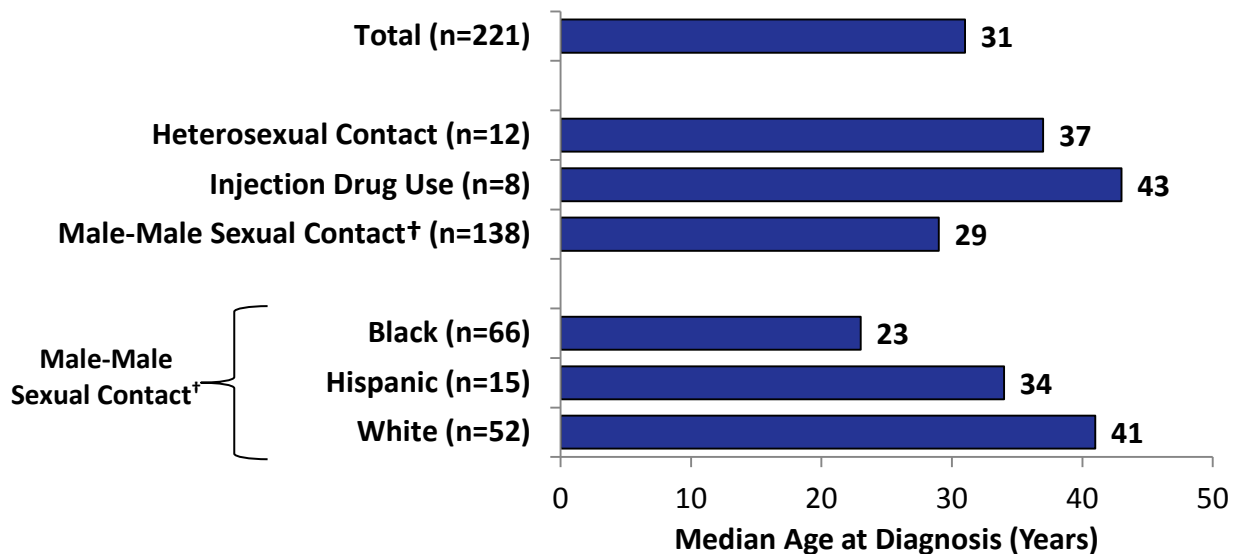
†Also includes diagnoses attributed to both male-male sexual contact and injection drug use.



### ***Transmission category based on reported risk and age***

The median age at HIV diagnosis during 2016 was 31 years, with variation by transmission category and within transmission category (Figure 14). For men whose diagnoses were attributed to male-male sexual contact, the median age at diagnosis was 29 years; however, Black men tended to be younger (median age 23 years) and White men tended to be older (median age 41 years) at the time of diagnosis. The median age at diagnosis was older among those with diagnoses attributed to heterosexual contact or injection drug use; however, this should be interpreted with caution due to the small number of individuals (12 and 8, respectively) within these categories.

**Figure 14: Median age at HIV diagnosis by transmission category based on reported risk, and among men with diagnoses attributed to male-male sexual contact by race/ethnicity, Wisconsin, 2016**



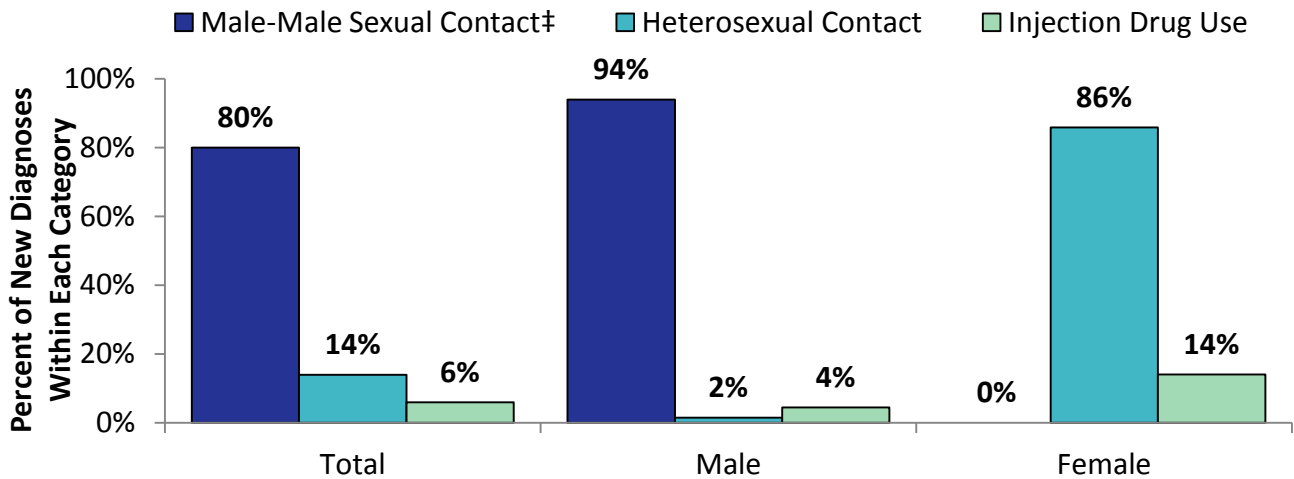
†Also includes diagnoses attributed to both male-male sexual contact and injection drug use.

### ***Estimated transmission category***

In order to include all individuals in transmission category-based analyses, a statistical method called imputation is used to estimate the most likely transmission categories for individuals with missing information (see Technical Notes). After adjusting to account for those with unknown transmission category, 80% of new diagnoses during 2016 were attributed to male-male sexual contact, 14% to heterosexual contact, and 6% to injection drug use (Figure 15).

Among males, after adjusting to account for those with unknown transmission category, 94% of diagnoses were attributed to male-male sexual contact, including 4% due to both male-male sexual contact and injection drug use, 2% were attributed to heterosexual contact, and 4% were attributed to injection drug use (Figure 15). Among females, 86% of diagnoses were attributed to heterosexual contact and 14% to injection drug use.

**Figure 15: Percentage of HIV diagnoses by sex and estimated transmission category<sup>†</sup>, Wisconsin, 2016**

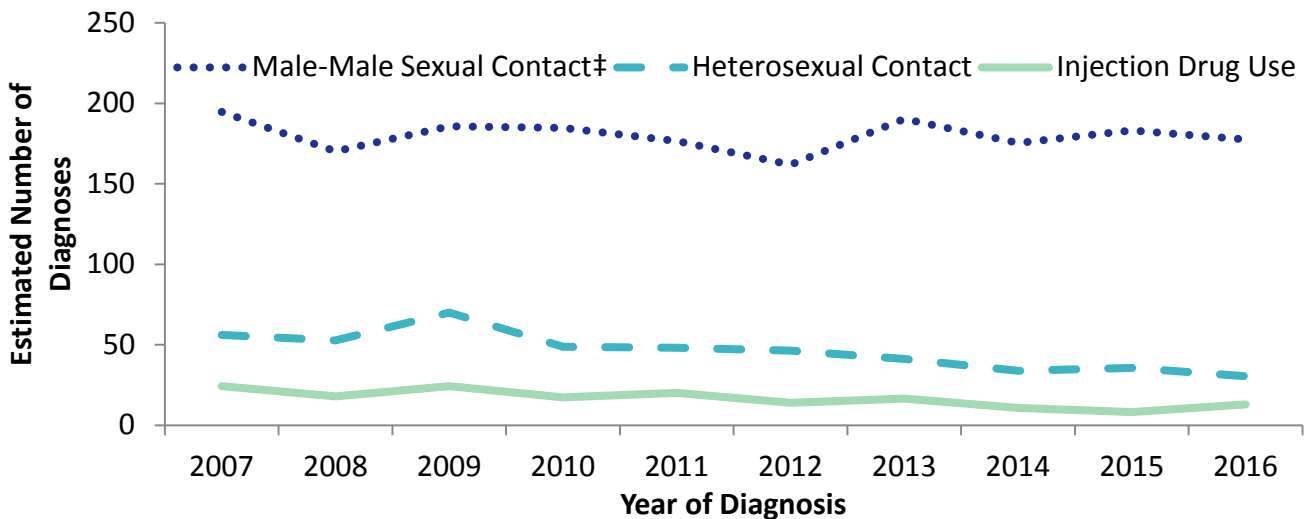


<sup>†</sup>Data have been statistically adjusted to account for those with unknown transmission category.

<sup>‡</sup>Also includes diagnoses attributed to both male-male sexual contact and injection drug use.

From 2007 to 2016, the estimated number of diagnoses attributed to male-male sexual contact was stable and the number attributed to heterosexual contact or injection drug use declined (Figure 16). Despite stability in the *number* of new diagnoses attributed to male-male sexual contact, the *proportion* of diagnoses attributed to male-male sexual contact increased over the decade, while the proportions attributed to injection drug use or heterosexual contact decreased (data not shown).

**Figure 16: HIV diagnoses by estimated transmission category<sup>†</sup>, Wisconsin, 2007-2016**



<sup>†</sup>Data have been statistically adjusted to account for those with unknown transmission category.

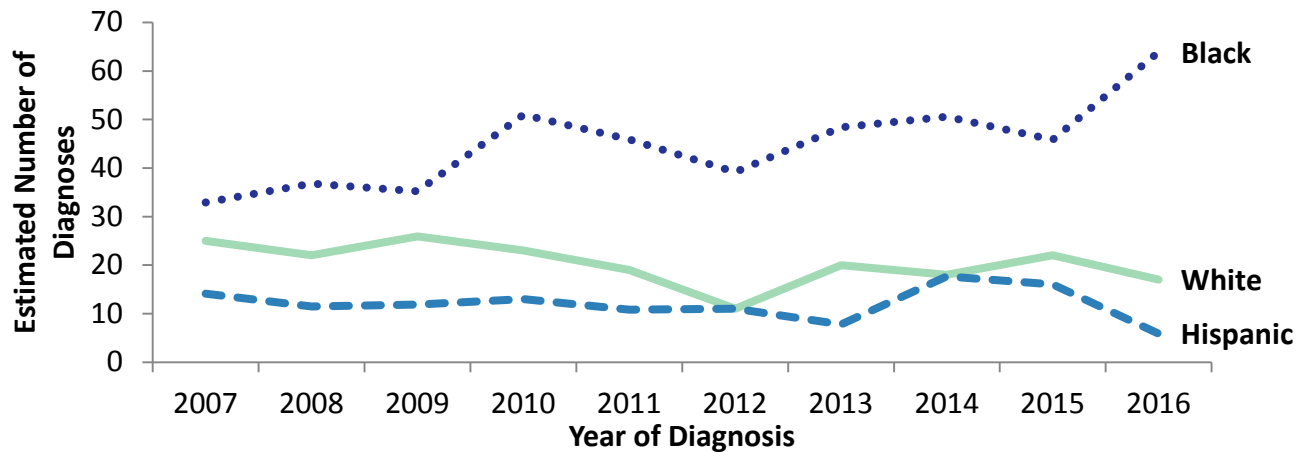
<sup>‡</sup>Also includes diagnoses attributed to both male-male sexual contact and injection drug use.



### ***Young men by race/ethnicity***

Among the 92 young men (ages 13-29) diagnosed with HIV during 2016 whose HIV was attributed to male-male sexual contact, 69% were Black, 18% were White, and 6% were Hispanic. The number of new diagnoses attributed to male-male sexual contact among young Black men increased over the last decade (Figure 17). The number of new diagnoses attributed to male-male sexual contact fluctuated among young White and Hispanic men.

**Figure 17: HIV diagnoses attributed to male-male sexual contact<sup>†</sup>, ages 13-29, by race/ethnicity, Wisconsin, 2007-2016**



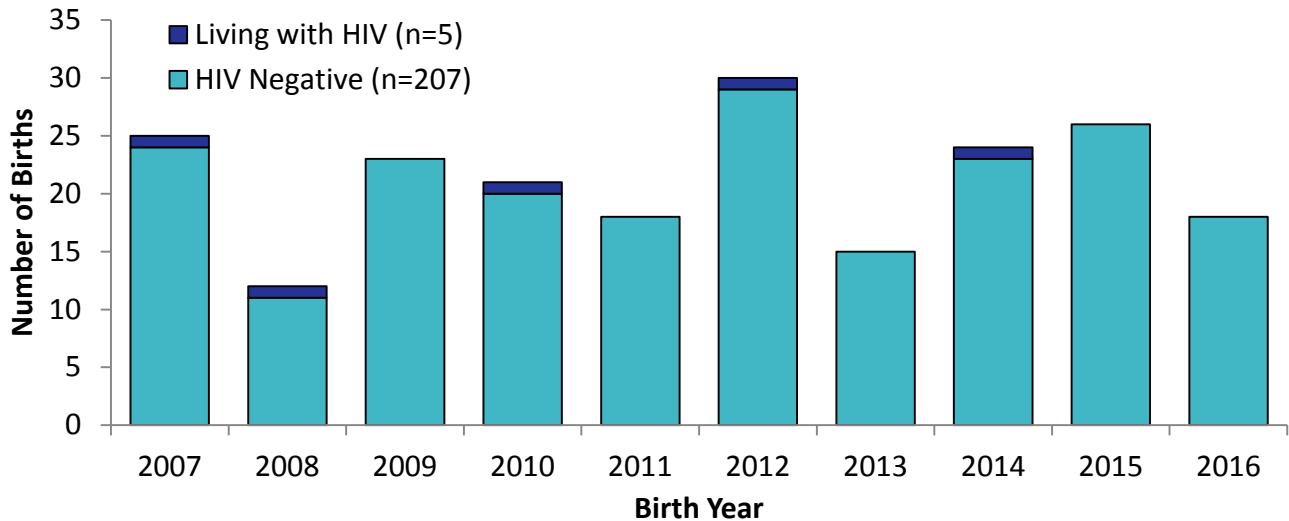
<sup>†</sup> Also includes diagnoses attributed to both male-male sexual contact and injection drug use. Data have been statistically adjusted to account for those with unknown transmission category.

