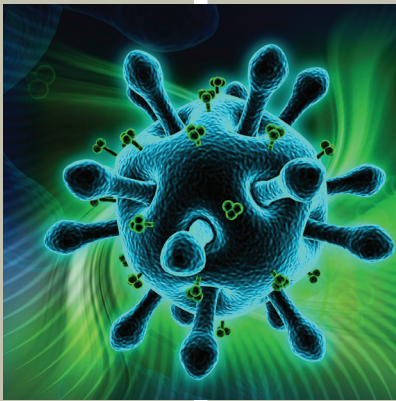




City of Milwaukee Health Department



Sexually Transmitted
Disease (STD) and
Human Immunodeficiency
Disease (HIV)

Reported in the City of Milwaukee

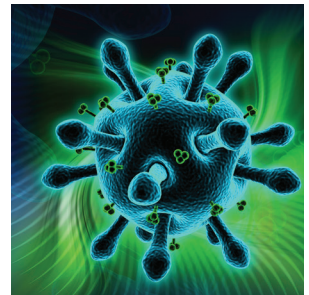
2016

Sexually Transmitted Disease (STD) and Human Immunodeficiency Disease (HIV) Reported in the City of Milwaukee – 2016

Introduction

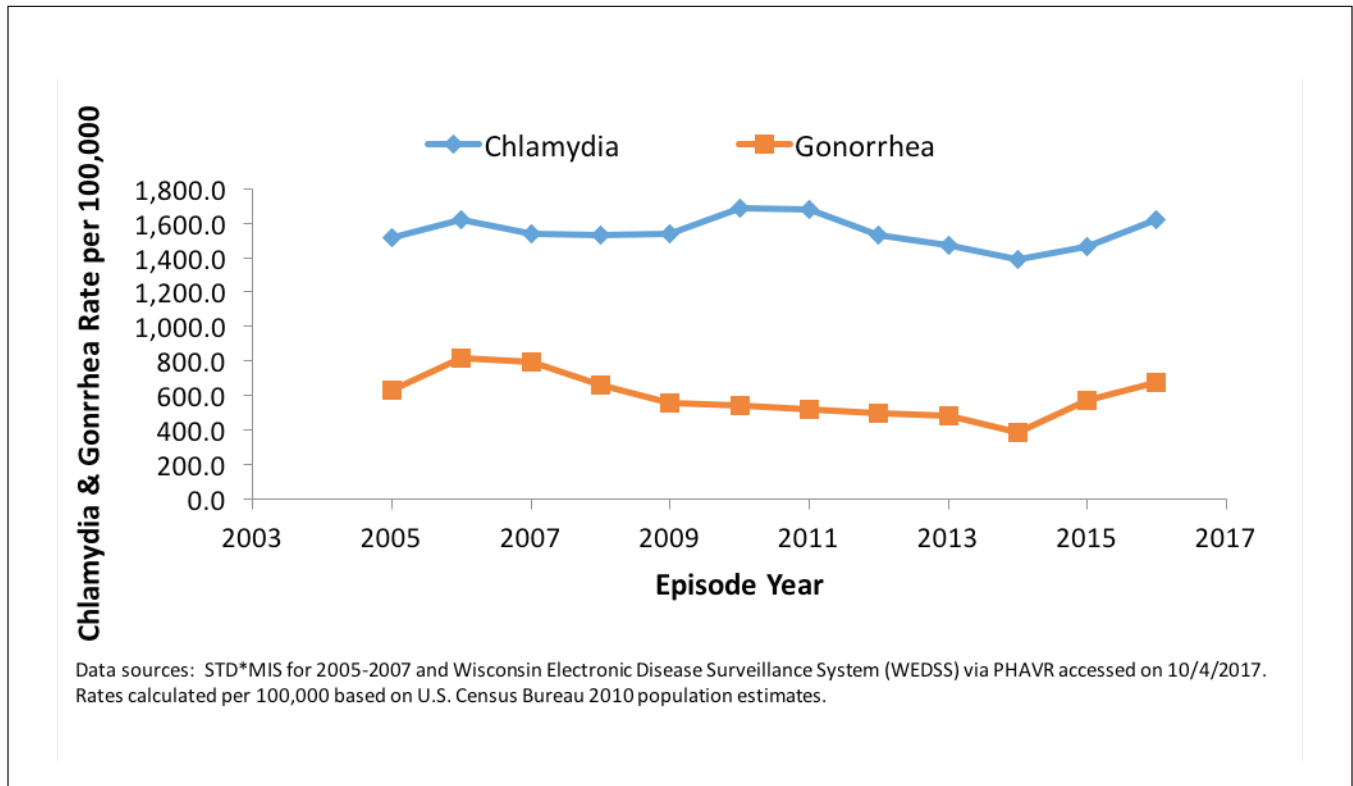
Sexually transmitted diseases (STDs) are infectious diseases that spread mainly through sexual contact (anal, vaginal, or oral sex) with an infected partner. STDs can also be transmitted from an infected mother to her child during pregnancy or childbirth. This report focuses on select STDs that are reportable in the state of Wisconsin, including chlamydia, gonorrhea, and syphilis, as well as human immunodeficiency virus (HIV) infection.

