

*mi*Ottawa Department of **Public Health**

Sexually Transmitted Infections in Ottawa County

2022 Annual Report

We value your feedback.

**Please use this QR code or click on the link below
to tell us what you think of this report:**



[Link to Survey](#)

Table of Contents

Introduction.....	2
Overall STI Trends.....	2
2022 Details by Infection.....	4
Chlamydia	5
Chlamydia by Sex	5
Chlamydia by Age Groups.....	6
Chlamydia by Race and Ethnicity.....	6
Chlamydia Reinfection and Coinfection	9
Gonorrhea	9
Gonorrhea by Sex.....	9
Gonorrhea by Age Groups	9
Gonorrhea by Race and Ethnicity	11
Gonorrhea Reinfection and Coinfection.....	13
STI Prevention.....	13
Methods	14
Data sources	14
Population and Rate Calculations.....	14
Statistical Methods and Trend Analysis.....	14
References	15

Introduction

The 2022 Sexually Transmitted Infection (STI) report presents a detailed summary of STIs diagnosed among Ottawa County residents during 2022. This report provides illustrations of recent trends, estimates of the burden of STIs within different demographic groups, and information about public health programming and planning. The number of cases detailed in this report may underestimate the true burden of STIs in Ottawa County. Because many infections are asymptomatic and go undetected, the true disease burden is likely higher than is reflected in this report. See the Ottawa County Department of Public Health (OCDPH) [2022 Annual Summary of Reportable Diseases](#)¹ for a comprehensive summary of selected reportable diseases in the county.

Overall STI Trends

Chlamydia and gonorrhea have consistently been the two most frequently reported STIs in Ottawa County, Michigan, and the United States. Table 1 shows yearly counts of the bacterial STIs reported among Ottawa residents over the last five years.

Table 1. Confirmed and Probable STI Cases, Ottawa County, 2018-2022

Sexually Transmitted Infection	2018	2019	2020	2021	2022	5-Year Total
Chlamydia	921	795	790	1007	770	4283
Gonorrhea	181	160	198	257	151	947
Syphilis - Primary	2	3	4	5	2	16
Syphilis - Secondary	3	0	3	3	1	10
Syphilis - Congenital	0	0	1	1	0	2
Syphilis - Latent	1	5	11	6	7	30
Syphilis – Unknown Duration or Late	6	6	5	12	12	41

The number of chlamydia and gonorrhea cases in Ottawa County decreased during 2022 from record high counts observed in 2021 (Table 1). Chlamydia and gonorrhea cases decreased by 25.5% and 41.2% respectively, from 2021 to 2022. Consequently, incidence rates per 100,000 population (rates) also decreased by 23.5% and 41.4% for chlamydia and gonorrhea respectively (Figures 1 and 2). Long-term (10-year) disease trends indicate very little evidence of a statistically significant change in chlamydia rates over the last 10 years. However, there was a statistically significant increase in overall gonorrhea rates over the same timeframe in Ottawa County. Rates for both chlamydia and gonorrhea in Ottawa County consistently remained below rates reported in Michigan and the United States.^{2,3}

Figure 1. Chlamydia – Incidence Rates of Reported Cases, Ottawa County, Michigan, and USA, 2013-2022

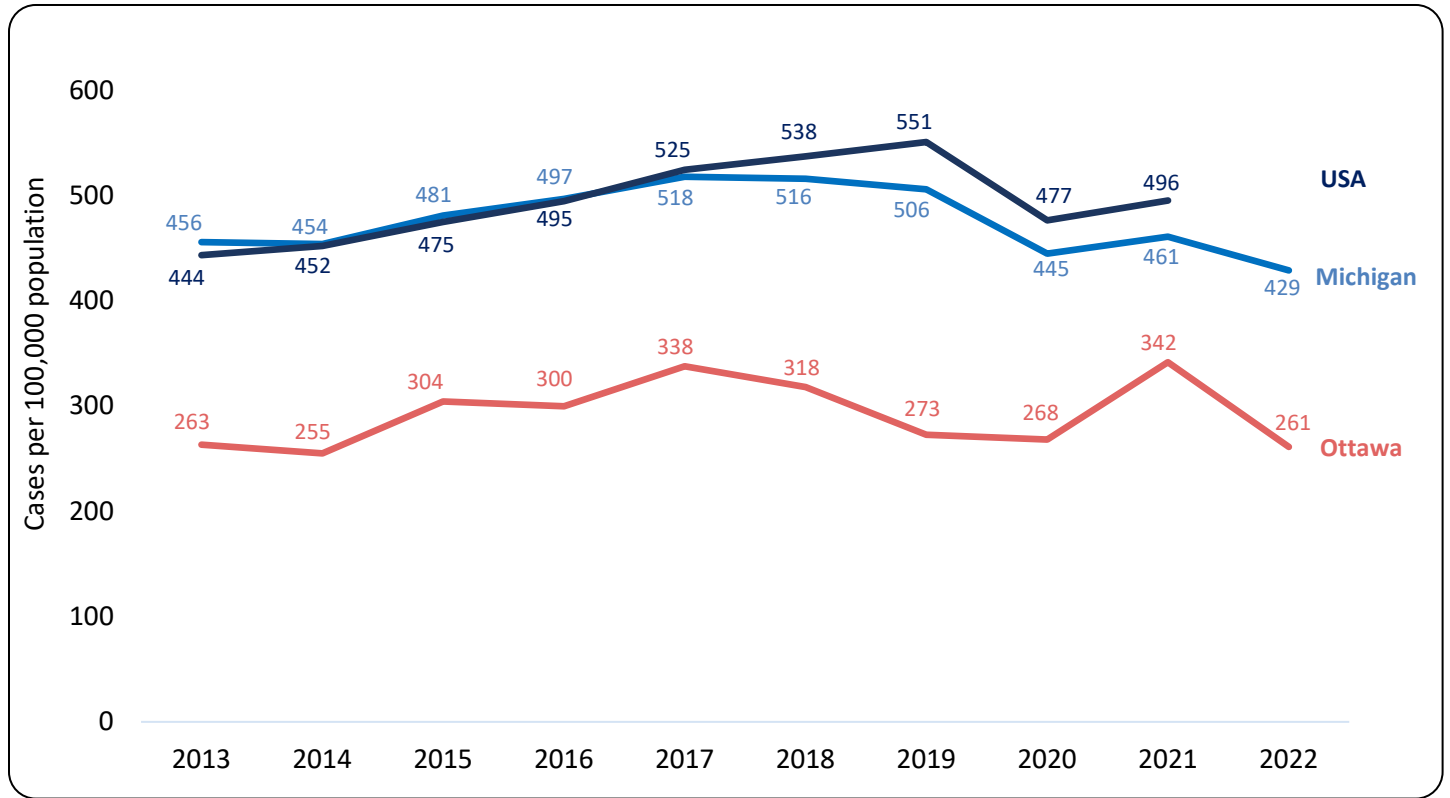
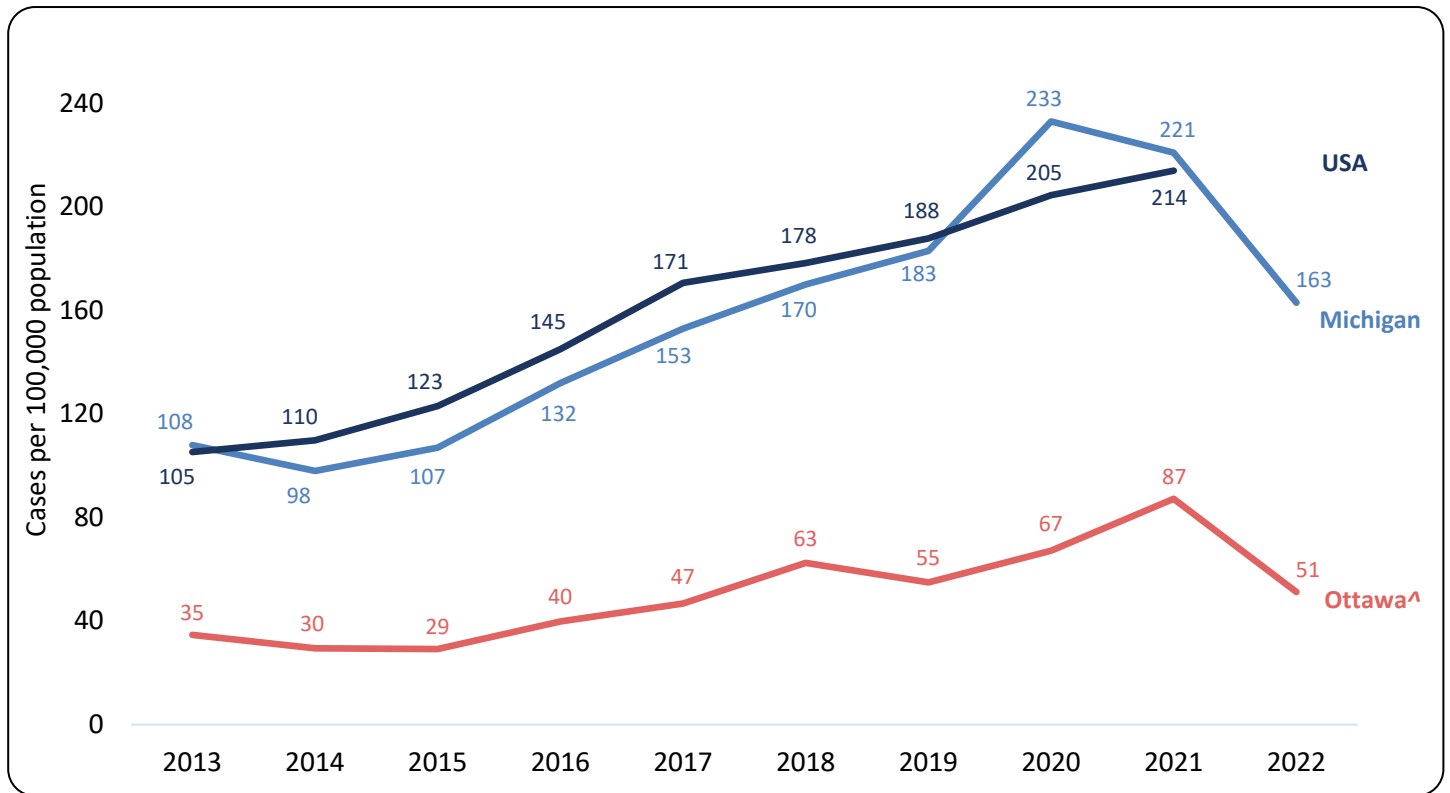