### ***Pediatric HIV and perinatal exposure***

During 2007-2016, there were 234 infants and children exposed to HIV who were reported in Wisconsin, of whom 18 were diagnosed with HIV and 216 were exposed to HIV through childbirth but remained HIV negative. However, 13 of the children diagnosed with HIV and nine of the exposed children were born in another state or country and therefore Wisconsin efforts did not play a role in HIV prevention.

Of the 212 infants born in a Wisconsin hospital during the last 10 years or those who had undocumented state of birth, five (2%) acquired HIV and the remaining 207 (98%) are HIV negative (Figure 18).

**Figure 18: Diagnostic status of HIV-exposed infants born in Wisconsin or with undocumented state of birth, 2007-2016**



***Birth country***

Among the 221 individuals first diagnosed with HIV in Wisconsin during 2016, most (201) were born in the U.S. or were likely born in the U.S. (unreported country of birth). The remaining 20 people were born outside of the U.S., with Mexico (n=9) as the most common country of birth.

***County of residence***

During 2016, new HIV diagnoses were made among residents from 30 Wisconsin counties. Counties with the largest numbers of new diagnoses were Milwaukee (115), Dane (23), Kenosha (10), Racine (9), Brown and Rock (7 each), and Outagamie and Walworth (5 each) (Table 4). All other counties had fewer than five new diagnoses each. There were four new diagnoses made within the Department of Corrections among inmates upon admission into prison.



**Table 4: Number, percent and rate of new HIV diagnoses by county of residence, Wisconsin, 2016**

County of Residence	Number	Percent	Rate <sup>†</sup>
Brown	7	3.2%	2.7 <sup>‡</sup>
Calumet	2	0.9%	-
Columbia	2	0.9%	-
Crawford	1	0.5%	-
Dane	23	10.4%	4.5
Dodge	1	0.5%	-
Douglas	1	0.5%	-
Dunn	2	0.9%	-
Eau Claire	3	1.4%	-
Fond du Lac	1	0.5%	-
Green	1	0.5%	-
Iowa	1	0.5%	-
Kenosha	10	4.5%	6.0 <sup>‡</sup>
La Crosse	2	0.9%	-
Marathon	2	0.9%	-
Marinette	1	0.5%	-
Milwaukee	115	52.0%	12.1
Oneida	1	0.5%	-
Outagamie	5	2.3%	2.7 <sup>‡</sup>
Ozaukee	2	0.9%	-
Pierce	1	0.5%	-
Racine	9	4.1%	4.6 <sup>‡</sup>
Rock	7	3.2%	4.4 <sup>‡</sup>
Sauk	1	0.5%	-
Shawano	1	0.5%	-
Sheboygan	4	1.8%	-
Walworth	5	2.3%	4.9 <sup>‡</sup>
Washington	1	0.5%	-
Waukesha	3	1.4%	-
Winnebago	2	0.9%	-
Department of Corrections	4	1.8%	-
<b>TOTAL</b>	<b>221</b>	<b>100%</b>	<b>3.8</b>

<sup>†</sup>Rates calculated for counts  $\geq$  five.

<sup>‡</sup>Estimate is statistically unreliable due to counts  $<$ 12.



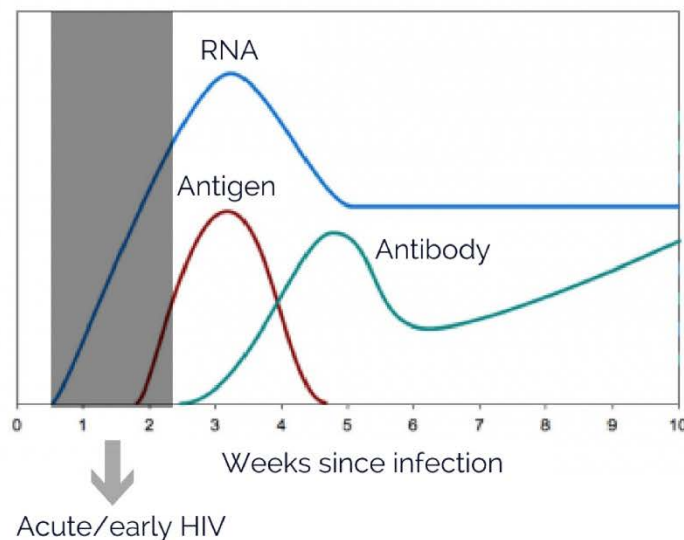


## HIV STAGE AT DIAGNOSIS

### *Acute and recent HIV*

For this report, acute HIV is when an individual is diagnosed with HIV in the 2-4 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 RNA or p24 antigen (Figure 19). Individuals with acute HIV may be more likely to transmit HIV to others due to the high amount of virus in the body, and will benefit in the long term from rapid initiation of therapy. Therefore, it is critical to rapidly link people with acute HIV to medical care and to Partner Services staff at local health departments, who notify and test individuals who may have been exposed to HIV. Recent HIV, for this report, 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 (see Technical Notes).

**Figure 19: Window of laboratory-confirmed acute HIV infection**

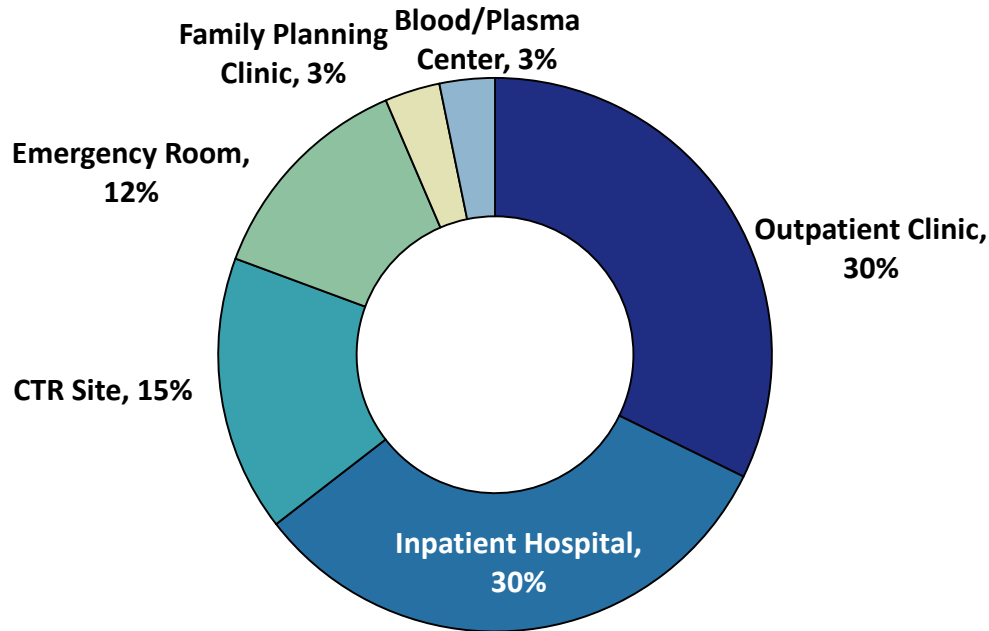


During 2016 there were an estimated 56 individuals diagnosed with acute or recent HIV. Of the 56:

- 13 people met the acute HIV definition based on the laboratory testing algorithm or the presence of acute symptoms.
- 20 people had a first viral load test after diagnosis that was at least 500,000 copies/mL, indicative of recent HIV. Twelve of the 20 had a viral load over 1,000,000 copies.
- 23 people reported a negative test result in the six months prior to their positive test result, indicating they acquired HIV within the prior six months. Self-reported negative HIV tests are not verified, and therefore some individuals may be misclassified as having recently acquired HIV.

Of the 33 people with stronger evidence of acute or recent HIV, most were diagnosed at an outpatient clinic or during a hospital admission (Figure 20).

**Figure 20: Facility of diagnosis among persons with lab-confirmed acute HIV, Wisconsin, 2016**



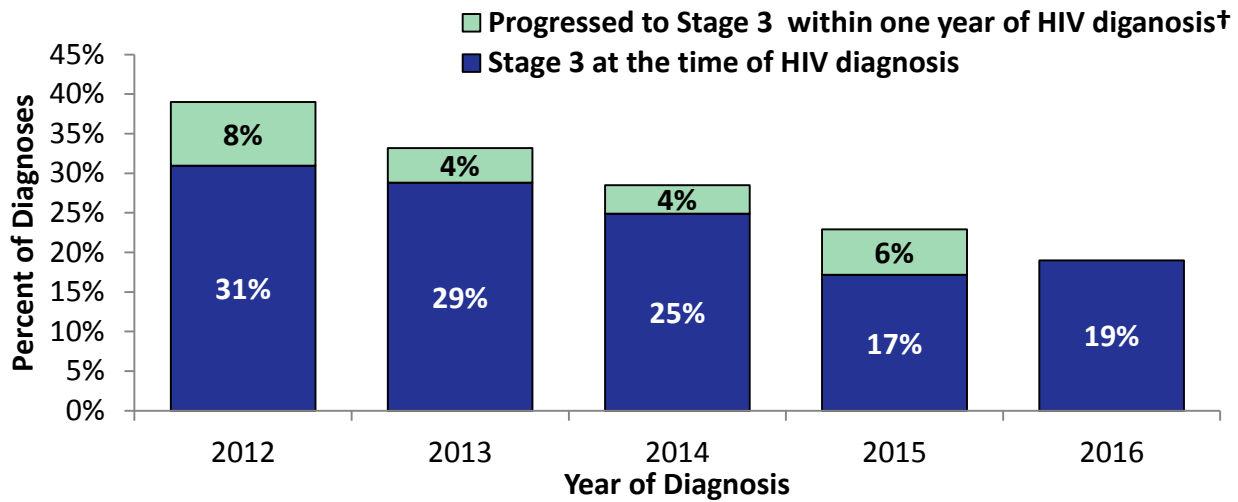
### ***Late diagnosis***

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 who have 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 based on very low CD4 count and/or a Stage 3-defining opportunistic infection. Early diagnosis is thus important both for optimal health outcomes for the person living with HIV, and for reducing the risk of further HIV transmission.

The percentage of people diagnosed with HIV in Wisconsin who had already progressed to Stage 3 by the time they were first diagnosed with HIV declined from 31% in 2012 to 19% in 2016 (Figure 21). This may reflect, in part, a 2014 change to the Stage 3 surveillance definition, in which individuals with a Stage 3-defining CD4 count (<200 cells/mL) are no longer designated as having progressed to Stage 3 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.

The percentage of individuals progressing to Stage 3 within one year of HIV diagnosis (including being first diagnosed during Stage 3) declined from 39% in 2012 to 23% in 2015.

**Figure 21: Percentage of people first diagnosed with HIV during Stage 3 or who progressed to Stage 3 within one year of HIV diagnosis, by year of HIV diagnosis, Wisconsin, 2012-2016**

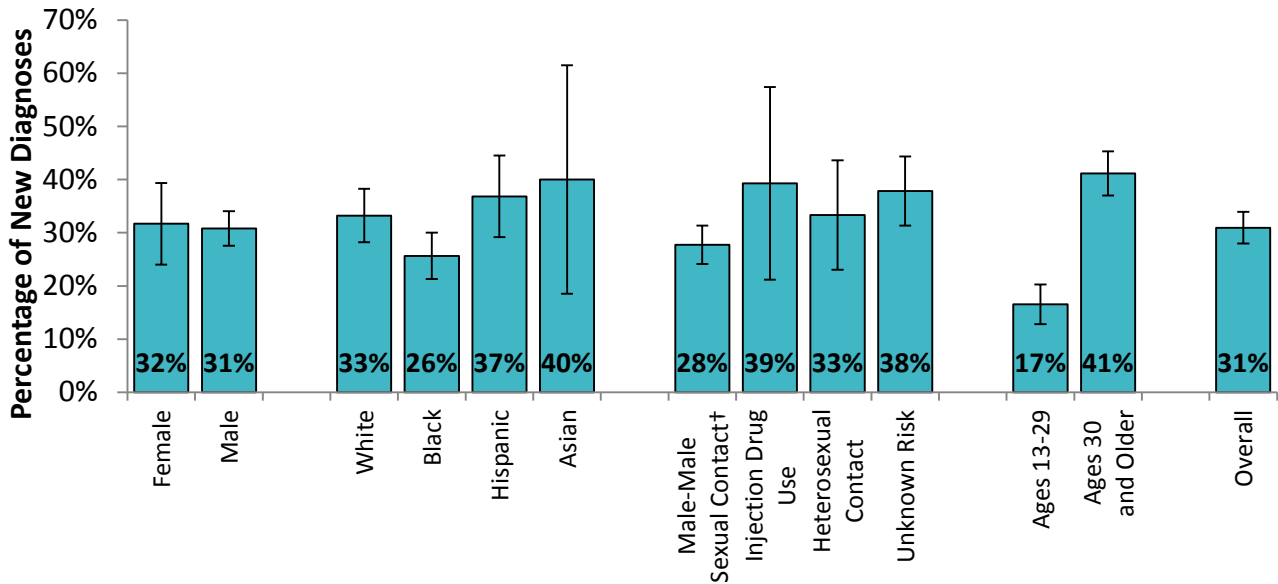


†Those diagnosed with HIV during 2016 have not had one full year to evaluate progression to Stage 3 and therefore this category is excluded.