It is important to keep in mind that trends in reported cases of any infectious disease, including STDs and HIV, are only reflective of those diseases that are diagnosed and reported to the state of Wisconsin. In addition, these trends may reflect a true change in the incidence of infection, but they could also be related to changes in diagnostic, screening, and reporting practices. In 2016, the city of Milwaukee and the U.S. experienced increasing rates of chlamydia, gonorrhea, and syphilis. Youth aged 15-24 and men who have sex with men (MSM) are the groups most impacted and vulnerable, even though anyone can be impacted by STDs.¹ The spread of STDs is affected not only by individual behaviors, but also by biological, social, and economic factors. The complex interactions among these factors explain why STDs are more or less common in certain groups (Appendix A).



Findings

Figure 1: Chlamydia and Gonorrhea Rates per 100,000 in the City of Milwaukee, 2005-2016



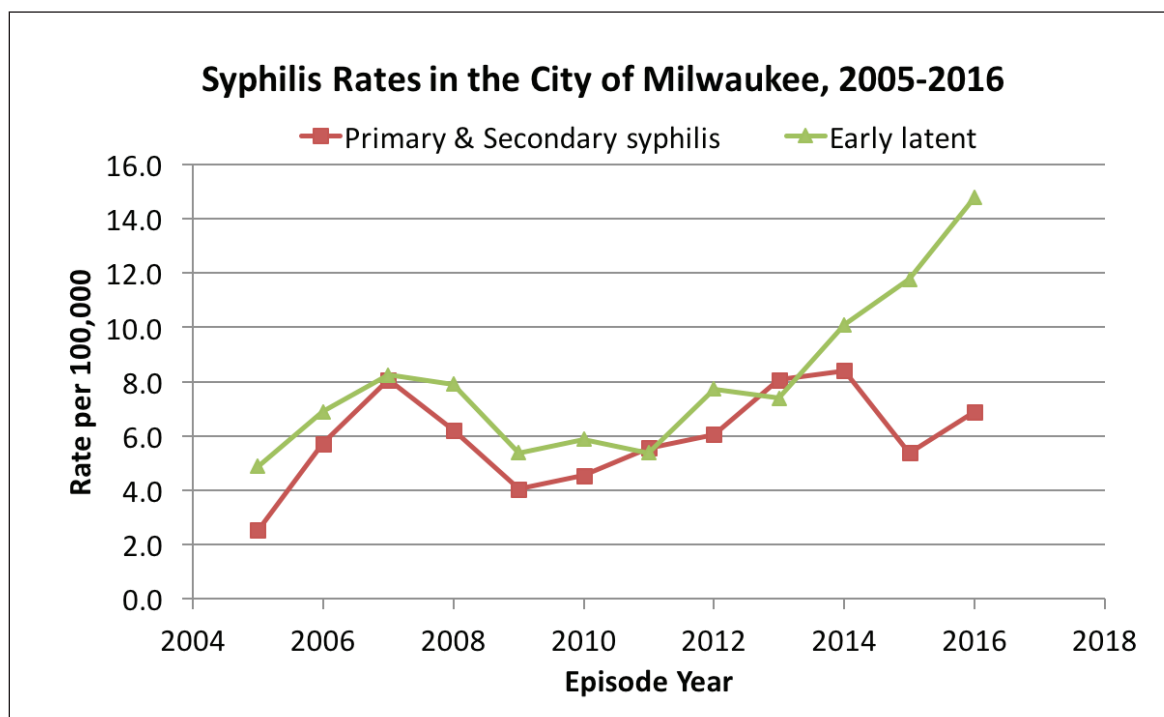
Chlamydia summary:

- In 2016, 9,627 confirmed cases of chlamydia (1,617.8 cases per 100,000) were reported in the City of Milwaukee.
- This is an increase from 8,683 cases reported in 2015, and a 7.5% increase compared to the 2011-2015 five-year average of 8,953 chlamydia cases per year.
- Similar to national and state trends, chlamydia incidence in the City of Milwaukee is highest in females, adolescents and young adults, and racial/ethnic minorities.^{1,2}
- In 2016, Chlamydia rates are 5.5 times higher among City of Milwaukee residents who identify as Black or African American than those who identify as white.

Gonorrhea summary:

- In 2016, 4,039 confirmed cases of gonorrhea (679.0 cases per 100,000) were reported in the City of Milwaukee.
- This is an increase from 3,400 cases reported in 2015, and 37.8% more than the 2011-2015 five-year average of 2,930 cases per year.
- In the City of Milwaukee, gonorrhea incidence has decreased over time among women but increased in men, similar to the U.S. trend.¹ While women previously experienced higher rates of gonorrhea, in 2016 the gonorrhea rate was slightly higher in men (700.8 cases per 100,000 in men, versus 658.0 cases per 100,000 in women).

Figure 2. Primary and Secondary Syphilis Rates per 100,000 in the City of Milwaukee, 2005-2016



Primary and secondary syphilis summary:

- Primary and secondary (P&S) syphilis are the earliest stages of syphilis infection. Public health analyses usually focus on the primary and secondary stages of syphilis because they are when an individual is symptomatic and most infectious to others.¹
- In 2016, 41 confirmed P&S syphilis cases (6.9 cases per 100,000) were reported in the City of Milwaukee.
- This is more than the 32 cases of P&S syphilis reported in 2015, and represents a 2.5% increase compared to the 2011-2015 five-year average of 40 cases per year.
- Similar to national and state trends, most P&S syphilis cases in the City of Milwaukee are in men. Also, the age distribution of reported P&S syphilis cases is slightly older than those of reported chlamydia and gonorrhea cases.¹

Table 1. Comparison of 2016 STD and HIV Rates in the City of Milwaukee, Milwaukee County, Wisconsin, and the United States

	City of Milwaukee		Milwaukee County		Wisconsin		U.S.	
Infection	Cases	Rate**	Cases	Rate**	Cases	Rate**	Cases	Rate**
Chlamydia	9,672	1,617.8	10,766	1,129.0	26,432	470.0	1,598,354	497.3
Gonorrhea	4,039	679.0	4,323	453.0	6,467	115.0	468,514	145.8
P & S Syphilis	41	6.9	46	4.9	132	2.3	27,814	8.7
HIV	104	17.3	115	12.0	221	3.8	39,513*	12.3

* 2015 numbers were used from latest surveillance report: CDC Diagnoses of HIV Infection in the United States and Dependent Areas, 2015.