Figure 2. Gonorrhea – Incidence Rates of Reported Cases, Ottawa County, Michigan, and USA, 2013-2022



Data Sources for Figure 1 and Figure 2: MDHHS Annual STI Report.² CDC 2021 STD Surveillance Data.³ ^ Statistically significant uptrend.

2022 Details by Infection

All cases of chlamydia and gonorrhoea reported in 2022 in Ottawa County are characterized in Table 2 below.

Table 2. Chlamydia and Gonorrhoea – Characteristics of Reported Cases, Ottawa County, 2022

Characteristic	Chlamydia	Gonorrhoea
Total	770 (100%)	151 (100%)
Sex at Birth, n (%)		
Female	506 (65.7%)	68 (45.0%)
Male	264 (34.3%)	83 (55.0%)
Average Age		
Overall	24.5 years	28.8 years
<i>Females</i>	23.5 years	26.5 years
<i>Males</i>	26.3 years	30.7 years
Age Group, n (%)		
0-14 years	4 (0.5%)	0 (0.0%)
15-19 years	184 (23.9%)	19 (12.6%)
20-24 years	320 (41.6%)	48 (31.8%)
25-29 years	118 (15.3%)	28 (18.5%)
30-34 years	70 (9.1%)	25 (16.6%)
35-39 years	30 (3.9%)	11 (7.3%)
40+ years	44 (5.7%)	20 (13.2%)
Race/Ethnicity, n (%)		
Asian, Native Hawaiian or Pacific Islanders	28 (3.6%)	1 (0.7%)
Non-Hispanic Black or African American	91 (11.8%)	35 (23.2%)
Hispanic or Latino	188 (24.4%)	21 (13.9%)
Non-Hispanic White	449 (58.3%)	91 (60.3%)
Other Race	11 (1.4%)	3 (2.0%)
<i>Unknown/Missing</i>	<i>3 (0.4%)</i>	<i>0 (0.0%)</i>

Note: Percentages may not add up to 100% due to rounding.

Chlamydia

Chlamydia is the most common bacterial STI reported in Ottawa County, Michigan, and the United States.^{1,2,3} It is transmitted mainly through unprotected sexual contact with an infected person. It can also be transmitted from mother to baby during delivery. Chlamydia is treatable with prescribed antibiotics. Prevention methods include proper condom use during sex, limiting the number of sexual partners, regular testing per Centers for Disease Control and Prevention (CDC) guidance,⁴ proper treatment of cases, and abstinence. Unrecognized and/or untreated chlamydia infections can result in pelvic inflammatory disease (PID), which may contribute to ectopic pregnancy, infertility, and chronic pelvic pain.⁵

Chlamydia by Sex

The number of chlamydia cases in 2022 was 506 (65.7%) for females and 264 (34.3%) for males (Table 2). The rates were 340 cases per 100,000 females and 181 cases per 100,000 males (Figure 3). The higher rates in females compared to males is consistent with state and national data from the Michigan Department of Health and Human Services (MDHHS) and the CDC.^{3,6} Higher rates among females have been attributed to more screening among women. Conversely, the lower rates among men suggest many of the male sex partners of females may be going undiagnosed. Despite the consistently higher rates among females, no statistically significant up- or downtrend over time has been observed in either of the groups over the last decade. Rates by sex have generally been stable between 2013 and 2022 (Figure 4).