The proportion of individuals diagnosed in Wisconsin during 2012-2015 who had already progressed to Stage 3 by the time they were first diagnosed, or who progressed to Stage 3 within one year, is shown in Figure 22 by demographic group. The following groups were more likely to have progressed to Stage 3 within a year of HIV diagnosis: Whites and Hispanics compared to Blacks, those with diagnoses attributed to injection drug use or an unknown transmission category compared to those with diagnoses attributed to male-male sexual contact, and people over the age of 30 at the time of diagnosis compared to people ages 13-29 years.



**Figure 22: Percentage of people first diagnosed with HIV during Stage 3 or who progressed to Stage 3 within one year of HIV diagnosis, by demographic group, Wisconsin, 2012-2015**

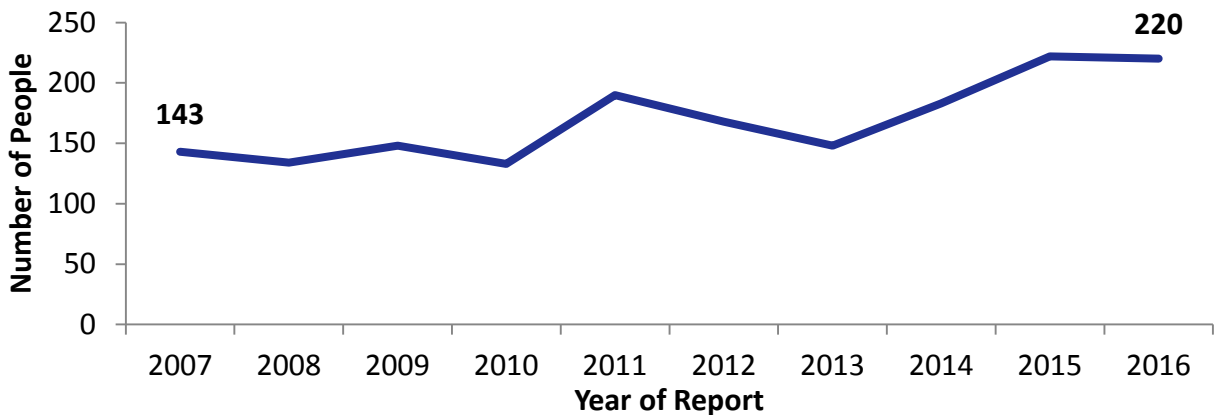


† Also includes diagnoses attributed to both male-male sexual contact and injection drug use.

## IN-MIGRATION

Each year individuals who were previously diagnosed with HIV in another state or country move into Wisconsin and are reported to the HIV Surveillance Program. During 2016, there were 220 individuals newly reported with HIV in Wisconsin who were first diagnosed outside of Wisconsin. The number of people moving into Wisconsin increased from 143 in 2007 to 220 in 2016 (Figure 23).

**Figure 23: Number of people previously diagnosed with HIV moving into Wisconsin, 2007-2016**



A comparison of people newly reported with HIV due to a new diagnosis versus those reported because they moved into Wisconsin is shown in Table 5. People newly reported because they moved into Wisconsin were more likely to be older, White, and have a known transmission



category compared to people newly reported due to a new HIV diagnosis. The demographics of those moving into Wisconsin more closely resemble the demographics of people already living with HIV rather than those newly diagnosed with HIV.

**Table 5: Comparison of 2016 new HIV reports: Wisconsin HIV diagnoses versus in-migration**

	Wisconsin, Newly Diagnosed # (%)	In-Migration # (%)
<b>Total</b>	<b>221 (100%)</b>	<b>220 (100%)</b>
<b>Sex</b>		
Male	189(86%)	193 (88%)
Female	32 (14%)	27 (12%)
<b>Median Age (Years)</b>	<b>31 (16-66)</b>	<b>42 (12-77)</b>
<b>Race/Ethnicity</b>		
American Indian	1 (0.5%)	1 (<1%)
Asian	4 (2%)	9 (4%)
Black	109 (49%)	66 (30%)
Hispanic	23 (10%)	28 (13%)
White	77 (35%)	107 (49%)
Multi-Racial	7 (3%)	8 (4%)
<b>Transmission Category</b>		
Male-Male Sexual Contact†	138 (62%)	155 (70%)
Injection Drug Use	8 (4%)	10 (5%)
Heterosexual Contact	12 (5%)	21 (10%)
Unknown	63 (29%)	31 (14%)
Perinatal Exposure	-	3 (1%)

† Also includes diagnoses attributed to both male-male sexual contact and injection drug use.



## PREVALENCE

The number of people living with HIV at a given point in time is termed “prevalence.” As described in Figure 1, prevalence includes people newly diagnosed with HIV, people already living in Wisconsin, and people that move into Wisconsin. In 2016, there were 6,923 people living with diagnosed HIV in Wisconsin.

### ***Unaware of HIV Status***

Due to increased testing efforts, the number of people living with HIV who are unaware of their status is decreasing. The most recent CDC estimates<sup>3</sup> indicate that nationally, 13% of people (about 1 in 8) living with HIV are unaware of their status—and this percentage varies considerably by demographic group. People in the younger age groups are estimated to be less aware of their positive HIV status; half (51%) of people ages 13 to 24 with HIV are estimated to be unaware of their status (Figure 24).

In 2017, CDC provided state-level estimates of the percentage of people living with HIV who were unaware of their status.<sup>4</sup> The estimate for Wisconsin, based on data from 2008-2014, is 16.7% (1 in 6), higher than the national estimate of 13%. Figures 24 and 25 use the national number because demographic breakdowns are not available for the state-level estimates. Therefore, readers should bear in mind that the Wisconsin numbers shown may be underestimates.

These findings have implications for planning HIV testing services. Once people are aware they are living with HIV, they are at lower risk of transmitting HIV for two reasons: they are more likely to reduce their risk behaviors, and they are more likely to receive medical care and have access to medication that reduces their viral load—the amount of virus circulating in the body. These estimates of the number unaware of their HIV should guide priority-setting and population-targeting for testing services.

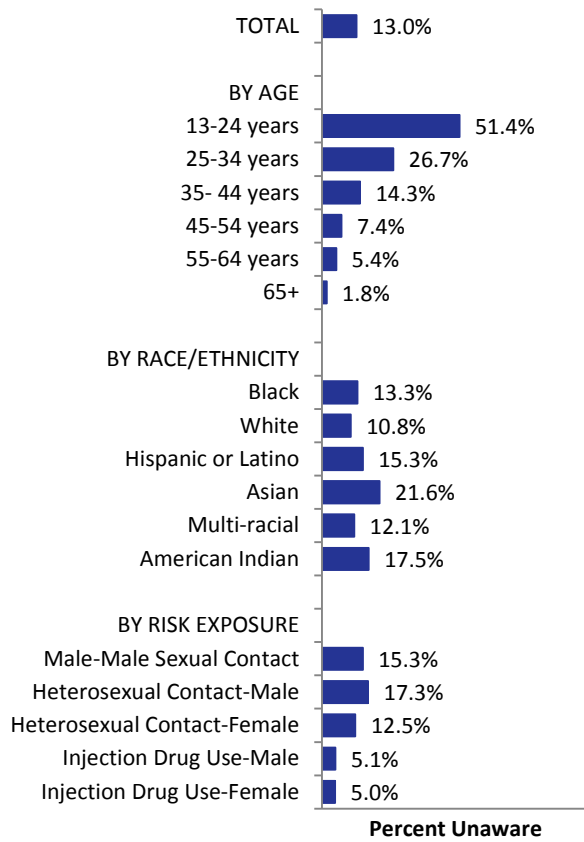
---

<sup>3</sup> Centers for Disease Control and Prevention. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas—2014. *HIV Surveillance Supplemental Report* 2016;2 (No. 4). <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-21-4.pdf>. Published July 2016. Accessed February 2017.

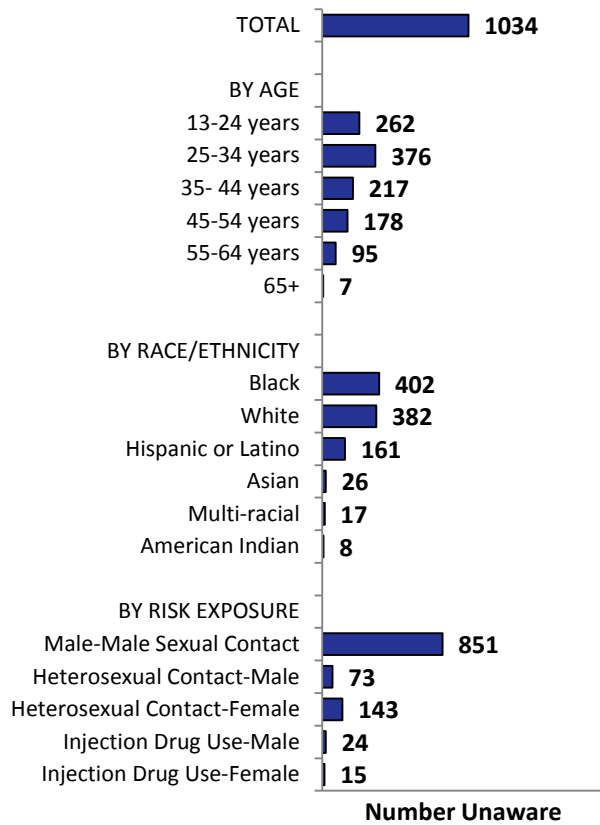
<sup>4</sup> Johnson AS, Song R, Hall I. State-level estimates of HIV incidence, prevalence, and undiagnosed infections. February 2017. Poster presented at the annual Conference on Retrovirus Infection, Seattle, WA.



**Figure 24: Estimated percentage of those living with HIV who are unaware of their status, by demographic group, United States, 2013**



**Figure 25: Estimated number living with HIV who are unaware of their status<sup>†</sup>, by demographic group, Wisconsin, 2016**



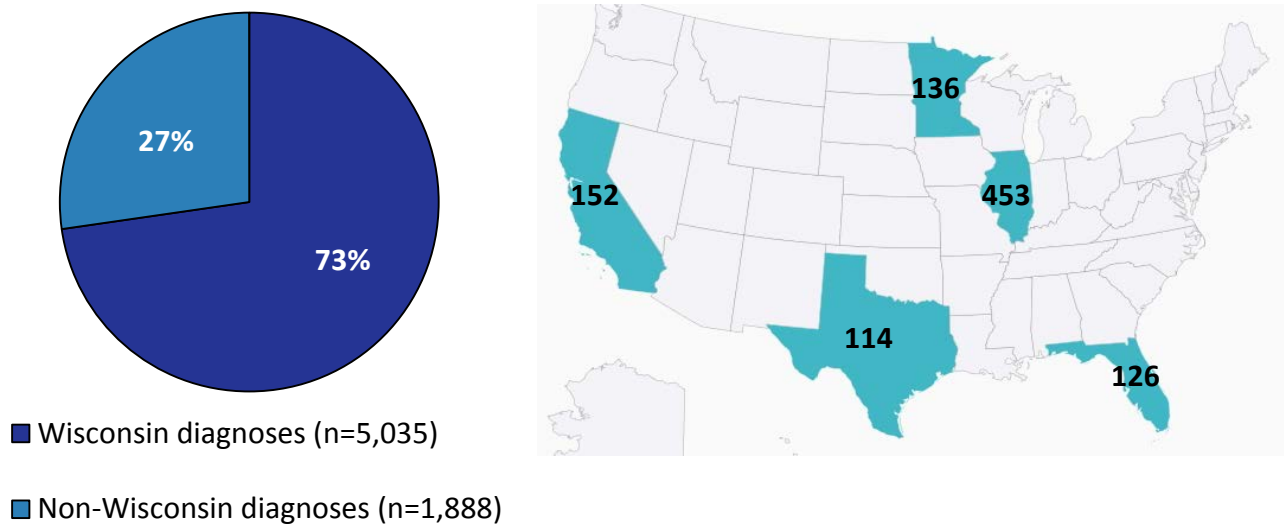
<sup>†</sup>Wisconsin numbers using national estimates for the proportion living with HIV who are unaware of their status

**State of diagnosis**

About three out of four (73%) PLWH in Wisconsin received their first verifiable HIV diagnosis in Wisconsin; 27% received their initial HIV diagnosis in another state or country and subsequently moved to Wisconsin. Of the 1,888 individuals diagnosed outside of Wisconsin, more than half were from one of the five following states: Illinois (453), California (152), Minnesota (136), Florida (126), and Texas (114) (Figure 26).