** All rates in Table 1 are defined as number of cases per 100,000 population. Please note that different data sources may have used different population data for the denominator of the rate.

Data sources: Wisconsin PHAVR, accessed 10/4/2017; Wisconsin Department of Health Services (WI DHS), Sexually Transmitted Disease in Wisconsin 2016: Milwaukee County; WI DHS, Sexually Transmitted Disease in Wisconsin 2016: Reported Cases; WI DHS HIV/AIDS Surveillance Annual Review, 2016: Addendum: City of Milwaukee; Centers for Disease Control and Prevention (CDC) 2016 Sexually Transmitted Diseases Surveillance; 2010 U.S. Census

- In 2016, the City of Milwaukee accounted for 36.4%, 62.5%, and 31.1% of the chlamydia, gonorrhea, and P&S syphilis cases (respectively) in Wisconsin.
- The City of Milwaukee made up the majority of 2016 chlamydia, gonorrhea, and P&S syphilis cases reported in Milwaukee County (89.4%, 93.4%, and 89.1%, respectively).
- Most of Milwaukee County's new HIV diagnoses in 2016 were among City of Milwaukee residents (90.4%). About 47.1% of 2016 HIV diagnoses in the state of Wisconsin were from the City of Milwaukee.

Table 2. Demographic Information for STD Cases Reported in the City of Milwaukee, 2016

	Chlamydia			Gonorrhea			P&S Syphilis		
	Cases	%	Rate*	Cases	%	Rate*	Cases	%	Rate*
Total	9,627	100.0%	1,618.4	4,039	100.0%	679.0	41	100.0%	6.9
Sex									
Female	6,501	67.5%	2,111.5	2,026	50.2%	394.5	**	**	**
Male	3,111	32.3%	1,084.2	2,011	49.8%	386.5	40	97.6%	184.8
Transgender	**	**	**	0	0.0%		0	0.0%	-
Unknown/Undifferentiated	14	0.1%	-	2	0.0%	-	0	0.0%	-
Race									
American Indian/Alaska Native	24	0.2%	511.2	8	0.2%	170.4	0	0.0%	-
Asian	64	0.7%	306.9	18	0.4%	86.3	0	0.0%	-
Black or African American	4,880	50.7%	2,052.4	2,348	58.1%	987.5	25	61.0%	10.5
Multiple Races	18	0.2%	88.7	6	0.1%	29.6	0	0.0%	-
Other	357	3.7%	795.3	79	2.0%	176.0	0	0.0%	-
White	994	10.3%	373.2	304	7.5%	114.1	11	26.8%	4.1
Unknown	3,290	34.2%	-	1,276	31.6%	-	5	12.2%	-
Hispanic Ethnicity									
Hispanic	386	4.0%	374.7	126	3.1%	122.3	5	12.2%	4.9
Not Hispanic	2,808	29.2%	570.9	1,420	35.2%	288.7	31	75.6%	6.3
Unknown	6,433	66.8%	-	2,493	61.7%	-	5	12.2%	-
Age									
0-14 years	136	1.4%	100.8	66	1.6%	48.9	0	0.0%	-
15-19 years	2,992	31.1%	6,013.2	1,100	27.2%	2,210.7	**	**	**
20-24 years	3,422	35.5%	5,892.1	1,234	30.6%	2,124.7	8	19.5%	13.8
25-29 years	1,728	17.9%	3,322.1	768	19.0%	1,476.5	15	36.6%	28.8
30-34 years	714	7.4%	1,606.1	363	9.0%	816.6	**	**	**
35-44 years	457	4.7%	616.2	315	7.8%	424.7	6	14.6%	8.1
45+ years	177	1.8%	97.6	193	4.8%	106.4	7	17.1%	3.9
Unknown	1	0.0%	-	0	0.0%	-	0	0.0%	-

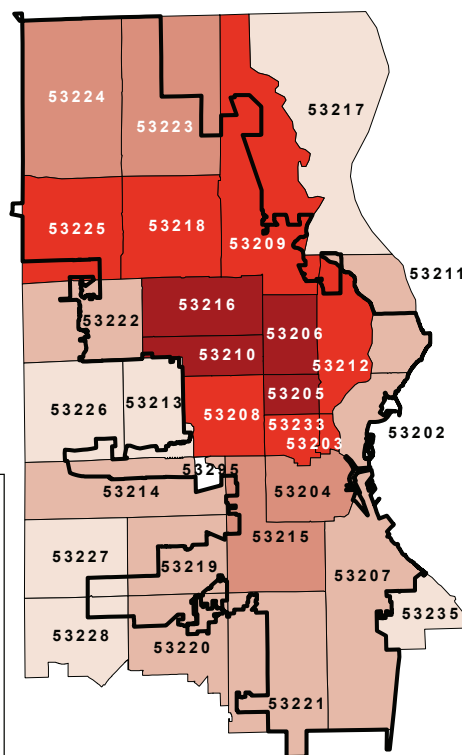
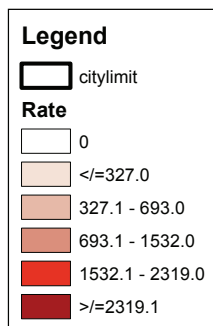
* All rates in Table 2 are defined as number of cases per 100,000 population, based on the 2010 U.S. Census.