Figure 3. Chlamydia – Incidence Rates of Reported Cases by Sex and Age Group, Ottawa County, 2022

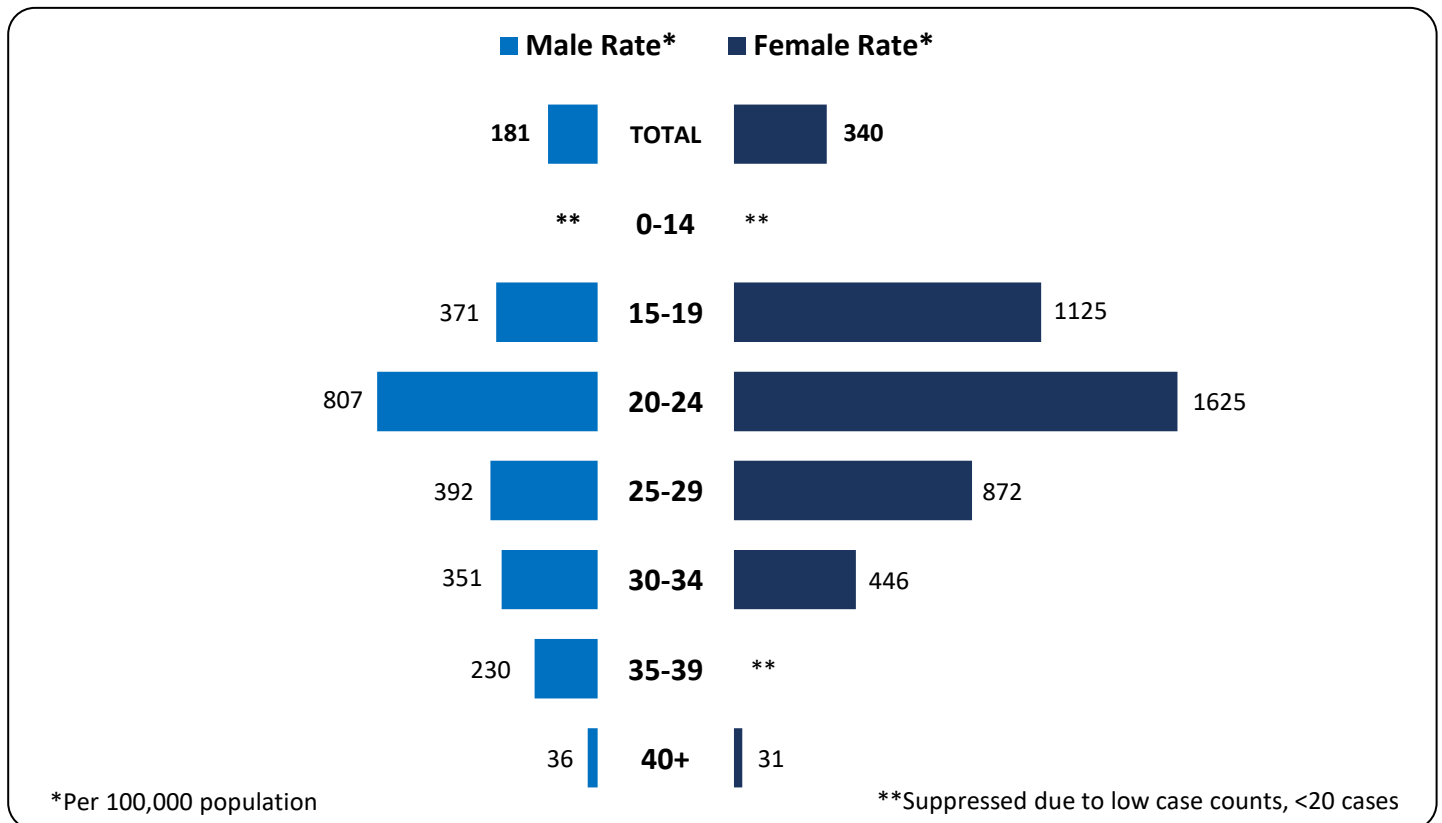
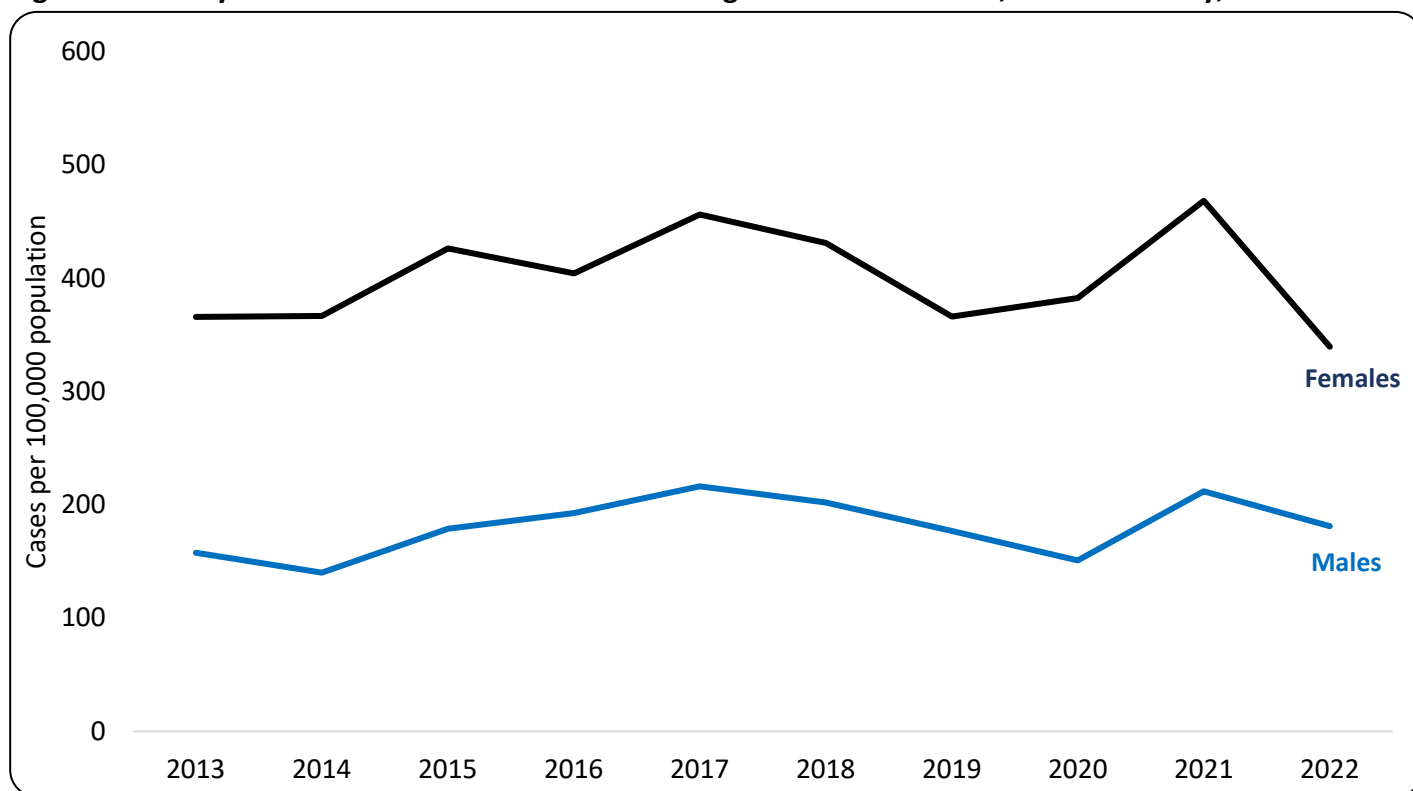


Figure 4. Chlamydia – Trends in Incidence Rates among Males and Females, Ottawa County, 2013-2022



Chlamydia by Age Groups

In 2022, the overall average age of chlamydia cases in Ottawa County was about 24.5 years (Table 2). However, female cases were significantly younger (23.5 years) than male cases (26.3 years). As shown in Figure 3, rates were highest among young adults aged 20-24 years for both males and females, though females in this age group had rates twice as high as that of their male counterparts. Although chlamydia rates have been consistently higher among the 20-24 years age group, no statistically significant up- or downtrend over time was detected for 20-24 year olds or any other age group over the last decade (Figure 5). Rates among age groups with low case counts have been suppressed because of resulting rate instability.