**Figure 26: Number of people living with HIV in Wisconsin who received their initial HIV diagnosis in another state, by top five states of initial HIV diagnosis, 2016**

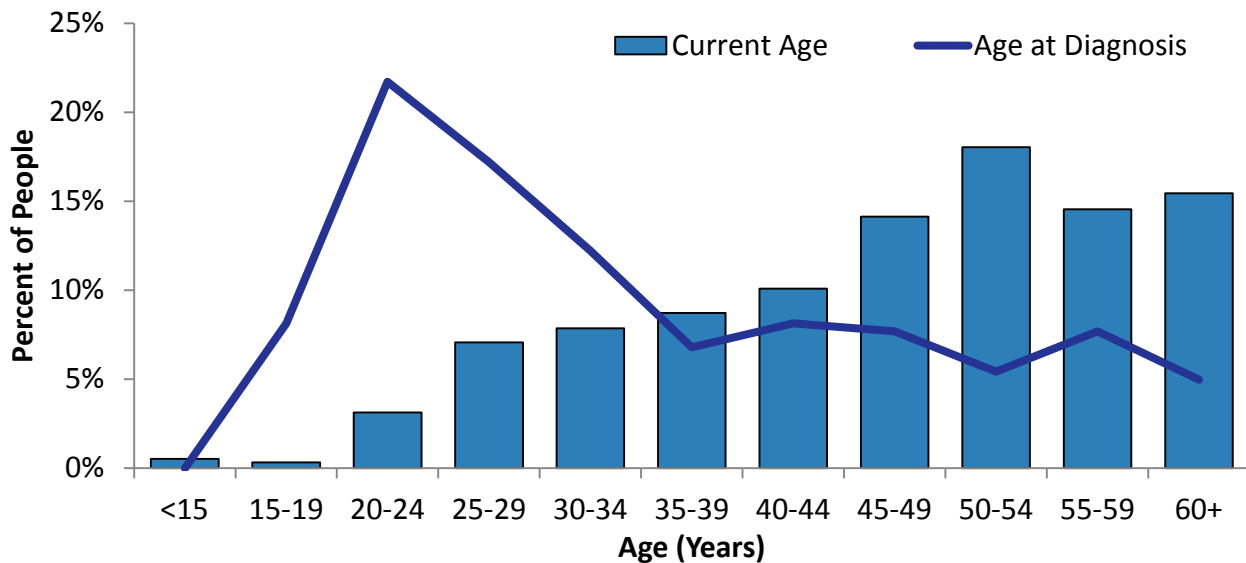


**Age**

Of Wisconsin’s known total PLWH, 11% are under age 30, 89% are ages 30 and older, and the median age is 49 years (Figure 27). By contrast, among 2016 diagnoses, 47% were under age 30 and 53% were age 30 and older.

Thus, services for PLWH need to address health conditions of aging in addition to HIV, while prevention efforts need to target the younger age groups.

**Figure 27: People living with HIV by current age as of December 31, 2016, and people diagnosed during 2016 by age at diagnosis, Wisconsin**





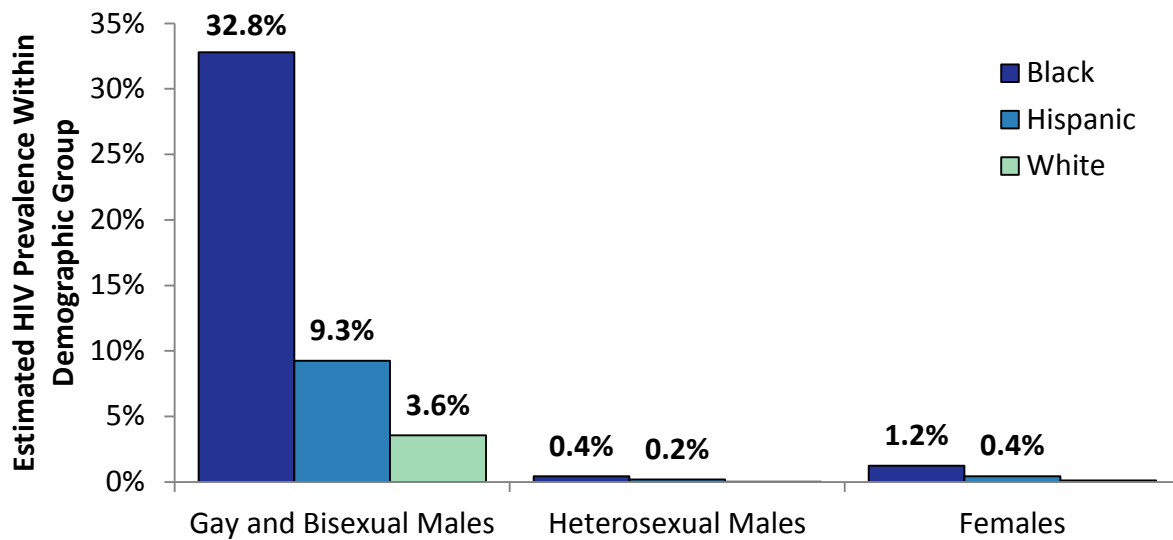
**Estimated prevalence by demographic group**

Disparities in HIV prevalence occur both *between* demographic groups and by race/ethnicity *within* each demographic group (Figure 28). One in three (33%) Black gay or bisexual men ages 15-59 is estimated<sup>5</sup> to be living with HIV in Wisconsin, compared to 10% of Hispanic and 4% of White gay and bisexual men.

Fewer than 1 in 1,000 females and heterosexual males in Wisconsin are living with HIV. Among heterosexual males and females, the estimated HIV prevalence is highest among Black individuals (0.4% of males and 1.2% of females). Other races were excluded from this analysis due to small numbers.

The HIV prevalence estimates presented below may vary from estimates reported in previous years due to a change in age range and updated estimates of the proportion of individuals living with undiagnosed HIV.

**Figure 28: Estimated prevalence of HIV in selected demographic groups, ages 15-59, Wisconsin, 2016**



<sup>5</sup> Estimates generated from surveillance data and state-specific estimates of the number of men who have sexual contact with men in: Lieb S., *et al.* Statewide estimation of populations of gay and bisexual men in the United States. *Public Health Reports* 2011;126(1):60-72 and CDC’s estimate that overall 13% of people living with HIV are unaware of their status, with variations by race/ethnicity. See Technical Notes for additional information.

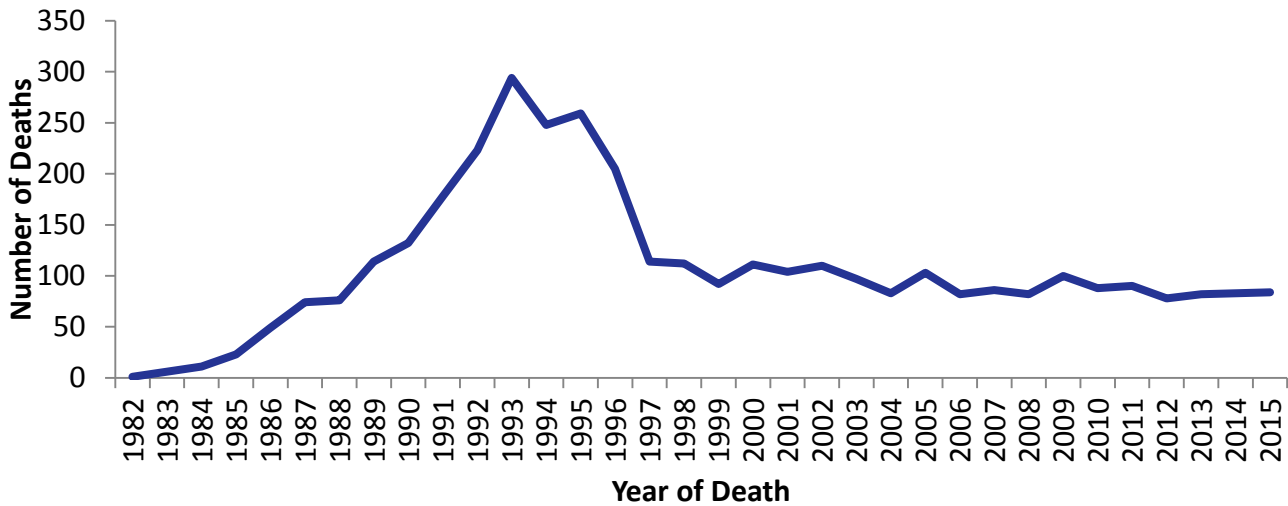




## DEATHS

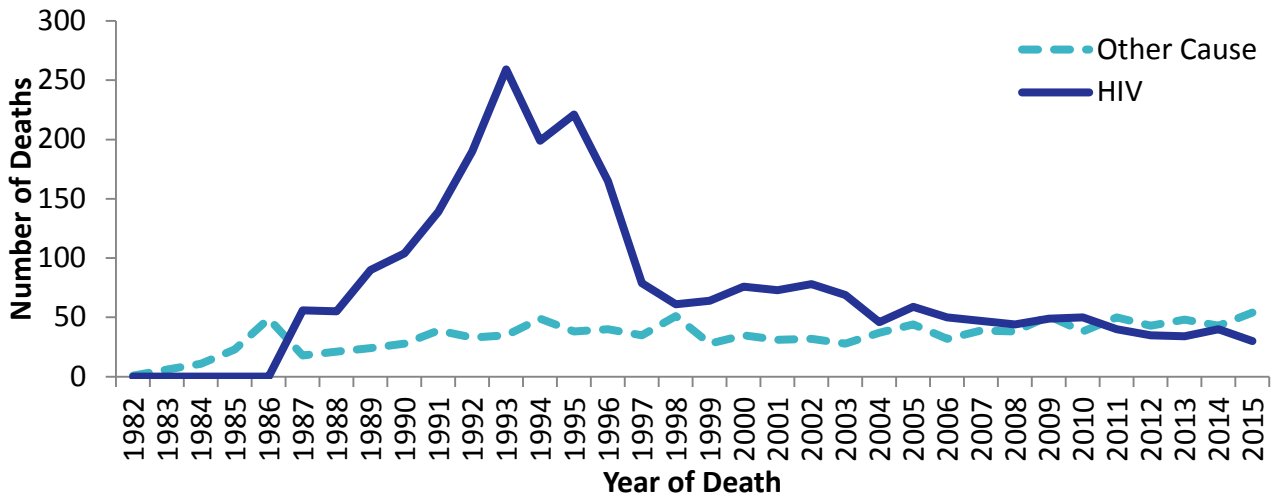
Deaths due to any cause among PLWH in Wisconsin have declined since the early-to-mid-1990s. During 2015 (the most recent year for which complete death data are available), 84 deaths occurred in Wisconsin among people living with HIV (Figure 30). There were an additional 84 deaths where state of death was unknown and are therefore excluded from the graphics that follow.

**Figure 30: Number of deaths due to any cause among people living with HIV in Wisconsin, 1982-2015**



During 2015, 30 of the 84 reported deaths had HIV listed as the cause of death, while 54 deaths were attributed to another cause (Figure 31).

**Figure 31: Number of deaths<sup>†</sup>, by cause of death, among people living with HIV in Wisconsin, 1982-2016**

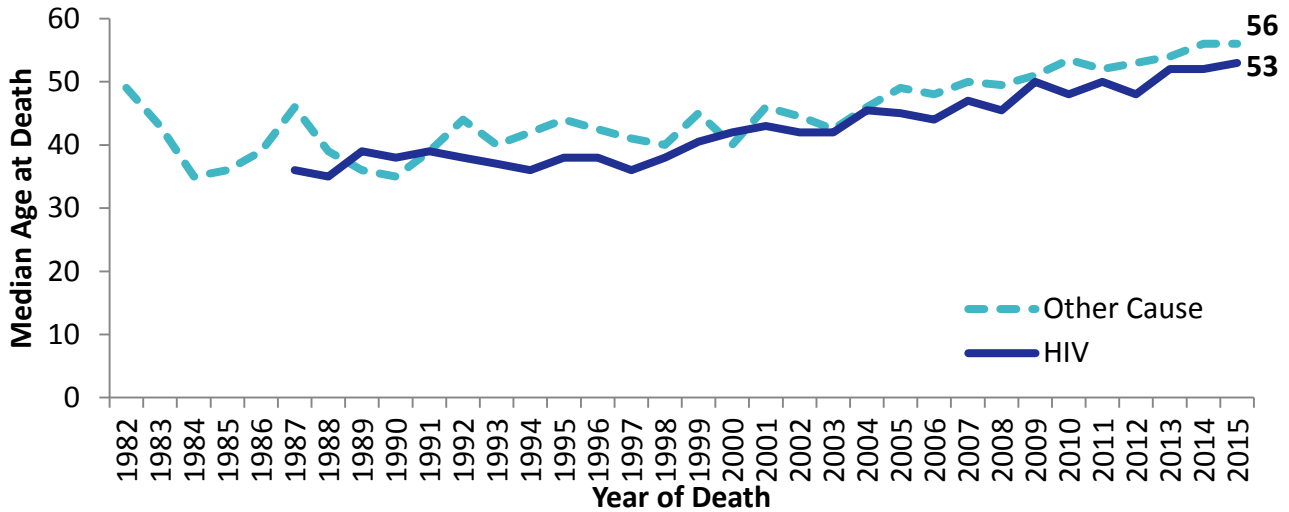


<sup>†</sup>Excludes 77 individuals with an unknown cause of death.