**Data are suppressed when between one and five (but not zero) cases were reported, except for unknown cases. If only one category in a column was suppressed, the category with the next smallest number of cases was also suppressed to prevent using subtraction to calculate the missing figure.

Data sources: WI PHAVR, accessed 10/4/2017; 2010 U.S. Census

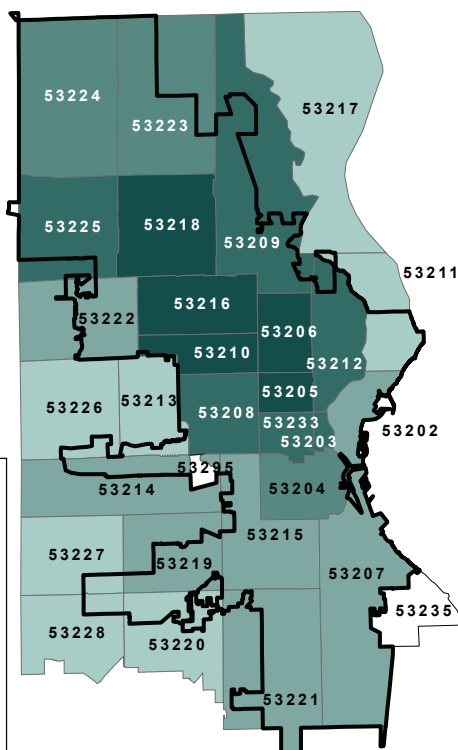
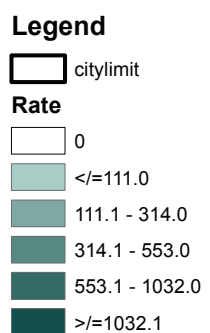
Figure 3.

Chlamydia Rates per 100,000 by ZIP Code in Milwaukee County, 2016



Data sources: WI STD Program, STD Surveillance Report, Milwaukee County, 2016; population data - 2010 U.S. Census. Note that data are provisional and subject to change.

0 1.25 2.5 5 Miles



Data sources: WI STD Program, STD Surveillance Report, Milwaukee County, 2016; population data - 2010 U.S. Census. Note that data are provisional and subject to change.

0 1.25 2.5 5 Miles

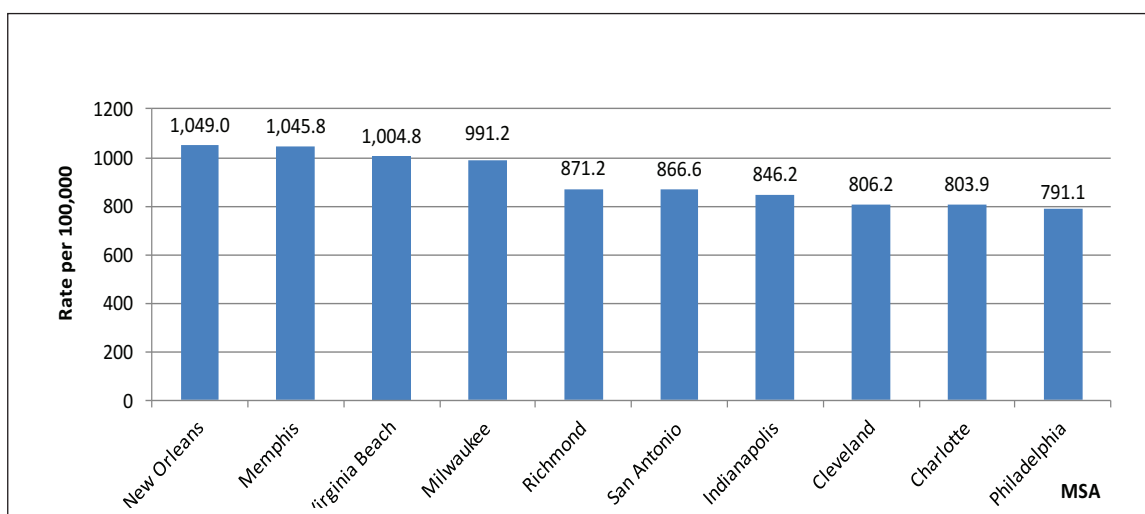
Figure 4.

Gonorrhea Rates per 100,000 by ZIP Code in Milwaukee County, 2016

Comparison of STD rates by Metropolitan Statistical Area (MSA):