Chlamydia by Race and Ethnicity

In 2022, 449 (58.3%) of the chlamydia cases reported were among non-Hispanic Whites, at a rate of 181 cases per 100,000 population. About 188 (24.4%) cases were Hispanic or Latino, at a rate of 621 cases per 100,000 population. Although non-Hispanic Black or African Americans made up a relatively lower proportion of the chlamydia cases in 2022 (n=91, 11.8%), Figure 6 shows the highest rates were reported among this population (1,456 cases per 100,000 population). Asians and Native Hawaiian or Pacific Islanders made up 3.6% (28 cases) at a rate of 314 cases per 100,000 population. Rates among other racial and ethnic groups have been suppressed due to low case counts that result in rate instability.

Figure 5. Chlamydia – Trends in Incidence Rates by Age Group, Ottawa County, 2013-2022

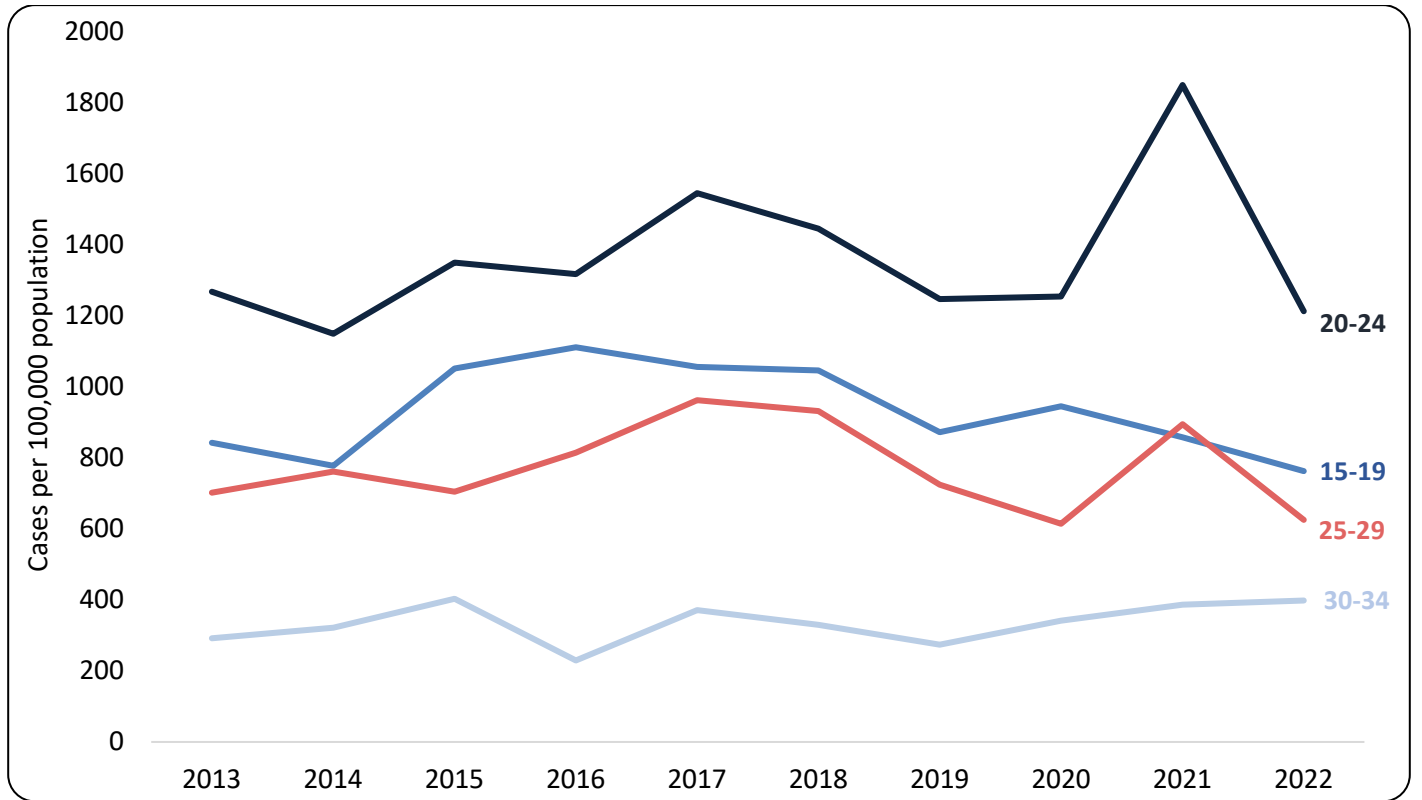


Figure 6. Chlamydia – Incidence Rates of Reported Cases by Race and Ethnicity, Ottawa County, 2022