The median age at death of PLWH who died in Wisconsin has increased steadily, both for those with and without HIV listed as the cause of death (Figure 32). The median age at death among individuals whose death was attributed to HIV (age 53) has generally been younger than those who died from other causes (age 56).

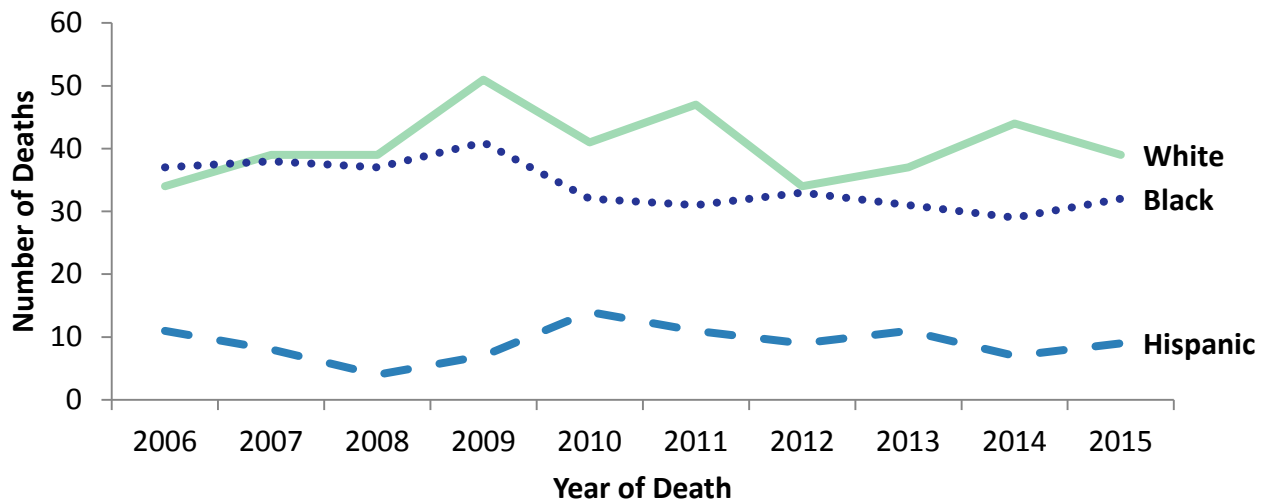
**Figure 32: Median age at death, by cause of death<sup>†</sup>, among people living with HIV in Wisconsin, 1982-2015**



<sup>†</sup>Excludes 77 individuals with an unknown cause of death.

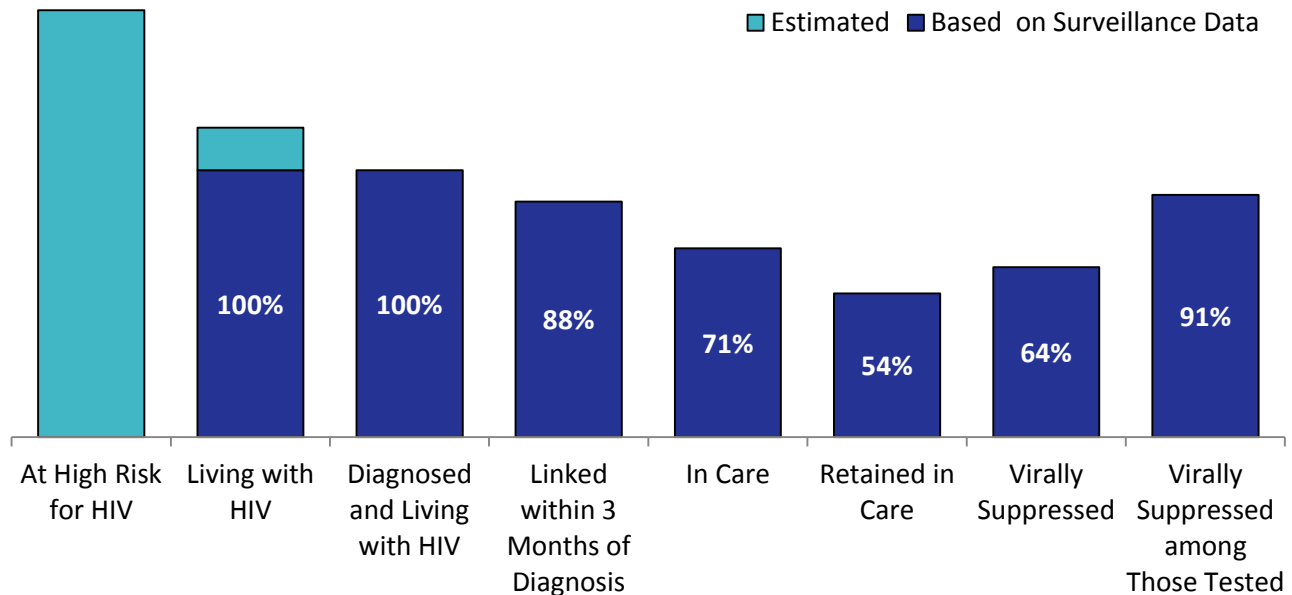
Deaths were more numerous among Whites and Blacks, reflecting the groups with the highest numbers of people living with HIV in Wisconsin. The annual number of deaths declined in Black PLWH, and fluctuated among those who are White or Hispanic (Figure 33). The number of deaths fluctuated among American Indians and Asians, with 0-1 deaths per year for each group.

**Figure 33: Number of deaths, by race/ethnicity, among people living with HIV in Wisconsin, 2006-2015**



## HIV CARE CONTINUUM

Figure 34: HIV care continuum†, Wisconsin, 2016



†Reflects laboratory data received through March 24, 2017.

The HIV care continuum is used at the state, regional, and local levels to measure and monitor HIV engagement and health outcomes across the continuum. The care continuum in Figure 34 depicts timely linkage among individuals diagnosed with HIV in Wisconsin during 2016, and care patterns during 2016 among people living with HIV at the end of 2015.

### Estimated Data

**At High Risk for HIV:** Factors that put people at higher risk for HIV include condomless male-to-male sex without pre-exposure prophylaxis (PrEP), sharing injection drug-use equipment, and heterosexual 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 16.7% of persons living with HIV in Wisconsin are unaware of their status. This bar shows both those aware and diagnosed, and those unaware of their HIV.

### Based on Surveillance Data

**Diagnosed and Living with HIV:** All individuals reported with HIV in Wisconsin by the end of 2015 who were still alive and living in Wisconsin by the end of 2016 (n=6,439).

**Linked within Three Months of Diagnosis:** Of individuals diagnosed with HIV in Wisconsin during 2016, 88% were linked to care within three months of diagnosis. Using the definition of



timely linkage described in the most recent National HIV/AIDS Strategy,<sup>6</sup> 76% of newly diagnosed individuals were linked to care within one month.

**In Care:** Of individuals diagnosed and living with HIV in Wisconsin, 71% had at least one medical visit, using laboratory data as a proxy for medical care, during 2016.

**Retained in Care:** Of individuals diagnosed and living with HIV in Wisconsin, 54% were retained in care, based on laboratory data as a proxy for medical care. Retention was defined as two or more medical visits, at least three months apart, during 2016. This definition may underestimate retention in care, as individuals who are medically stable or who are uninsured may receive care only once per year.

**Virally Suppressed:** Of individuals living with HIV in Wisconsin, 64% were virally suppressed at their last viral load test during 2016. Viral loads < 200 copies/mL were considered suppressed. Individuals whose last viral load test was prior to 2016 or who did not have a viral load test were considered to have unsuppressed viral loads.

**Virally Suppressed among Those Tested:** Of individuals who had a viral load test during 2016, 91% were suppressed at their last measurement. This suggests that most individuals receiving some medical care are achieving viral suppression.

---

<sup>6</sup> Office of National AIDS Policy. National HIV/AIDS Strategy for the United States: Updated to 2020. (2015). Available at <https://www.whitehouse.gov/administration/eop/onap/nhas>.



## HIV-STI CO-INFECTIONS

Identifying sexually transmitted infections (STI) among people living with HIV is important for:

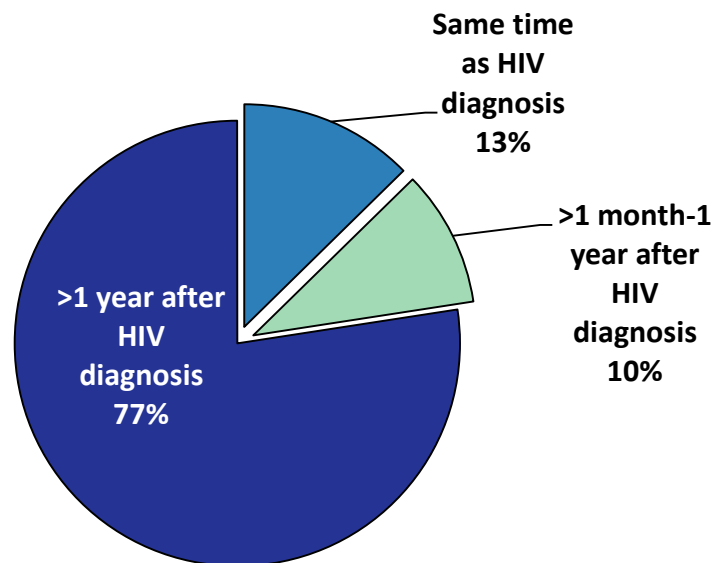
- Providing treatment for the STI,
- Identifying undiagnosed HIV,
- Testing named partners for HIV in addition to STIs,
- Offering eligible partners pre-exposure prophylaxis (PrEP) for preventing HIV, and
- Re-linking out-of-care individuals back into HIV care.

During 2016 there were 545 diagnoses of an STI among individuals living with HIV (individuals may be duplicated if they had more than one STI diagnosis during the year). There were:

- 141 syphilis diagnoses,
- 220 gonorrhea diagnoses, and
- 184 chlamydia diagnoses.

For all three STIs, 13% of diagnoses were made around the same time as the HIV diagnosis (within 30 days before or after the HIV diagnosis), 10% were made in the first year following HIV diagnosis, but most (77%) were made more than a year after HIV diagnosis (Figure 35).