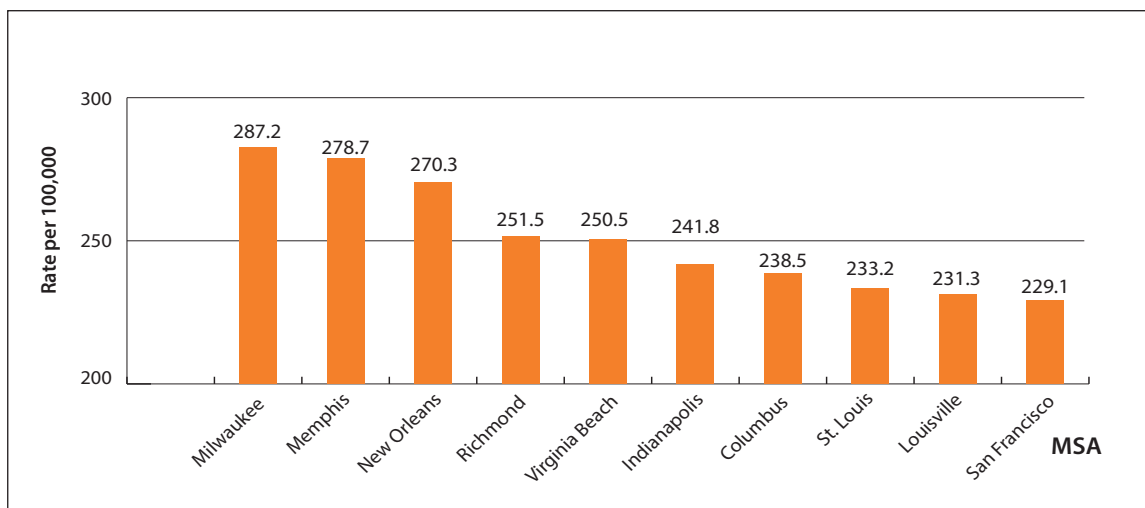
- MSAs are geographic units defined by the White House Office of Management and Budget for statistical purposes.³ Each MSA consists of a core urban area and any adjacent counties that are socially and economically integrated with the urban core.³
- The Milwaukee-Waukesha-West Allis MSA ("Milwaukee MSA") is made up of Milwaukee, Ozaukee, Washington, and Waukesha Counties.⁴
- The Milwaukee MSA has ranked 2nd or 3rd for chlamydia rates since 2004 and has ranked 4th for the past 3 years including 2016. For gonorrhea rates, the Milwaukee MSA has ranked 2nd or 3rd for gonorrhea rates since 2005 and ranked 1st for 2015 & 2016.^{1,5}
- In contrast, the Milwaukee MSA has consistently low P&S syphilis rates compared to other large MSAs in the U.S. (in 2016, it ranked 49th out of the 50 largest MSAs).^{1,5}

Figure 5. Ten MSAs with the Highest Incidence of Reported Chlamydia Cases, 2016



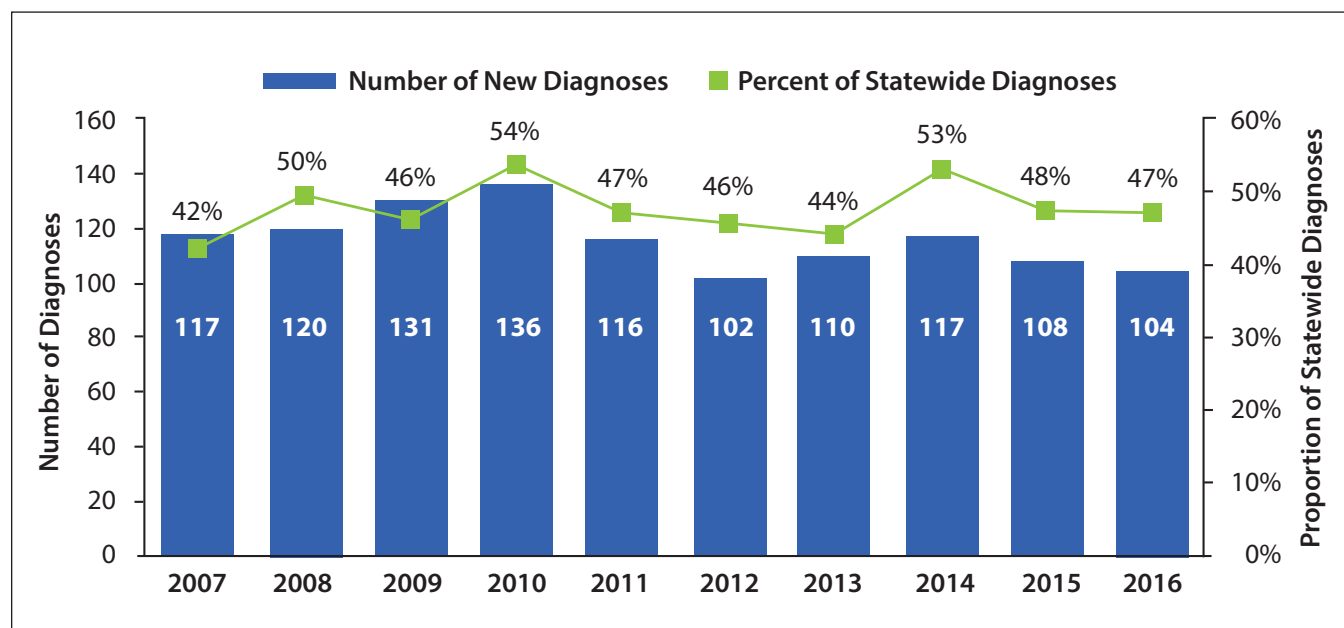
Data source: CDC STD Surveillance 2016

Figure 6. Ten MSAs with the Highest Incidence of Reported Gonorrhea Cases, 2016



Data source: CDC STD Surveillance 2016

Figure 7. Number of New HIV Diagnoses in the City of Milwaukee and Percentage of Wisconsin Diagnoses, 2007-2016



- As shown in Figure 7, the number of new HIV diagnoses in the City of Milwaukee remained stable in 2016 when compared to 2014 & 2015.