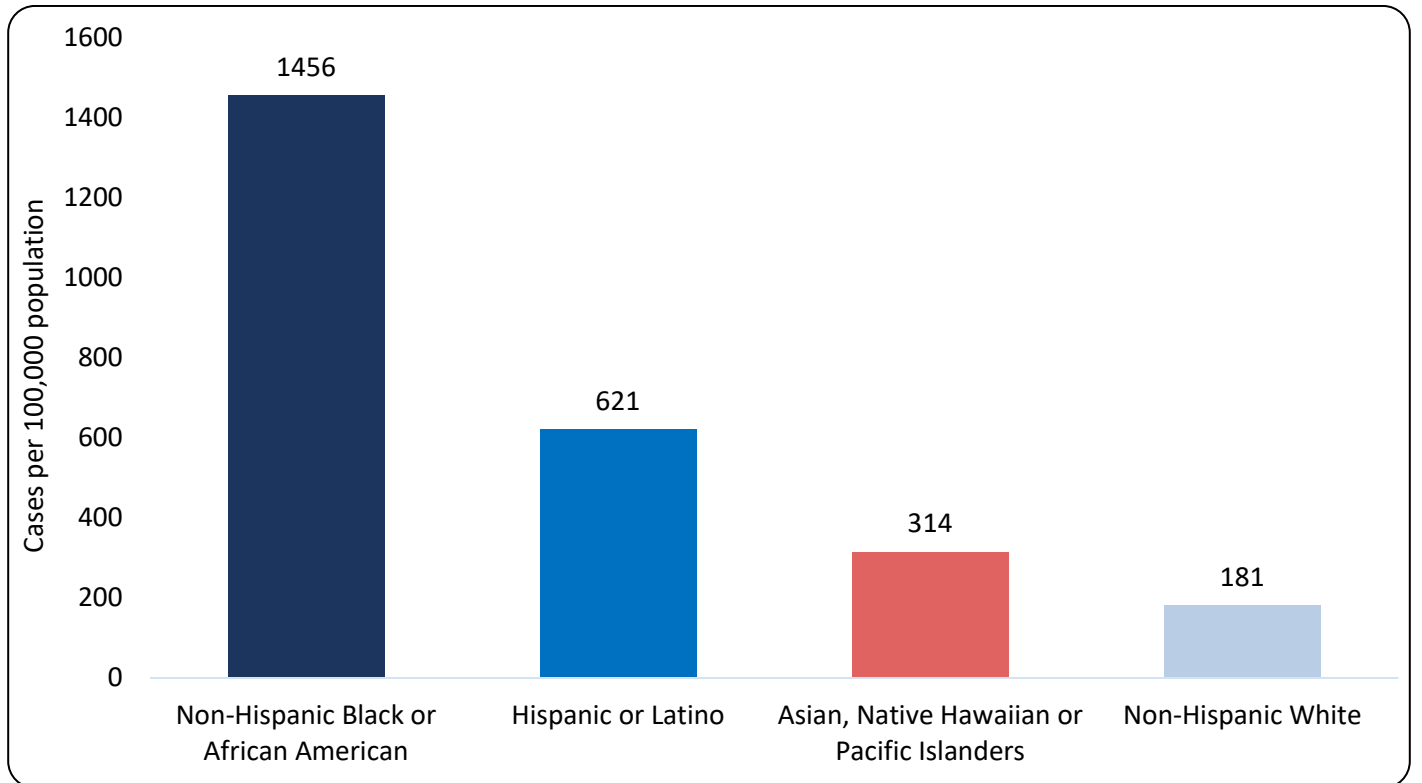
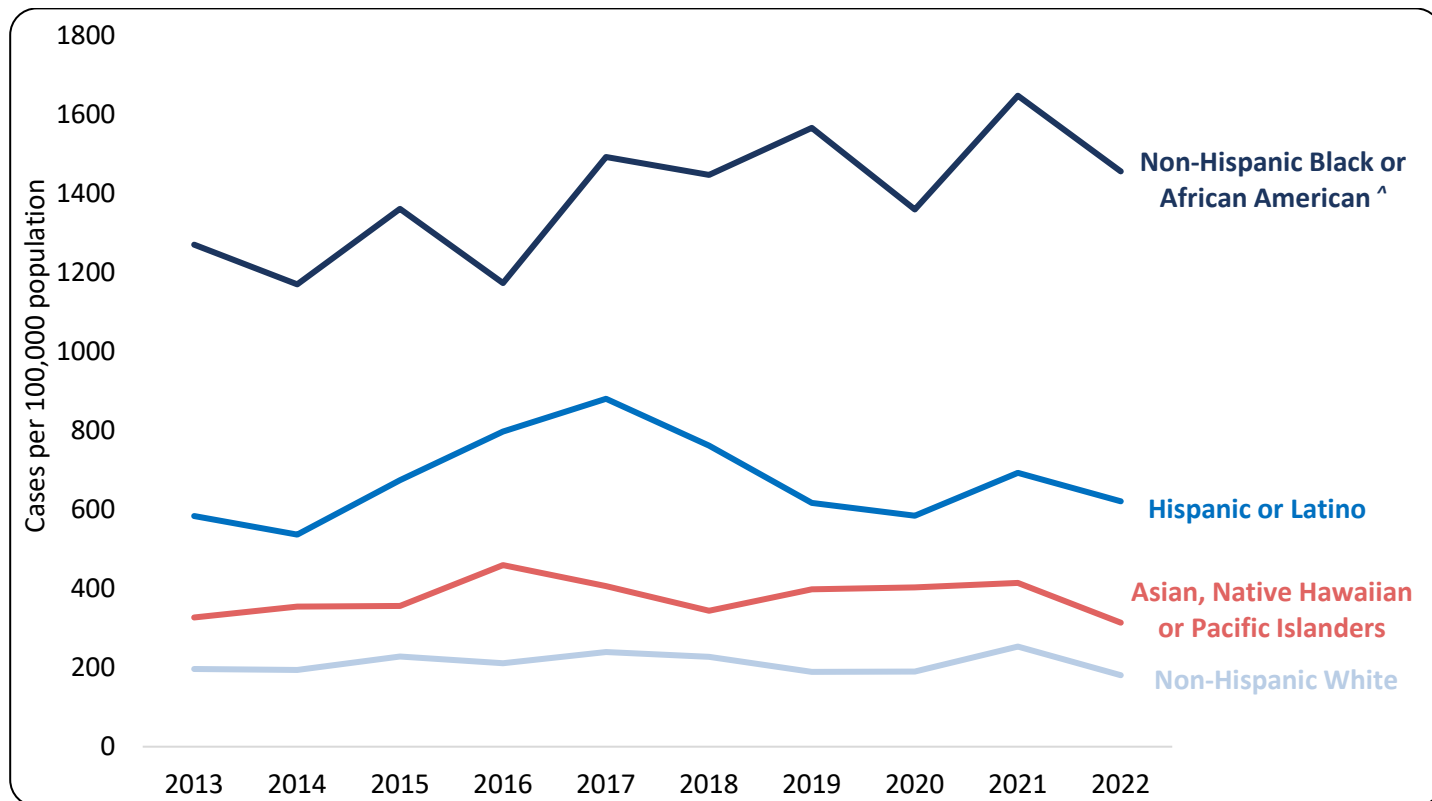


Figure 7 shows 10-year trends in chlamydia rates by race and ethnicity in Ottawa County between 2013 and 2022. Rates were consistently higher among racial and ethnic minority populations when compared to the rates among the non-Hispanic White population. There was a statistically significant increase in rates over time among the non-Hispanic Black or African American population, with very little evidence of an up- or downtrend over time among any of the other racial and ethnic groups.

Figure 7. Chlamydia – Trends in Incidence Rates by Race and Ethnicity, Ottawa County, 2013-2022



^ Statistically significant uptrend.

Overall, the chlamydia rate in 2022 among non-Hispanic Black or African Americans was 8 times the rate among non-Hispanic Whites (Table 3). The rates were also 3.4 times and 1.7 times higher among Hispanic or Latino people and Asian, Native Hawaiian or Pacific Islanders respectively, compared to non-Hispanic White people (Table 3). Racial and ethnic disparities in chlamydia rates have also been observed and reported statewide and nationally.^{2,3}

Table 3: Chlamydia – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2022

Race/Ethnicity	Incidence Rate	Rate Ratio
Non-Hispanic White	181 cases per 100,000 people	**
Asian, Native Hawaiian or Pacific Islanders	314 cases per 100,000 people	1.7
Hispanic or Latino	621 cases per 100,000 people	3.4
Non-Hispanic Black or African American	1,456 cases per 100,000 people	8.0

** Comparison group.

Chlamydia Reinfection and Coinfection

Chlamydia reinfection is a measure of the occurrence of positive chlamydia test within the previous 12 months of a current diagnosis. In 2022, the chlamydia reinfection rate among reported cases was 9.9%, much improved from the 13.9% reported in 2021. At least 31 (4.0%) of the chlamydia cases diagnosed in 2022 were also coinfecting with gonorrhea, down from about 7.6% in 2021.

Gonorrhea

Gonorrhea is the second most common bacterial STI reported in Ottawa County, Michigan, and in the United States.^{1,2,3} Like chlamydia, gonorrhea is also transmitted mainly through unprotected sexual contact with an infected individual.⁷ Untreated infections can result in PID, which in turn can increase the risk of ectopic pregnancy, infertility, and chronic pelvic pain.⁵ STIs, including gonorrhea, may facilitate the transmission of HIV.⁸ Because of the considerable burden and risks associated with gonorrhea infections, the CDC recommends routine testing for some groups.⁴ A total of 151 gonorrhea cases were reported in 2022 (Table 1), marking a 41.2% decrease from the case count reported in 2021. The overall gonorrhea incidence rate was 51 cases per 100,000 population, 41.4% lower than the rate reported in 2021 (Figure 2).

Gonorrhea by Sex

In contrast to chlamydia, the distribution of gonorrhea was less disparate by sex. Of the 151 gonorrhea cases reported in 2022, 68 (45.0%) cases were female and 83 (55.0%) were male. Gonorrhea rates were 46 per 100,000 population and 57 per 100,000 population among females and males respectively (Figure 8). For the first time since 2019, the annual gonorrhea rate in Ottawa County was higher among males than among females in 2022, consistent with national data since at least 2012.³ Higher rates among males compared to females may be attributed to gonorrhea being more likely than chlamydia to cause symptoms in males than in females,⁹ potentially motivating males to seek care and receive a gonorrhea diagnosis. Gonorrhea rates were found to have increased significantly among both males and females from 2013-2022 (Figure 9).