**Figure 35: Sexually transmitted infections among people living with HIV, by timing of STI diagnosis, Wisconsin, 2016**



## DETAILED TABLES





**Reported Cases of HIV Infection  
Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015				2016			Cases	%	Rate(e)
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%	Rate(e)			
<b>Total cases(f)</b>	9,885	100.0%	1,167	233.4	100.0%	4.1	221	100.0%	3.8	6,923	100.0%	120.0
<b>Disease Status(g)</b>												
(Missing)	870	8.8%	0	0.0	0.0%	0.0	0	0.0%	0.0	3	0.0%	0.1
HIV	7,127	72.1%	865	173.0	74.1%	3.0	179	81.0%	3.1	3,509	50.7%	60.8
AIDS	1,888	19.1%	302	60.4	25.9%	1.1	42	19.0%	0.7	3,411	49.3%	59.1
<b>Sex at Birth</b>												
Female	1,723	17.4%	189	37.8	16.2%	1.3	32	14.5%	1.1	1,337	19.3%	46.0
Male	8,162	82.6%	978	195.6	83.8%	6.9	189	85.5%	6.6	5,586	80.7%	194.8
<b>Race/Ethnicity</b>												
White	4,941	50.0%	430	86.0	36.8%	1.8	77	34.8%	1.6	3,153	45.5%	66.7
African American	3,574	36.2%	482	96.4	41.3%	26.7	109	49.3%	29.9	2,621	37.9%	719.7
Hispanic	1,070	10.8%	193	38.6	16.5%	10.6	23	10.4%	6.0	892	12.9%	233.6
American Indian	71	0.7%	10	2.0	0.9%	5.0	1	0.5%	2.0	40	0.6%	78.8
Asian/Pacific Islander	109	1.1%	26	5.2	2.2%	3.5	4	1.8%	2.5	93	1.3%	58.6
Multi-racial	117	1.2%	25	5.0	2.1%	5.9	7	3.2%	7.7	121	1.7%	133.5
Unknown	3	0.0%	1	0.2	0.1%	-	0	0.0%	-	3	0.0%	-
<b>Age(h)</b>												
(Missing)	3	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	3	0.0%	-
<5	66	0.7%	2	0.4	0.2%	0.3	0	0.0%	0.0	2	0.0%	0.6
5-14	31	0.3%	2	0.4	0.2%	0.1	0	0.0%	0.0	35	0.5%	4.8
15-19	320	3.2%	55	11.0	4.7%	2.8	18	8.1%	4.7	23	0.3%	6.0
20-24	1,275	12.9%	242	48.4	20.7%	12.1	48	21.7%	11.8	217	3.1%	53.3
25-29	1,822	18.4%	183	36.6	15.7%	10.1	38	17.2%	10.7	489	7.1%	137.8
30-34	1,918	19.4%	164	32.8	14.1%	8.9	27	12.2%	7.3	543	7.8%	146.0
35-39	1,602	16.2%	113	22.6	9.7%	6.7	15	6.8%	4.3	605	8.7%	172.7
40-44	1,120	11.3%	97	19.4	8.3%	5.4	18	8.1%	5.3	699	10.1%	205.8
45-49	788	8.0%	120	24.0	10.3%	6.1	17	7.7%	4.6	979	14.1%	262.3
50-54	454	4.6%	93	18.6	8.0%	4.3	12	5.4%	2.8	1,249	18.0%	293.0
55-59	266	2.7%	57	11.4	4.9%	2.8	17	7.7%	4.0	1,006	14.5%	237.4
60+	220	2.2%	39	7.8	3.3%	0.6	11	5.0%	0.9	1,073	15.5%	84.3
<b>Risk exposure</b>												
MSM	5,364	54.3%	725	145.0	62.1%	-	133	60.2%	-	3,751	54.2%	-
IDU	1,166	11.8%	42	8.4	3.6%	-	8	3.6%	-	548	7.9%	-
MSM & IDU	530	5.4%	20	4.0	1.7%	-	5	2.3%	-	381	5.5%	-
Heterosexual	1,207	12.2%	112	22.4	9.6%	-	12	5.4%	-	961	13.9%	-
Other/Unknown	1,618	16.4%	268	53.6	23.0%	-	63	28.5%	-	1,282	18.5%	-

Year of HIV Diagnosis	Cases	Rate(e)
Before 2007	7,443	-
2007	276	4.9
2008	242	4.3
2009	283	5.0
2010	253	4.4
2011	246	4.3
2012	223	3.9
2013	250	4.4
2014	221	3.8
2015	227	3.9
2016	221	3.8

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
Males, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015				2016			Cases	%	Rate(e)
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%	Rate(e)			
<b>Total cases(f)</b>	8,162	100.0%	978	195.6	100.0%	6.9	189	100.0%	6.6	5,586	100.0%	194.8
<b>Disease Status(g)</b>												
(Missing)	774	9.5%	0	0.0	0.0%	0.0	0	0.0%	0.0	3	0.1%	0.1
HIV	5,763	70.6%	721	144.2	73.7%	5.1	158	83.6%	5.5	2,803	50.2%	97.7
AIDS	1,625	19.9%	257	51.4	26.3%	1.8	31	16.4%	1.1	2,780	49.8%	96.9
<b>Sex at Birth</b>												
Female	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Male	8,162	100.0%	978	195.6	100.0%	6.9	189	100.0%	6.6	5,586	100.0%	194.8
<b>Race/Ethnicity</b>												
White	4,410	54.0%	377	75.4	38.5%	3.2	68	36.0%	2.9	2,751	49.2%	117.4
African American	2,686	32.9%	383	76.6	39.2%	43.3	92	48.7%	51.5	1,945	34.8%	1,087.9
Hispanic	843	10.3%	165	33.0	16.9%	17.4	20	10.6%	10.1	704	12.6%	355.6
American Indian	48	0.6%	7	1.4	0.7%	7.0	1	0.5%	3.9	29	0.5%	114.2
Asian/Pacific Islander	84	1.0%	23	4.6	2.4%	6.4	4	2.1%	5.2	65	1.2%	84.5
Multi-racial	88	1.1%	22	4.4	2.2%	10.5	4	2.1%	9.0	90	1.6%	201.8
Unknown	3	0.0%	1	0.2	0.1%	-	0	0.0%	-	2	0.0%	-
<b>Age(h)</b>												
(Missing)	3	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	3	0.1%	-
<5	30	0.4%	1	0.2	0.1%	0.6	0	0.0%	0.0	1	0.0%	0.6
5-14	21	0.3%	1	0.2	0.1%	0.3	0	0.0%	0.0	14	0.3%	3.8
15-19	232	2.8%	48	9.6	4.9%	4.8	17	9.0%	8.7	18	0.3%	9.2
20-24	1,047	12.8%	214	42.8	21.9%	21.1	45	23.8%	21.8	189	3.4%	91.6
25-29	1,502	18.4%	167	33.4	17.1%	18.1	32	16.9%	17.6	424	7.6%	233.0
30-34	1,606	19.7%	142	28.4	14.5%	15.2	24	12.7%	12.8	432	7.7%	229.8
35-39	1,353	16.6%	92	18.4	9.4%	10.7	14	7.4%	7.9	477	8.5%	268.1
40-44	947	11.6%	74	14.8	7.6%	8.2	12	6.3%	7.0	500	9.0%	291.4
45-49	660	8.1%	97	19.4	9.9%	9.8	17	9.0%	9.0	778	13.9%	414.1
50-54	384	4.7%	75	15.0	7.7%	6.9	8	4.2%	3.8	1,035	18.5%	487.4
55-59	211	2.6%	40	8.0	4.1%	3.9	13	6.9%	6.2	819	14.7%	388.4
60+	166	2.0%	27	5.4	2.8%	1.0	7	3.7%	1.2	896	16.0%	152.1
<b>Risk exposure</b>												
MSM	5,364	65.7%	725	145.0	74.1%	-	133	70.4%	-	3,751	67.2%	-
IDU	789	9.7%	22	4.4	2.2%	-	6	3.2%	-	353	6.3%	-
MSM & IDU	530	6.5%	20	4.0	2.0%	-	5	2.6%	-	381	6.8%	-
Heterosexual	356	4.4%	38	7.6	3.9%	-	0	0.0%	-	268	4.8%	-
Other/Unknown	1,123	13.8%	173	34.6	17.7%	-	45	23.8%	-	833	14.9%	-

<b>Year of HIV Diagnosis</b>	<b>Cases</b>	<b>Rate(e)</b>
Before 2007	6,151	-
2007	229	8.2
2008	190	6.8
2009	218	7.8
2010	207	7.3
2011	199	7.0
2012	179	6.3
2013	212	7.4
2014	189	6.6
2015	199	6.9
2016	189	6.6

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
Females, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015				2016			Cases	%	Rate(e)
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%	Rate(e)			
<b>Total cases(f)</b>	1,723	100.0%	189	37.8	100.0%	1.3	32	100.0%	1.1	1,337	100.0%	46.0
<b>Disease Status(g)</b>												
(Missing)	96	5.6%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
HIV	1,364	79.2%	144	28.8	76.2%	1.0	21	65.6%	0.7	706	52.8%	24.3
AIDS	263	15.3%	45	9.0	23.8%	0.3	11	34.4%	0.4	631	47.2%	21.7
<b>Sex at Birth</b>												
Female	1,723	100.0%	189	37.8	100.0%	1.3	32	100.0%	1.1	1,337	100.0%	46.0
Male	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
<b>Race/Ethnicity</b>												
White	531	30.8%	53	10.6	28.0%	0.4	9	28.1%	0.4	402	30.1%	16.9
African American	888	51.5%	99	19.8	52.4%	10.8	17	53.1%	9.2	676	50.6%	364.6
Hispanic	227	13.2%	28	5.6	14.8%	3.2	3	9.4%	1.6	188	14.1%	102.2
American Indian	23	1.3%	3	0.6	1.6%	4.0	0	0.0%	0.0	11	0.8%	43.4
Asian/Pacific Islander	25	1.5%	3	0.6	1.6%	2.1	0	0.0%	0.0	28	2.1%	34.2
Multi-racial	29	1.7%	3	0.6	1.6%	2.3	3	9.4%	6.5	31	2.3%	67.4
Unknown	0	0.0%	0	0.0	0.0%	-	0	0.0%	-	1	0.1%	-
<b>Age(h)</b>												
<5	36	2.1%	1	0.2	0.5%	0.6	0	0.0%	0.0	1	0.1%	0.6
5-14	10	0.6%	1	0.2	0.5%	0.3	0	0.0%	0.0	21	1.6%	5.9
15-19	88	5.1%	7	1.4	3.7%	0.9	1	3.1%	0.5	5	0.4%	2.7
20-24	228	13.2%	28	5.6	14.8%	2.9	3	9.4%	1.5	28	2.1%	13.9
25-29	320	18.6%	16	3.2	8.5%	1.8	6	18.8%	3.5	65	4.9%	37.6
30-34	312	18.1%	22	4.4	11.6%	3.0	3	9.4%	1.6	111	8.3%	60.4
35-39	249	14.5%	21	4.2	11.1%	2.5	1	3.1%	0.6	128	9.6%	74.2
40-44	173	10.0%	23	4.6	12.2%	3.2	6	18.8%	3.6	199	14.9%	118.4
45-49	128	7.4%	23	4.6	12.2%	2.3	0	0.0%	0.0	201	15.0%	108.4
50-54	70	4.1%	18	3.6	9.5%	1.6	4	12.5%	1.9	214	16.0%	100.0
55-59	55	3.2%	17	3.4	9.0%	1.6	4	12.5%	1.9	187	14.0%	87.8
60+	54	3.1%	12	2.4	6.3%	0.4	4	12.5%	0.6	177	13.2%	25.9
<b>Risk exposure</b>												
MSM	0	0.0%	0	0.0	0.0%	-	0	0.0%	-	0	0.0%	0.0
IDU	377	21.9%	20	4.0	10.6%	-	2	6.3%	-	195	14.6%	-
MSM & IDU	0	0.0%	0	0.0	0.0%	-	0	0.0%	-	0	0.0%	0.0
Heterosexual	851	49.4%	74	14.8	39.2%	-	12	37.5%	-	693	51.8%	-
Other/Unknown	495	28.7%	95	19.0	50.3%	-	18	56.3%	-	449	33.6%	-

Year of HIV Diagnosis	Cases	Rate(e)
Before 2007	1,292	-
2007	47	1.7
2008	52	1.8
2009	65	2.3
2010	46	1.6
2011	47	1.6
2012	44	1.5
2013	38	1.3
2014	32	1.1
2015	28	1.0
2016	32	1.1

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
Whites, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015				2016			Cases	%	Rate(e)
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%	Rate(e)			
<b>Total cases(f)</b>	4,941	100.0%	430	86.0	100.0%	1.8	77	100.0%	1.6	3,153	100.0%	66.7
<b>Disease Status(g)</b>												
(Missing)	579	11.7%	0	0.0	0.0%	0.0	0	0.0%	0.0	1	0.0%	0.0
HIV	3,315	67.1%	299	59.8	69.5%	1.3	64	83.1%	1.4	1,588	50.4%	33.6
AIDS	1,047	21.2%	131	26.2	30.5%	0.6	13	16.9%	0.3	1,564	49.6%	33.1
<b>Sex at Birth</b>												
Female	531	10.7%	53	10.6	12.3%	0.4	9	11.7%	0.4	402	12.7%	16.9
Male	4,410	89.3%	377	75.4	87.7%	3.2	68	88.3%	2.9	2,751	87.3%	117.4
<b>Race/Ethnicity</b>												
White	4,941	100.0%	430	86.0	100.0%	1.8	77	100.0%	1.6	3,153	100.0%	66.7
African American	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Hispanic	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
American Indian	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Asian/Pacific Islander	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Multi-racial	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
<b>Age(h)</b>												
(Missing)	1	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	1	0.0%	-
<5	17	0.3%	0	0.0	0.0%	0.0	0	0.0%	0.0	1	0.0%	0.4
5-14	13	0.3%	0	0.0	0.0%	0.0	0	0.0%	0.0	2	0.1%	0.4
15-19	76	1.5%	7	1.4	1.6%	0.6	1	1.3%	0.3	1	0.0%	0.3
20-24	453	9.2%	48	9.6	11.2%	3.1	8	10.4%	2.6	37	1.2%	11.9
25-29	836	16.9%	50	10.0	11.6%	3.6	10	13.0%	3.7	111	3.5%	41.1
30-34	949	19.2%	56	11.2	13.0%	3.9	9	11.7%	3.1	180	5.7%	61.9
35-39	893	18.1%	55	11.0	12.8%	4.1	6	7.8%	2.2	217	6.9%	78.2
40-44	618	12.5%	45	9.0	10.5%	3.0	8	10.4%	2.9	289	9.2%	105.1
45-49	475	9.6%	67	13.4	15.6%	3.9	12	15.6%	3.8	460	14.6%	145.2
50-54	281	5.7%	51	10.2	11.9%	2.6	4	5.2%	1.1	650	20.6%	172.8
55-59	173	3.5%	30	6.0	7.0%	1.6	13	16.9%	3.4	550	17.4%	144.3
60+	156	3.2%	21	4.2	4.9%	0.4	6	7.8%	0.5	654	20.7%	55.3
<b>Risk exposure</b>												
MSM	3,339	67.6%	293	58.6	68.1%	-	49	63.6%	-	2,111	67.0%	-
IDU	326	6.6%	17	3.4	4.0%	-	7	9.1%	-	171	5.4%	-
MSM & IDU	288	5.8%	13	2.6	3.0%	-	3	3.9%	-	216	6.9%	-
Heterosexual	353	7.1%	25	5.0	5.8%	-	3	3.9%	-	269	8.5%	-
Other/Unknown	635	12.9%	82	16.4	19.1%	-	15	19.5%	-	386	12.2%	-