Figure 8. Percentage of 2016 HIV Diagnoses in Each Risk Category, Milwaukee County

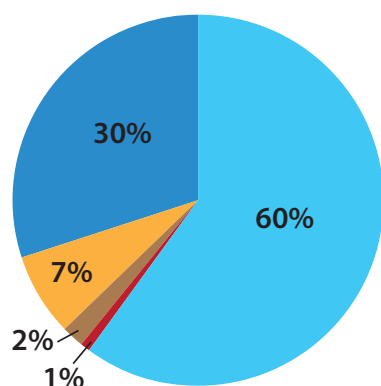
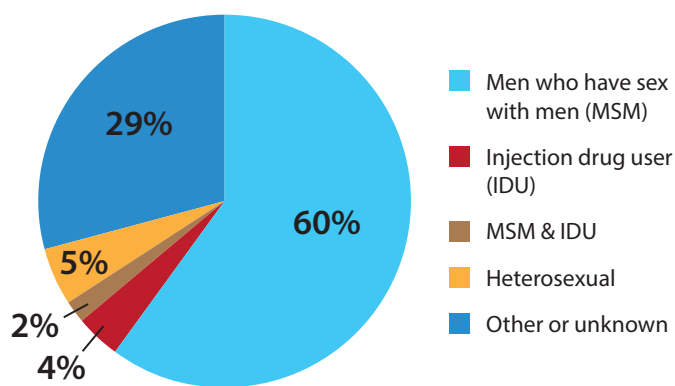


Figure 9. Percentage of 2016 HIV Diagnoses in Each Risk Category, Wisconsin



Data source: WI DHS Interactive Map and Table of County HIV Case Surveillance Data, accessed October 30, 2017.

- Figures 8 and 9 show that the percentages of new HIV diagnoses in each risk category were similar in Milwaukee County and the state of Wisconsin, with the highest percentage of new cases in men who have sex with men (MSM), followed by injection drug users (IDU), individuals who are classified as both MSM and IDU, people that identify as heterosexual, and individuals in an other or unknown risk category.

Table 3. Comparison of Reported Cases of HIV Infection in Milwaukee County and Wisconsin, 2016

	Milwaukee County		Wisconsin	
	Cases	Rate*	Cases	Rate*
Total cases	115	12.0	221	3.8
Sex at birth				
Female	19	3.8	32	1.1
Male	96	20.7	189	6.6
Race/ethnicity				
White	15	3.0	77	1.6
African American	80	32.0	109	29.9
Hispanic	14	10.1	23	6.0
American Indian	-	-	1	2.0
Asian/Pacific Islander	-	-	4	2.5
Multiple races	-	-	7	7.7
Unknown	-	-	0	-
Age group				
<5 years	0	0.0	0	0.0
5-14 years	0	0.0	0	0.0
15-19 years	10	15.9	18	4.7
20-24 years	33	47.5	48	11.8
25-29 years	22	26.6	38	10.7
30-34 years	15	20.3	27	7.3
35-39 years	8	12.6	15	4.3
40-44 years	8	14.0	18	5.3
45-49 years	3	5.2	17	4.6
50-54 years	5	8.3	12	2.8
55-59 years	8	13.0	17	4.0
60+ years	3	1.7	11	0.9

* All rates in Table 3 are defined as number of cases per 100,000 population.

Data source: WI DHS Interactive Map and Table of County HIV Case Surveillance Data, accessed October 30, 2017. Data were not suppressed in this table, since the data suppression rule applied by WI DHS (the data source) was not showing demographic and risk exposure breakdowns if the total cases were fewer than 5.

Appendix A

Differential Impact of STDs in Certain Populations and Communities

Anyone who is sexually active can acquire a STD. However, due to various biological, behavioral, social, and economic factors, STD rates tend to be higher in certain populations.^{6,7}

Young people:

- STD risk is particularly high among adolescent females because of their unique cervical biology.¹
- Due to lack of health insurance, inability to pay for services, and/or lack of transportation, some youth may be less able to access STD services.^{1,6}
- Young people are more likely to engage in risky sexual behaviors, such as unprotected sex, having multiple partners, and having sex while under the influence of drugs or alcohol.⁶
- Adolescents and young adults may be worried about confidentiality or uncomfortable with STD facilities and services targeted to adults, which could discourage them from seeking care.^{1,6}

Women:

- Women are more susceptible to STD infection and the health complications of an untreated infection due to their unique anatomy. At the same time, women are less likely than men to experience or notice symptoms of an STD.⁶⁻⁸

Racial/ethnic minorities:

- Various socioeconomic factors are associated with race/ethnicity in the U.S. These factors drive the higher rates of STDs observed in some minority racial/ethnic populations compared to Whites.^{1,6,7}
- People of color are more likely to experience poverty, which could increase risk for STDs by limiting access to high quality health services.^{1,6,7}
- Historical experiences of segregation and discrimination contribute to fear and distrust of health care institutions and providers, which could deter seeking sexual health services.^{1,6,7}
- Sexual networks, defined as groups of people linked by their past or current sexual partners, can explain why some individuals are at increased risk for STD infection. Even if a person has only one sex partner, their STD risk is higher if their partner is a member of a sexual network with increased STD prevalence.^{1,6,7}

Appendix B

City of Milwaukee Population Demographics - 2010 U.S. Census

Trends over time:

- Similar to several other American cities, the City of Milwaukee's population has decreased in recent decades.⁹
- Possible reasons for this decline include people moving to the suburbs following expansion of highways in the mid-20th century, growth in attractive housing options outside the city, decreased family size, and decline in manufacturing jobs in the city.⁹
- Between 2000 and 2010, the City of Milwaukee's population decreased slightly (populations in those years were 596,974 and 594,833, respectively). In 2010, the City of Milwaukee ranked 28th among most populous places in the U.S.¹⁰

Gender:

- In 2010, slightly more than half (51.8%) of the city's population was female.
- As shown in Table 4, gender proportions in the City of Milwaukee vary by race/ethnicity.