Gonorrhea by Age Groups

In 2022, the average age of gonorrhea cases in Ottawa County was about 28.8 years (Table 2). However, female cases were significantly younger (26.5 years) than the male cases (30.7 years), similar to the observation made with chlamydia cases. Like chlamydia, gonorrhea rates were highest among young adults aged 20-24 years (198 cases per 100,000 females and 166 cases per 100,000 males, Figure 8). The rates among other age groups have been suppressed due to low case counts that result in statistically unstable rates. Trends in gonorrhea rates by age groups showed a statistically significant increase in rates among the 20-24 year age group over the 10-year period from 2013-2022 (Figure 10).

Figure 8. Gonorrhea – Incidence Rates of Reported Cases by Sex and Age Group, Ottawa County, 2022

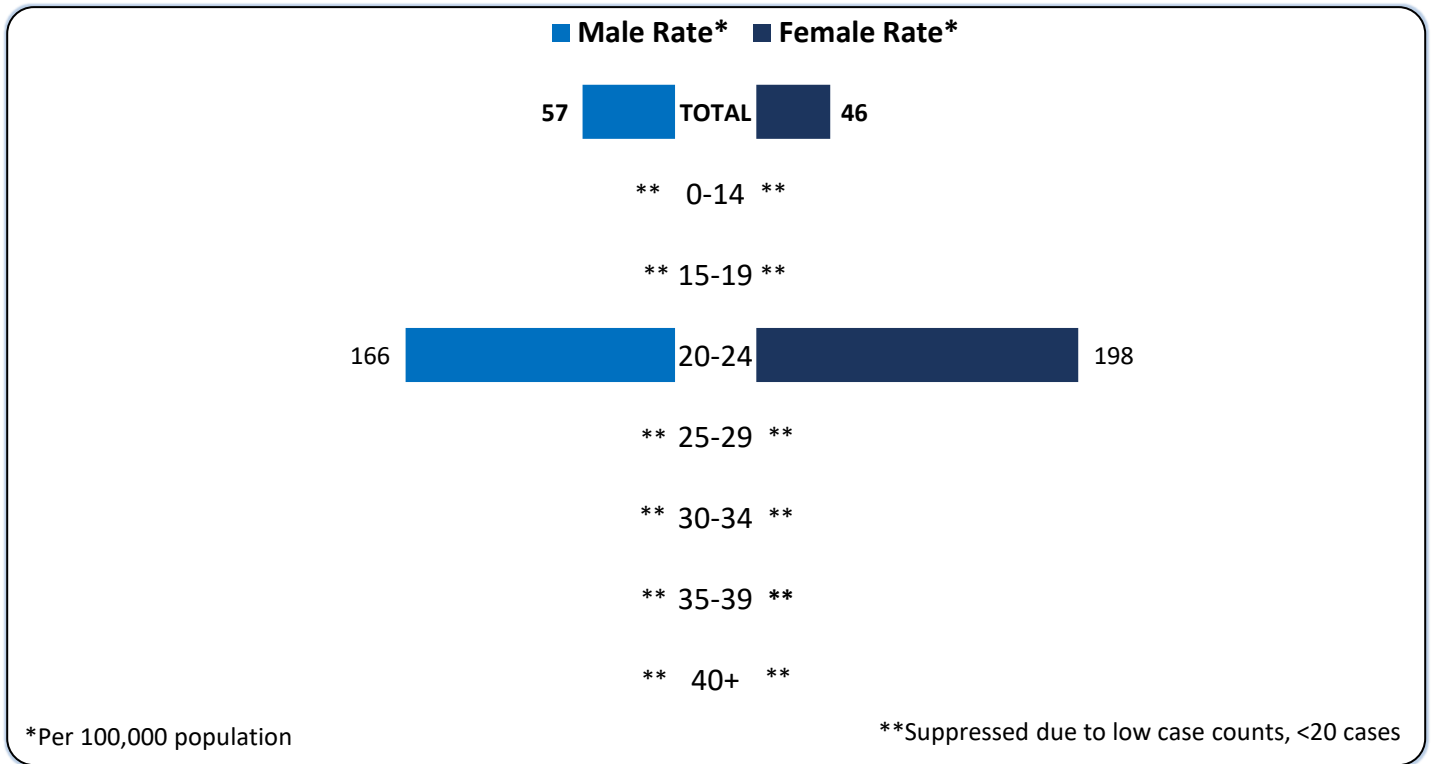


Figure 9. Gonorrhea – Trends in Incidence Rates among Males and Females, Ottawa County, 2013-2022