<b>Year of HIV Diagnosis</b>	<b>Cases</b>	<b>Rate(e)</b>
Before 2007	4,005	-
2007	122	2.6
2008	94	2.0
2009	119	2.5
2010	94	2.0
2011	90	1.9
2012	87	1.8
2013	99	2.1
2014	68	1.4
2015	86	1.8
2016	77	1.6

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
African Americans, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015			2016			Cases	%	Rate(e)	
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%				Rate(e)
<b>Total cases(f)</b>	3,574	100.0%	482	96.4	100.0%	26.7	109	100.0%	29.9	2,621	100.0%	719.7
<b>Disease Status(g)</b>												
(Missing)	208	5.8%	0	0.0	0.0%	0.0	0	0.0%	0.0	1	0.0%	0.3
HIV	2,828	79.1%	391	78.2	81.1%	21.7	89	81.7%	24.4	1,376	52.5%	377.8
AIDS	538	15.1%	91	18.2	18.9%	5.0	20	18.3%	5.5	1,244	47.5%	341.6
<b>Sex at Birth</b>												
Female	888	24.8%	99	19.8	20.5%	10.8	17	15.6%	9.2	676	25.8%	364.6
Male	2,686	75.2%	383	76.6	79.5%	43.3	92	84.4%	51.5	1,945	74.2%	1,087.9
<b>Race/Ethnicity</b>												
White	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
African American	3,574	100.0%	482	96.4	100.0%	26.7	109	100.0%	29.9	2,621	100.0%	719.7
Hispanic	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
American Indian	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Asian/Pacific Islander	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Multi-racial	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
<b>Age(h)</b>												
(Missing)	1	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	1	0.0%	-
<5	30	0.8%	1	0.2	0.2%	3.1	0	0.0%	0.0	0	0.0%	0.0
5-14	12	0.3%	1	0.2	0.2%	1.6	0	0.0%	0.0	28	1.1%	44.9
15-19	198	5.5%	40	8.0	8.3%	24.6	16	14.7%	50.9	19	0.7%	60.4
20-24	609	17.0%	143	28.6	29.7%	85.4	34	31.2%	99.3	139	5.3%	405.8
25-29	703	19.7%	90	18.0	18.7%	64.6	23	21.1%	77.9	289	11.0%	978.5
30-34	686	19.2%	53	10.6	11.0%	41.1	12	11.0%	46.5	252	9.6%	975.6
35-39	495	13.9%	30	6.0	6.2%	26.2	4	3.7%	17.0	237	9.0%	1,005.6
40-44	365	10.2%	35	7.0	7.3%	30.2	5	4.6%	22.1	247	9.4%	1,093.7
45-49	237	6.6%	33	6.6	6.8%	30.2	3	2.8%	13.8	364	13.9%	1,676.0
50-54	132	3.7%	29	5.8	6.0%	26.9	7	6.4%	33.0	422	16.1%	1,988.3
55-59	59	1.7%	15	3.0	3.1%	16.3	3	2.8%	15.5	338	12.9%	1,747.1
60+	47	1.3%	12	2.4	2.5%	6.3	2	1.8%	4.8	285	10.9%	686.2
<b>Risk exposure</b>												
MSM	1,470	41.1%	282	56.4	58.5%	-	66	60.6%	-	1,137	43.4%	-
IDU	603	16.9%	12	2.4	2.5%	-	1	0.9%	-	243	9.3%	-
MSM & IDU	176	4.9%	4	0.8	0.8%	-	0	0.0%	-	106	4.0%	-
Heterosexual	608	17.0%	62	12.4	12.9%	-	8	7.3%	-	483	18.4%	-
Other/Unknown	717	20.1%	122	24.4	25.3%	-	34	31.2%	-	652	24.9%	-

<b>Year of HIV Diagnosis</b>	<b>Cases</b>	<b>Rate(e)</b>
Before 2007	2,557	-
2007	99	30.1
2008	103	31.0
2009	109	32.6
2010	115	32.6
2011	100	28.1
2012	94	26.2
2013	99	27.4
2014	97	26.7
2015	92	25.3
2016	109	29.9

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
Hispanics, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015				2016			Cases	%	Rate(e)
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%	Rate(e)			
<b>Total cases(f)</b>	1,070	100.0%	193	38.6	100.0%	10.6	23	100.0%	6.0	892	100.0%	233.6
<b>Disease Status(g)</b>												
(Missing)	71	6.6%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
HIV	751	70.2%	132	26.4	68.4%	7.2	16	69.6%	4.2	405	45.4%	106.1
AIDS	248	23.2%	61	12.2	31.6%	3.3	7	30.4%	1.8	487	54.6%	127.5
<b>Sex at Birth</b>												
Female	227	21.2%	28	5.6	14.5%	3.2	3	13.0%	1.6	188	21.1%	102.2
Male	843	78.8%	165	33.0	85.5%	17.4	20	87.0%	10.1	704	78.9%	355.6
<b>Race/Ethnicity</b>												
White	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
African American	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Hispanic	1,070	100.0%	193	38.6	100.0%	10.6	23	100.0%	6.0	892	100.0%	233.6
American Indian	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Asian/Pacific Islander	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
Multi-racial	0	0.0%	0	0.0	0.0%	0.0	0	0.0%	0.0	0	0.0%	0.0
<b>Age(h)</b>												
<5	12	1.1%	1	0.2	0.5%	2.3	0	0.0%	0.0	1	0.1%	2.4
5-14	5	0.5%	1	0.2	0.5%	1.3	0	0.0%	0.0	2	0.2%	2.3
15-19	37	3.5%	5	1.0	2.6%	5.0	0	0.0%	0.0	2	0.2%	5.7
20-24	156	14.6%	38	7.6	19.7%	25.1	2	8.7%	6.3	29	3.3%	91.2
25-29	217	20.3%	30	6.0	15.5%	20.3	4	17.4%	13.9	67	7.5%	232.3
30-34	225	21.0%	40	8.0	20.7%	25.6	5	21.7%	16.0	81	9.1%	259.5
35-39	173	16.2%	24	4.8	12.4%	17.0	3	13.0%	10.0	118	13.2%	393.2
40-44	113	10.6%	13	2.6	6.7%	11.1	4	17.4%	15.7	131	14.7%	514.7
45-49	61	5.7%	16	3.2	8.3%	17.5	2	8.7%	10.0	116	13.0%	577.5
50-54	31	2.9%	11	2.2	5.7%	15.2	1	4.3%	6.4	145	16.3%	923.2
55-59	28	2.6%	10	2.0	5.2%	23.6	1	4.3%	8.1	97	10.9%	781.7
60+	12	1.1%	4	0.8	2.1%	6.7	1	4.3%	4.3	103	11.5%	441.8
<b>Risk exposure</b>												
MSM	421	39.3%	111	22.2	57.5%	-	14	60.9%	-	393	44.1%	-
IDU	215	20.1%	11	2.2	5.7%	-	0	0.0%	-	113	12.7%	-
MSM & IDU	45	4.2%	0	0.0	0.0%	-	1	4.3%	-	40	4.5%	-
Heterosexual	192	17.9%	22	4.4	11.4%	-	0	0.0%	-	163	18.3%	-
Other/Unknown	197	18.4%	49	9.8	25.4%	-	8	34.8%	-	183	20.5%	-

<b>Year of HIV Diagnosis</b>	<b>Cases</b>	<b>Rate(e)</b>
Before 2007	712	-
2007	44	15.9
2008	33	11.5
2009	37	12.4
2010	28	8.3
2011	41	11.8
2012	35	9.8
2013	41	11.2
2014	44	11.8
2015	32	8.4
2016	23	6.0

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
American Indians, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015			2016			Cases	%	Rate(e)	
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%				Rate(e)
<b>Total cases(f)</b>	71	100.0%	10	2.0	100.0%	5.0	1	100.0%	2.0	40	100.0%	78.8
<b>Disease Status(g)</b>												
(Missing)	5	7.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
HIV	50	70.4%	7	1.4	70.0%	3.5	-	-	-	19	47.5%	37.4
AIDS	16	22.5%	3	0.6	30.0%	2.0	-	-	-	21	52.5%	41.4
<b>Sex at Birth</b>												
Female	23	32.4%	3	0.6	30.0%	4.0	-	-	-	11	27.5%	43.4
Male	48	67.6%	7	1.4	70.0%	7.0	-	-	-	29	72.5%	114.2
<b>Race/Ethnicity</b>												
White	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
African American	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
Hispanic	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
American Indian	71	100.0%	10	2.0	100.0%	5.0	-	-	-	40	100.0%	78.8
Asian/Pacific Islander	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
Multi-racial	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
<b>Age(h)</b>												
<5	2	2.8%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
5-14	1	1.4%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
15-19	2	2.8%	1	0.2	10.0%	23.6	-	-	-	1	2.5%	26.8
20-24	10	14.1%	0	0.0	0.0%	0.0	-	-	-	1	2.5%	23.9
25-29	20	28.2%	4	0.8	40.0%	33.9	-	-	-	2	5.0%	49.5
30-34	15	21.1%	1	0.2	10.0%	28.8	-	-	-	4	10.0%	115.3
35-39	10	14.1%	0	0.0	0.0%	0.0	-	-	-	3	7.5%	92.3
40-44	5	7.0%	1	0.2	10.0%	31.0	-	-	-	5	12.5%	157.4
45-49	1	1.4%	0	0.0	0.0%	0.0	-	-	-	7	17.5%	205.9
50-54	2	2.8%	1	0.2	10.0%	28.7	-	-	-	7	17.5%	194.9
55-59	2	2.8%	1	0.2	10.0%	30.7	-	-	-	5	12.5%	153.4
60+	1	1.4%	1	0.2	10.0%	16.1	-	-	-	5	12.5%	71.7
<b>Risk exposure</b>												
MSM	25	35.2%	6	1.2	60.0%	-	-	-	-	14	35.0%	-
IDU	15	21.1%	1	0.2	10.0%	-	-	-	-	9	22.5%	-
MSM & IDU	7	9.9%	0	0.0	0.0%	-	-	-	-	4	10.0%	-
Heterosexual	14	19.7%	0	0.0	0.0%	-	-	-	-	9	22.5%	-
Other/Unknown	10	14.1%	3	0.6	30.0%	-	-	-	-	4	10.0%	-

Year of HIV Diagnosis	Cases	Rate(e)
Before 2007	57	-
2007	1	2.1
2008	1	2.0
2009	0	0.0
2010	1	2.1
2011	2	4.1
2012	0	0.0
2013	2	4.0
2014	2	4.0
2015	4	7.9
2016	1	2.0

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.