Table 4. Gender Distribution in the City of Milwaukee by Race/Ethnicity, 2010 U.S. Census

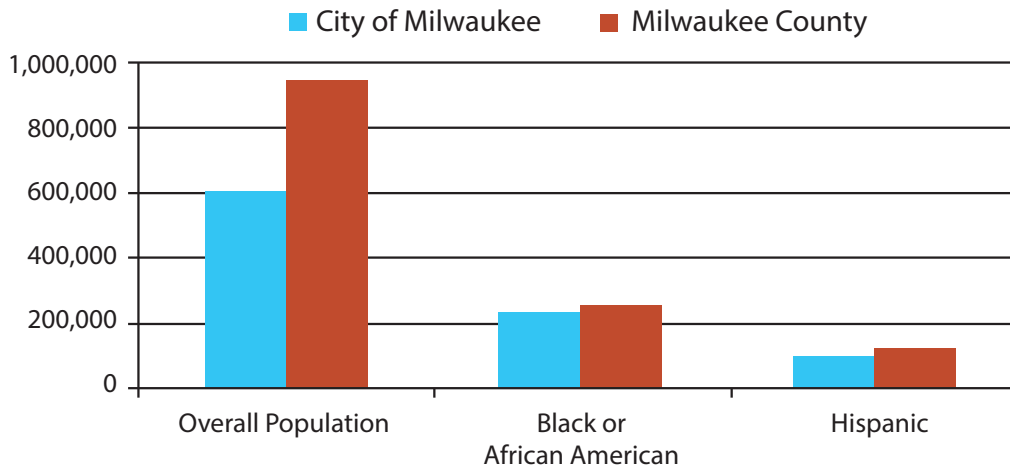
	Overall	White Non-Hispanic	Black Non-Hispanic	Hispanic	Other Non-Hispanic
Female	51.8%	50.7%	54.3%	48.3%	51.5%
Male	48.2%	49.3%	45.7%	51.7%	48.5%

Race/ethnicity:

- The City of Milwaukee's White population has declined over the past four decades, and the city is now "minority-majority": according to the 2010 U.S. Census, 63.0% of city residents identify as a racial or ethnic minority.⁹
- The City of Milwaukee is made up of a disproportionate percentage of racial and ethnic minorities, compared to Milwaukee County and the state of Wisconsin.
- As shown in Figure 10, while the City of Milwaukee made up 62.8% of Milwaukee County's population in 2010, it contained 93.7% and 81.7% of the county's Black or African American and Hispanic populations, respectively.
- Similarly, 10.5% of Wisconsin residents lived in the City of Milwaukee in 2010. However, the city made up 66.2% of the state's Black or African American residents and 30.7% of its Hispanic population.
- In the City of Milwaukee, racial/ethnic minorities are concentrated in certain areas of the city: for example, a high proportion of residents that identify as Black or African American live on the north side, while many individuals that identify as Hispanic live on the south side.⁹

Figure 10.

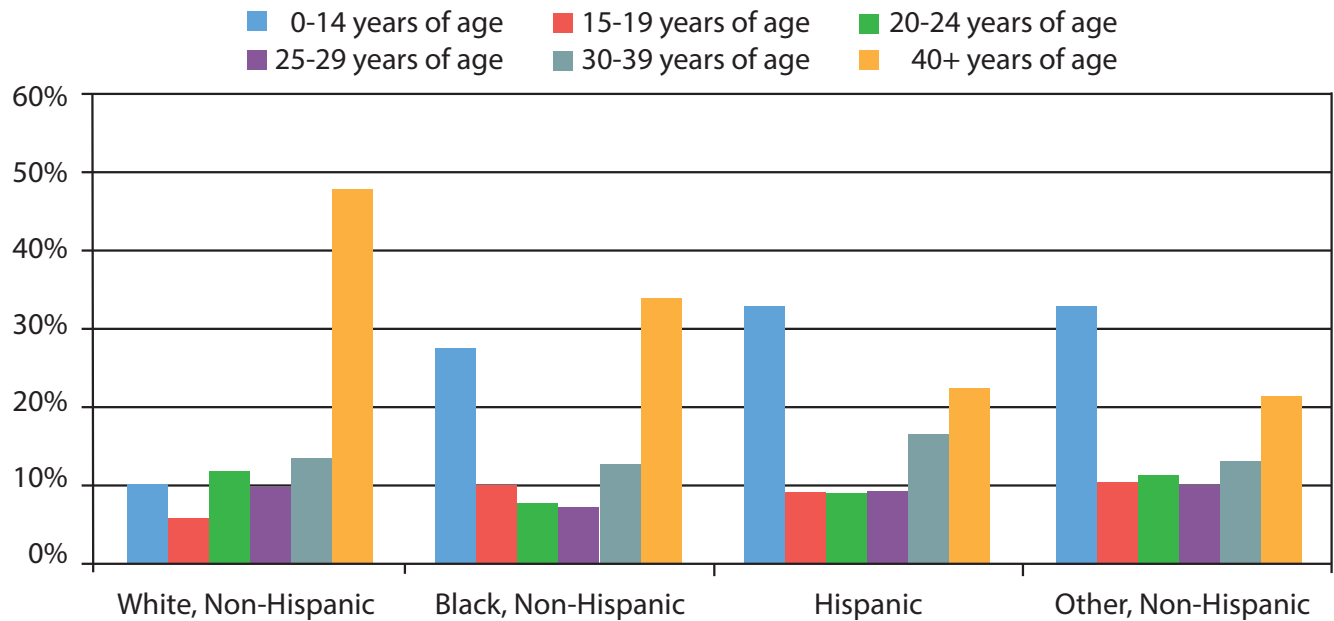
Comparison of the City of Milwaukee and Milwaukee County Populations, 2010 U.S. Census