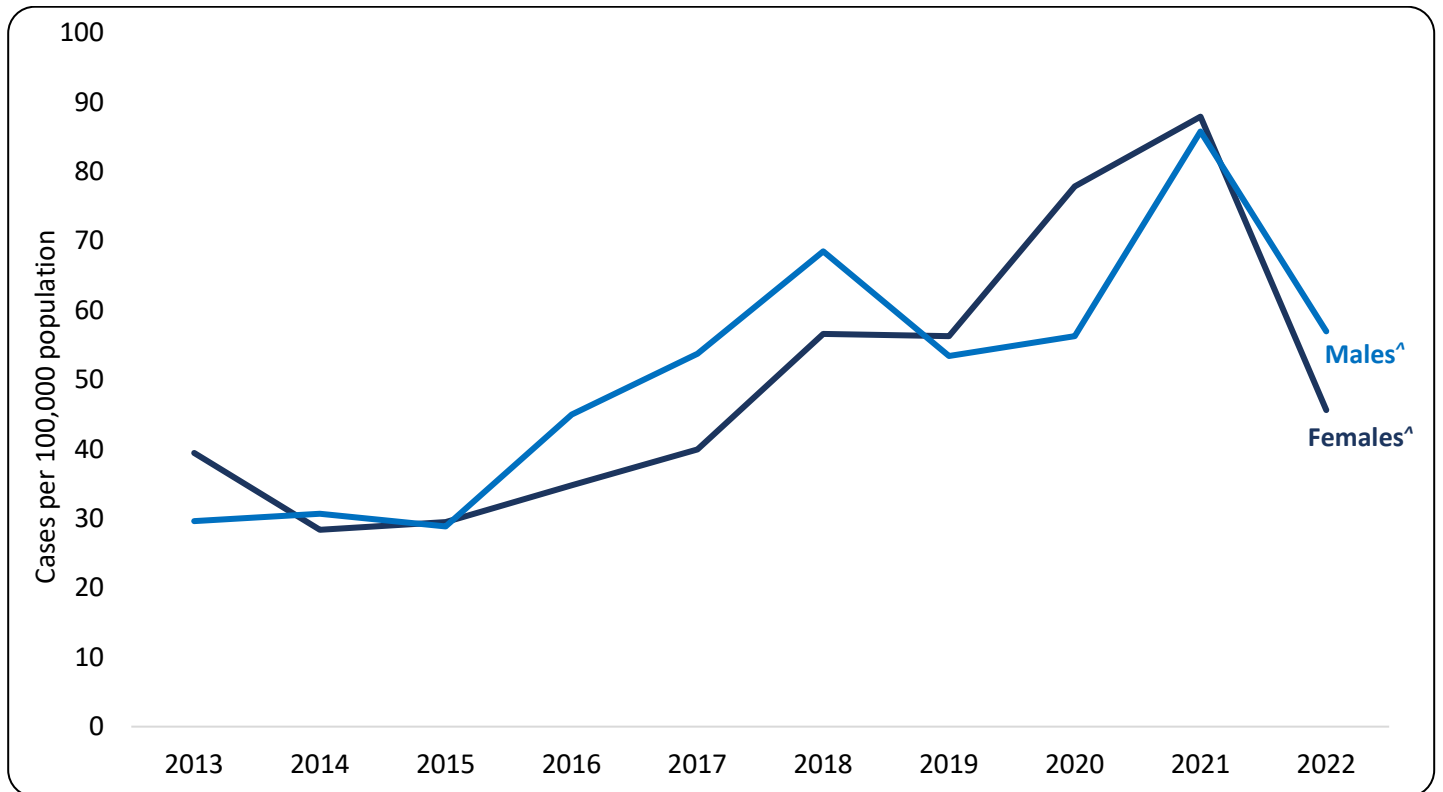
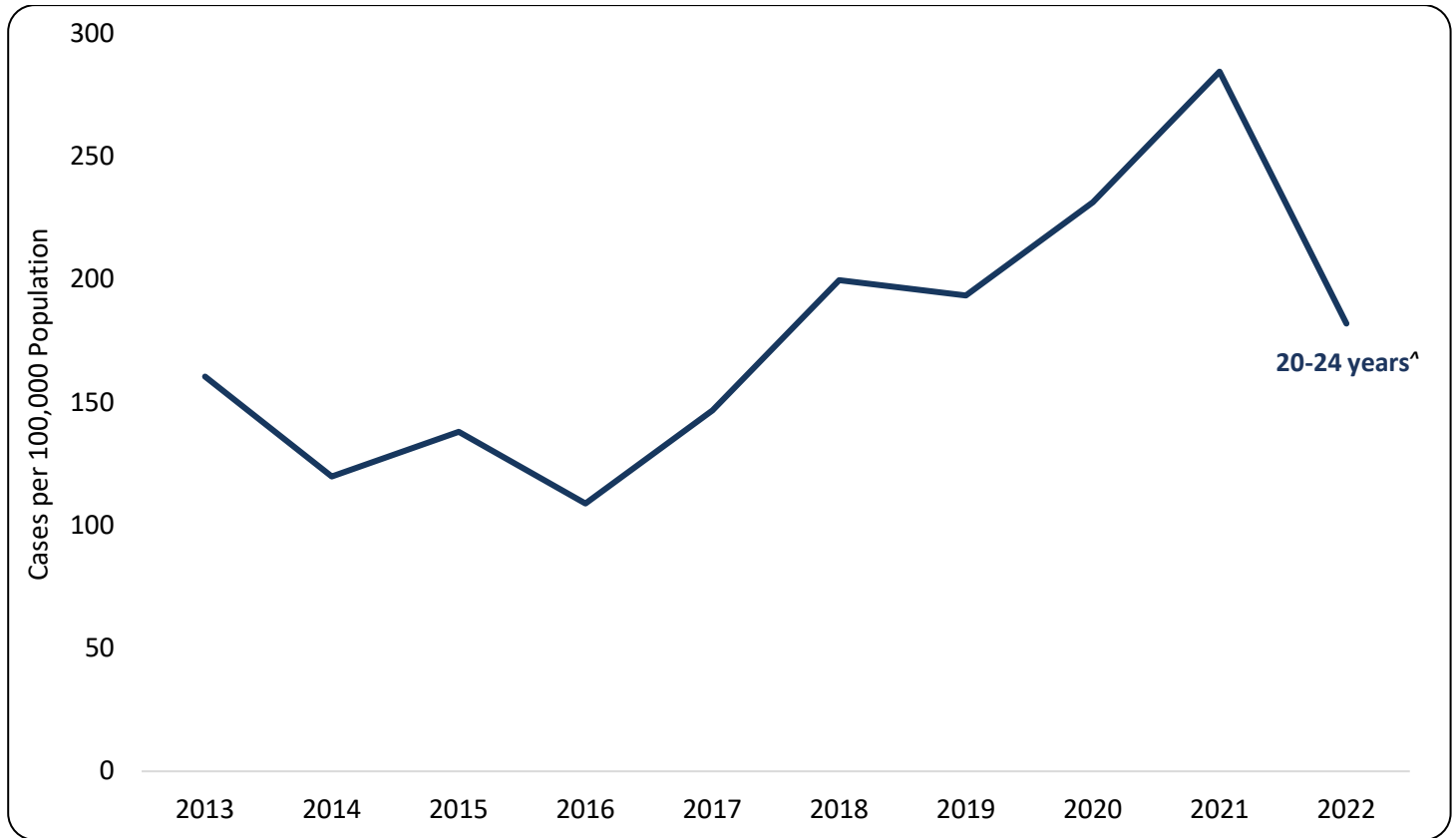


Figure 10. Gonorrhea – Trends in Incidence Rates by Age Group, Ottawa County, 2013-2022



^ Statistically significant uptrend.

Gonorrhea by Race and Ethnicity

Similar to chlamydia rates, gonorrhea rates were consistently higher among racial and ethnic minority groups, particularly non-Hispanic Black or African American and the Hispanic or Latino populations when compared to the non-Hispanic White population. In 2022, 91 (60.3%) of the gonorrhea cases reported were among non-Hispanic Whites, at a rate of 37 cases per 100,000 population. Non-Hispanic Black or African Americans made up 35 or 23.2% of the reported cases, equivalent to a rate of 560 cases per 100,000 population (Figure 11). Twenty-one or 13.9% of the cases were among Hispanic or Latino residents, at a rate of 69 cases per 100,000 population. Rates among other racial and ethnic groups have been suppressed due to low case counts that result in rate instability.

Figure 12 shows 10-year trends in gonorrhea rates by race and ethnicity in Ottawa County between 2013 and 2022. There was a statistically significant increase in rates among the non-Hispanic White population over the 10-year period from 2013-2022. Rates among other racial and ethnic groups have been suppressed due to low case counts during several years that result in rate instability.

Figure 11. Gonorrhea – Incidence Rates of Reported Cases by Race and Ethnicity, Ottawa County, 2022