**Reported Cases of HIV Infection  
Asian/Pacific Islanders, Wisconsin, 1982-2016**

	New Diagnoses by Year of Diagnosis(a)									Prevalence(c)		
	1982-2016(b)		2011-2015			2016			Cases	%	Rate(e)	
	Cases	%	Cases	Avg(d)	%	Rate(e)	Cases	%				Rate(e)
<b>Total cases(f)</b>	109	100.0%	26	5.2	100.0%	3.5	4	100.0%	2.5	93	100.0%	58.6
<b>Disease Status(g)</b>												
(Missing)	5	4.6%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
HIV	79	72.5%	18	3.6	69.2%	2.4	-	-	-	58	62.4%	36.6
AIDS	25	22.9%	8	1.6	30.8%	1.3	-	-	-	35	37.6%	22.1
<b>Sex at Birth</b>												
Female	25	22.9%	3	0.6	11.5%	2.1	-	-	-	28	30.1%	34.2
Male	84	77.1%	23	4.6	88.5%	6.4	-	-	-	65	69.9%	84.5
<b>Race/Ethnicity</b>												
White	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
African American	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
Hispanic	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
American Indian	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
Asian/Pacific Islander	109	100.0%	26	5.2	100.0%	3.5	-	-	-	93	100.0%	58.6
Multi-racial	0	0.0%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
<b>Age(h)</b>												
<5	2	1.8%	0	0.0	0.0%	0.0	-	-	-	0	0.0%	0.0
5-14	0	0.0%	0	0.0	0.0%	0.0	-	-	-	1	1.1%	3.9
15-19	1	0.9%	1	0.2	3.8%	7.9	-	-	-	0	0.0%	0.0
20-24	19	17.4%	6	1.2	23.1%	8.9	-	-	-	3	3.2%	16.7
25-29	22	20.2%	4	0.8	15.4%	8.4	-	-	-	8	8.6%	47.2
30-34	23	21.1%	6	1.2	23.1%	14.6	-	-	-	12	12.9%	75.5
35-39	16	14.7%	1	0.2	3.8%	8.6	-	-	-	14	15.1%	116.1
40-44	8	7.3%	2	0.4	7.7%	10.1	-	-	-	14	15.1%	136.5
45-49	7	6.4%	3	0.6	11.5%	12.7	-	-	-	14	15.1%	165.6
50-54	5	4.6%	1	0.2	3.8%	15.9	-	-	-	11	11.8%	154.1
55-59	4	3.7%	1	0.2	3.8%	18.2	-	-	-	8	8.6%	145.3
60+	2	1.8%	1	0.2	3.8%	8.7	-	-	-	8	8.6%	60.3
<b>Risk exposure</b>												
MSM	50	45.9%	18	3.6	69.2%	-	-	-	-	38	40.9%	-
IDU	1	0.9%	0	0.0	0.0%	-	-	-	-	3	3.2%	-
MSM & IDU	2	1.8%	1	0.2	3.8%	-	-	-	-	2	2.2%	-
Heterosexual	21	19.3%	0	0.0	0.0%	-	-	-	-	17	18.3%	-
Other/Unknown	35	32.1%	7	1.4	26.9%	-	-	-	-	33	35.5%	-

<b>Year of HIV Diagnosis</b>	<b>Cases</b>	<b>Rate(e)</b>
Before 2007	51	-
2007	7	6.1
2008	6	5.0
2009	9	7.4
2010	6	4.5
2011	6	4.4
2012	2	1.4
2013	6	4.1
2014	5	3.3
2015	7	4.4
2016	4	2.5

a. New diagnoses include only individuals whose initial HIV diagnosis was made in Wisconsin.  
b. The first cases of HIV infection in Wisconsin were diagnosed in 1982. Thus, these represent cumulative cases from 1982 through the specified date.  
c. Prevalent cases include all cases presumed to be alive and living in Wisconsin, regardless of the state of initial HIV report.  
d. The average annual cases in the specified period.  
e. Cases per 100,000 population. Rates not available for risk exposure groups.  
f. Breakdown not shown if total is < 5. See Technical Notes for suppression rule for race/ethnicity breakdown.  
g. Disease status when first diagnosed with HIV infection, except for prevalent cases, where it is the current disease status.  
h. Age when first diagnosed with HIV infection, except for prevalent cases, where it is the current age.



## TECHNICAL NOTES

### New in 2016

- **Change in risk language:** To be consistent with the transmission categories reported by the Centers for Disease Control and Prevention and use person-first language, the names of the transmission categories have changed. Men who have sex with men (MSM) is changed to male-male sexual contact, high-risk heterosexual is now heterosexual contact, and persons who injected drugs (PWID) is now injection drug use. In addition, risk among transgender individuals is reported as sexual contact or injection drug use. These changes are reflected in the report text but have not yet been made to the detailed tables.
- **Additional source of transgender gender identity:** Transgender gender identity may be underreported and gender identity can change over time. Therefore, for this report, gender identity from the AIDS Drug Assistance Program data were also used to calculate a person's current gender identity in order to capture additional people who may identify as transgender. These data will routinely be imported into the surveillance database in future years.
- **Inclusion of acute and recent HIV:** A recent upgrade to the HIV surveillance database allows individuals who meet the acute HIV testing algorithm (positive antigen/antibody screening test, negative antibody confirmatory test, and positive RNA test) to be more easily identified. Individuals were also identified as possibly recently acquiring based on a first viral load of  $\geq 500,000$  copies/mL. Finally, individuals who have a documented negative HIV test within the six months prior to their positive test are counted as recently acquiring HIV. Some individuals may be misclassified if their viral load is high due to living with HIV for a long time or if they misreported their last negative test. Likewise, individuals who recently acquired HIV may have been missed due to a first viral load  $< 500,000$  copies/mL.
- **Updated prevalence estimate:** Due to a data clean-up effort during 2016, a large number of individuals were identified as deceased or no longer living in Wisconsin; therefore prevalence increased less than one might have expected.
- **Inclusion of HIV-STI Co-infection:** Starting with 2016, sexually transmitted infections (STI) diagnosed during the analysis year among people living with HIV will be included in the annual report. Confirmed diagnoses of chlamydia, gonorrhea, and syphilis (including early latent, primary, secondary, and late) were extracted from the Wisconsin Electronic Disease Surveillance System (WEDSS) if they had an episode date during the year of analysis. These infections were matched with all individuals in eHARS based on an algorithm developed by the CDC to match HIV and hepatitis C infections. Co-infections were defined as an STI diagnosis within a month prior or any time after HIV diagnosis.

This report is compiled by the Wisconsin AIDS/HIV Program and is based primarily on HIV surveillance data collected by the Wisconsin DPH. In Wisconsin, state statutes require health care providers and laboratories to report people known or suspected to have HIV to DPH. Data in this report are compiled from report forms completed by health care providers. Risk information is self-reported by patients. Data reported here are based on the information available on the date the data were frozen for analysis. Therefore, all data are provisional and subject to change as additional information becomes available.

Completeness of reporting for HIV in Wisconsin is estimated to be over 99% but may vary by geographic region, transmission category, and demographic group. Thus, at any time, reports of



HIV represent only part of the total number of people diagnosed with HIV. Because some people are living with *undiagnosed* HIV, reported HIV underestimates total HIV morbidity.

### **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 first state of verifiable, name-based, HIV report. Also included are individuals who report being first diagnosed with HIV in another country, but for whom evidence is lacking to support a foreign residence at diagnosis. These practices conform to CDC's guidelines for residency assignment.

### **Prevalence**

People living with HIV are included in the prevalence calculation for a given year if they meet all of 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 (i.e., no documentation of death has been received and the person did not match any records in local or national death data).
- The last known address available for the person is a Wisconsin address.

Because of delays in reporting deaths, 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.

### **HIV stage at diagnosis**

In this report, HIV refers to all persons with laboratory-confirmed HIV. This includes both HIV and Stage 3 HIV (AIDS). People classified with Stage 3 HIV include only those that meet the CDC's Stage 3 HIV surveillance definition.

### **Age**

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

### **Sex and gender**

Sex designations in this report are based on a person's sex at birth, unless otherwise specified.

Gender is calculated based on information in both eHARS and the AIDS Drug Assistance Program (ADAP) that is administered by the Division of Public Health. Individuals are counted as transgender for this report if they identified as transgender on an HIV report, laboratory document or ADAP application, or if there is a mismatch in birth sex and the sex or gender reported on any of the previously mentioned documents. In 2017, transgender gender identity was not further verified; therefore, some individuals may be mistakenly counted as transgender in this report if sex or gender was incorrectly reported on any document or if data entry errors occurred.



## 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. Because much of the report describes transmission category by birth sex, this category also includes transgender females who report sex with males.
- Heterosexual contact includes persons who have ever had heterosexual contact with a person known to have, or to be at high risk for, HIV (e.g., someone who injects drugs). The heterosexual 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. This transmission category is used in the section of the report describing transgender people diagnosed with HIV in Wisconsin.

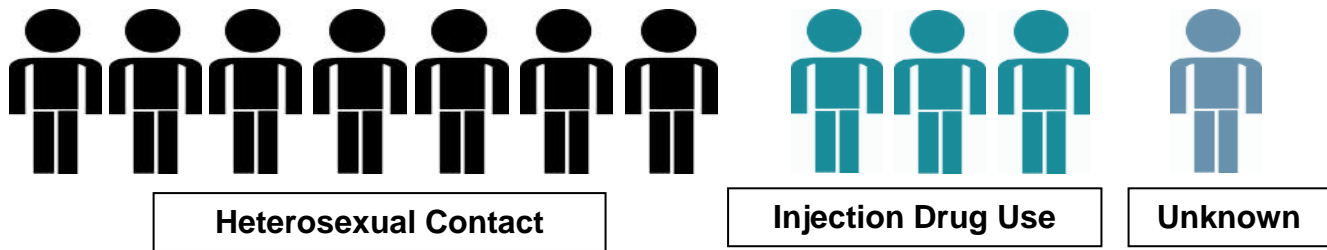
## Imputed transmission category

Because some people diagnosed with HIV are reported in Wisconsin with unknown transmission category, multiple imputation is used to assign possible transmission categories. 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.

### *Example*

Assume there were 11 Black women ages 45-64 diagnosed with HIV, and seven of them had diagnoses attributed to heterosexual contact (70%), three of them had diagnoses attributed to injection drug use (30%), and one had unknown transmission category (see figure below). The 10 known transmission categories will be applied to the one person with unknown transmission category. In this case the person with unknown transmission category would be assigned 70% heterosexual contact and 30% injection drug use.





It is important to note that counts by imputed transmission category are estimates, not actual counts. Imputed transmission categories are subject to change as more information becomes available. This method conforms to CDC's method of addressing people with unknown transmission category.

### Estimated Prevalence of HIV by Demographic Group

The estimated HIV prevalence is dependent upon the most recent estimate of the proportion of individuals unaware of their HIV, the age group of interest, the estimate of the number of men who have sexual contact with other men, and HIV prevalence. Since several of these measures change over time (e.g., estimated proportion unaware, HIV prevalence), estimates may not be comparable from year to year. The calculation consists of:

- Number of people living with HIV in Wisconsin at year end, using imputed estimates for transmission categories.
- Estimated number unaware, calculated as the number living with HIV/proportion unaware, using the more recent national estimate.
- Actual population size from the Wisconsin Interactive Statistics on Health (WISH, <https://www.dhs.wisconsin.gov/wish/index.htm>) or estimated population size by transmission category using available estimates.

The estimated prevalence for each demographic group is calculated as:

$$\frac{\text{Number of cases living with HIV} + \text{estimated number unaware}}{\text{Population size}}$$

### Rates

- In this report, rates are defined as number of people per 100,000 population, except where noted. 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 use different data sources.

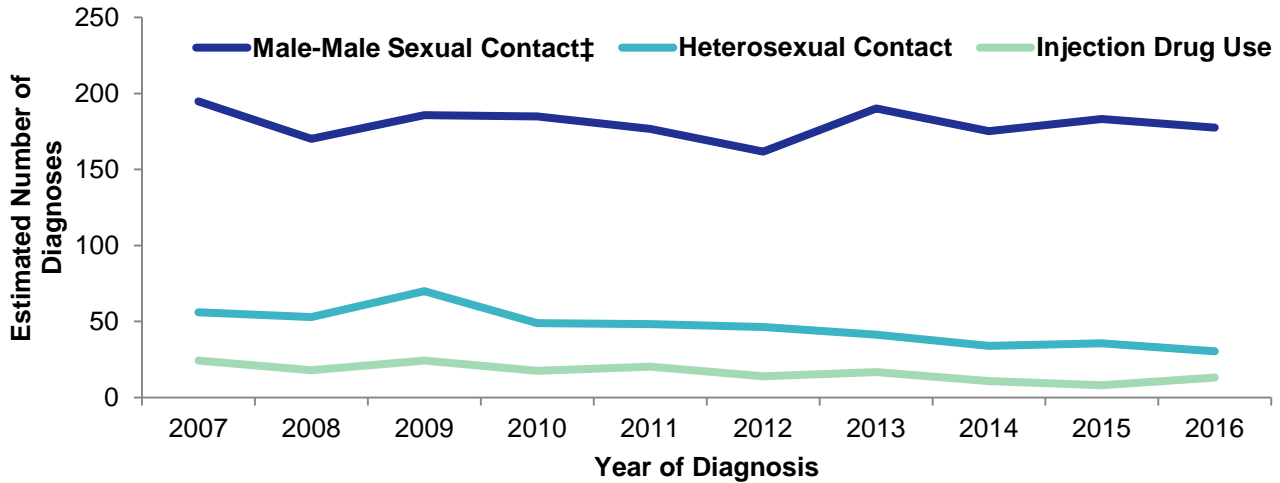
### Statistical significance

Statements about statistical significance are sometimes made when looking at a change over time or when comparing groups. Tests of statistical significance allow us to determine whether the observed change over time or difference between groups is most likely due to random fluctuation or whether it is likely to be a real difference. In this report, linear regression was used to assess trends over time and chi-squared analysis was used to assess differences between groups.



*Example*

Looking at the figure below, it is difficult to tell whether the overall number of diagnoses for each transmission category changed over the last decade; therefore, a statistical test is used to help distinguish true trends from annual fluctuation. In this case, statistical tests (not shown) indicate that the number of diagnoses was stable among people with diagnoses attributed to male-male sexual contact, and declined for those with diagnoses attributed to heterosexual contact or injection drug use.



In this report, statements are made about trends only if the trends are statistically significant. Non-significant trends are described as stable or fluctuating. When comparing groups, differences are statistically significant if confidence intervals do not overlap. However, if confidence intervals do overlap, we cannot say whether or not the two groups are statistically different without doing additional statistical tests.

**Residency**

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

**Death Data**

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.

For further information, contact: Wisconsin AIDS/HIV Program  
 Room 265  
 1 West Wilson Street, Madison, WI 53703  
 Telephone: 608-267-5287