Age:

- In 2010, the median age in the City of Milwaukee (30.3 years) was younger than that of Milwaukee County and the state of Wisconsin (33.6 years and 38.5 years, respectively).
- Nevertheless, the City of Milwaukee's population has been getting older over time.⁹
- As with race/ethnicity, there is geographic variability in the city's age distribution, with proportionally higher numbers of young people living on the north and south sides of the City of Milwaukee.⁹
- The age distribution of City of Milwaukee residents varies by race/ethnicity (Figure 11).

Figure 11. Age Distribution in the City of Milwaukee by Race/Ethnicity, 2010 U.S. Census



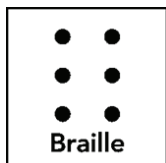
Appendix C

Methods

- All STD data from 2005-2007 were collected from STD*MIS, a data management application used by the City of Milwaukee Health Department during that time period.
- Due to a transfer in data management applications, data from 2008-2015 were extracted from Wisconsin Public Information Network (PHIN) Analysis, Visualization, and Reporting (AVR), which aggregates data from Wisconsin's statewide surveillance database, the Wisconsin Electronic Disease Surveillance System (WEDSS).
- STD incidence rates were calculated using population data for the City of Milwaukee from the 2010 U.S. Census. Each rate was calculated as the number of cases reported over a specific time period divided by the population at risk, then multiplied by 100,000 to calculate the rate per 100,000 population.
- Data were suppressed when between one and five (but not zero) cases were reported, except for unknown cases. This was done to decrease the risk of identity disclosure and minimize statistical instability. The exception to this data suppression rule was for data reported by other agencies (e.g., the Wisconsin Department of Health Services HIV data, shown in Table 3).
- This report includes cases reported during a specific time period. Additional cases diagnosed in that time period may not have been reported yet. Consequently, the data in this report should be considered provisional and subject to change.
- Other data sources were utilized to compare the City of Milwaukee to other geographical areas. These are noted in the report where applicable and include:
 - CDC. 2008 Sexually Transmitted Diseases Surveillance. Accessed November 21, 2017.
 - CDC. 2016 Sexually Transmitted Diseases Surveillance. Accessed October 25, 2017.
 - CDC. Diagnoses of HIV Infection in the United States and Dependent Areas, 2015. HIV Surveillance Report, Volume 27. Accessed October 25, 2017.
 - Wisconsin Department of Health Services. Interactive Map and Table of County HIV Case Surveillance Data. Accessed October 30, 2017.
 - Wisconsin Department of Health Services. Sexually Transmitted Disease in Wisconsin 2016: Reported Cases. Accessed October 24, 2017.
 - Wisconsin Department of Health Services. Wisconsin HIV/AIDS Surveillance Annual Review Addendum: City of Milwaukee: New diagnoses, prevalent cases, and HIV testing through December 31, 2016. Accessed October 2017.

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- ¹ Sexually transmitted disease surveillance 2016. Division of STD Prevention, CDC. <https://www.cdc.gov/std/stats16/toc.htm> . Published September 2017. Accessed October 24, 2017.
- ² Sexually transmitted disease in Wisconsin 2016: Reported cases. Wisconsin Division of Public Health, Department of Health Services. <https://www.dhs.wisconsin.gov/publications/p00415-2016.pdf>. Published September 2017. Accessed October 2017.
- ³ Metropolitan and micropolitan statistical areas main. U.S. Census Bureau. <https://www.census.gov/programs-surveys/metro-micro/about.html>. Accessed November, 21 2017.
- ⁴ May 2014 metropolitan and nonmetropolitan area definitions. Bureau of Labor Statistics, U.S. Department of Labor. http://www.bls.gov/oes/current/msa_def.htm#33340. Accessed November 21, 2017.
- ⁵ Sexually transmitted disease surveillance 2008. Division of STD Prevention, CDC. <http://www.cdc.gov/std/stats08/surv2008-complete.pdf>. Published November 2009. Accessed November 21, 2017.
- ⁶ Fact sheet: The impact of STDs on different populations. National Coalition of STD Directors. <http://www.ncsddc.org/resource/the-impact-of-stds-in-different-populations/>. Published December 1, 2010. Accessed November 21, 2017.
- ⁷ Sexually transmitted diseases. Healthy People 2020, Office of Disease Prevention and Health Promotion. <http://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases>. Accessed November 21, 2017.
- ⁸ CDC fact sheet: 10 ways STDs impact women differently from men. CDC. <https://www.cdc.gov/std/health-disparities/stds-women-042011.pdf>. Published April 2011. Accessed November 21, 2017.
- ⁹ Citywide Policy Plan. City of Milwaukee. Data and demographics chapter. Approved by the Common Council March 2, 2010. Accessed November 21, 2017. <http://city.milwaukee.gov/Plansandstudies/CitywidePolicyPlan.htm#.VYSPwvlVikq>
- ¹⁰ United States Census 2010: Interactive Population Map. Accessed November 21, 2017. <http://www.census.gov/2010census/popmap/>



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