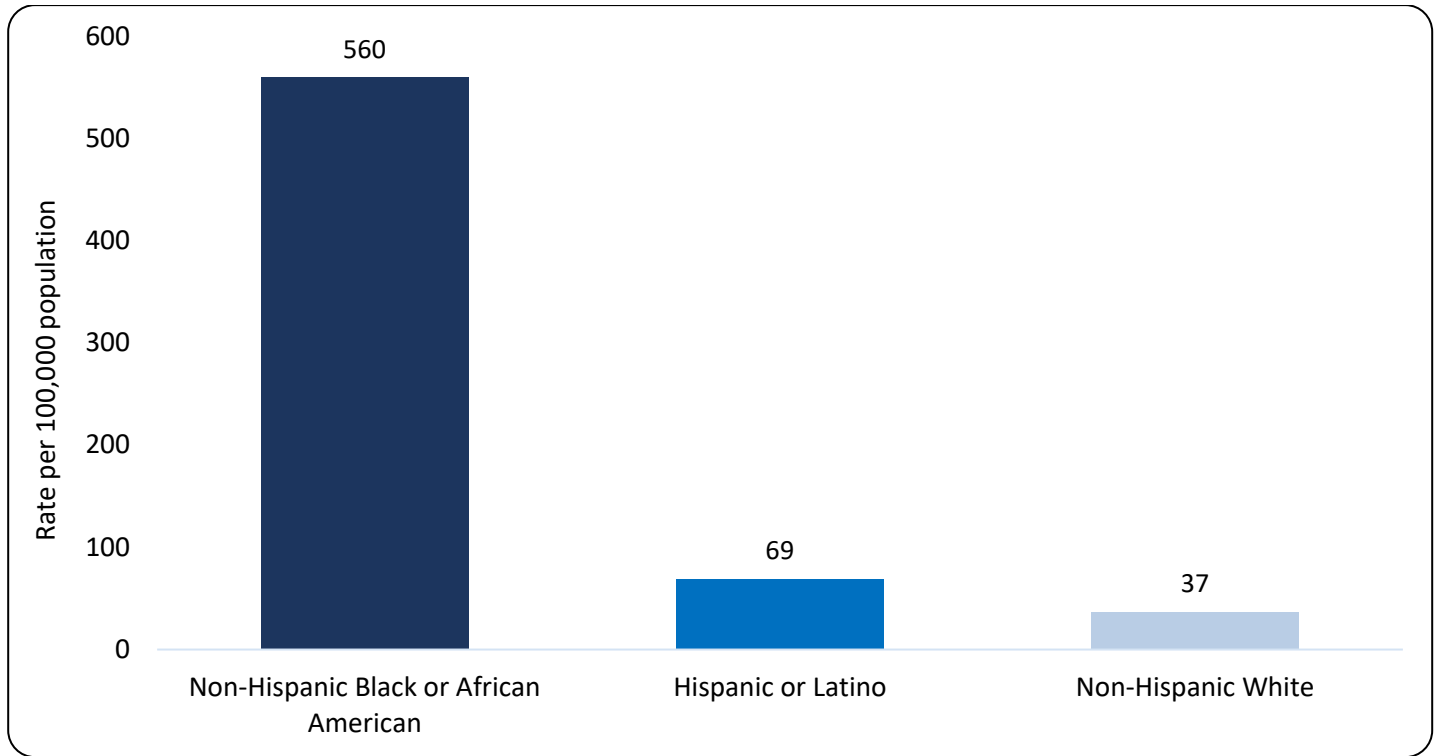
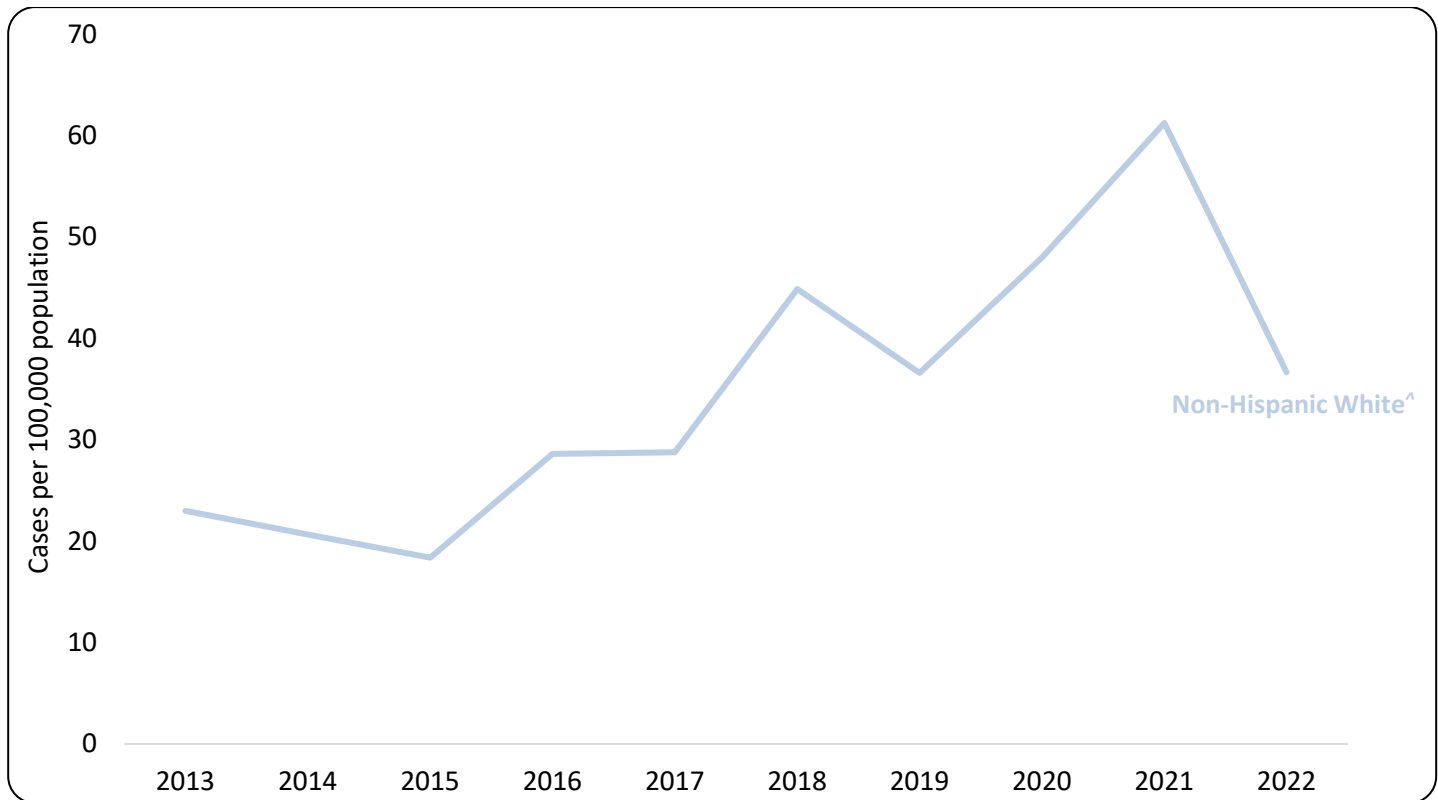


Figure 12. Gonorrhea – Trends in Incidence by Race and Ethnicity, Ottawa County, 2013-2022



^Statistically significant uptrend.

Overall in 2022, gonorrhea rates were highest among non-Hispanic Black or African Americans compared to Hispanic or Latino or non-Hispanic White people (Figure 11). Compared to non-Hispanic White people, gonorrhea rates were 15.1 times higher among non-Hispanic Black or African American people, and 1.9 times higher among Hispanic or Latino people (Table 4).

Table 4: Gonorrhea – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2022

Race/Ethnicity	Incidence Rate	Rate Ratio
Non-Hispanic White	37 cases per 100,000 people	**
Hispanic or Latino	69 cases per 100,000 people	1.9
Non-Hispanic Black or African American	560 cases per 100,000 people	15.1

** Comparison group.

Gonorrhea Reinfection and Coinfection

Like chlamydia reinfection rates, gonorrhea reinfection also measures the occurrence of positive gonorrhea test within the previous 12 months of their current diagnosis. In 2022, the gonorrhea reinfection rate among cases reported in Ottawa County was 11.9%, slightly up from 10.1% in 2021. About 31 (20.5%) of the gonorrhea cases diagnosed in 2022 were also coinfecting with chlamydia, down from 31.5% in 2021.

STI Prevention

OCDPH actively works to prevent STIs and promote healthy sexual and reproductive behaviors in Ottawa County by providing the following:

- STI surveillance and infection investigation to identify risk factors and illustrate potential trends.
- Community-wide confidential screening/testing for STIs.
- Education on sexual health and STI prevention.
- Family planning and sexual health clinical services.
- Review of all reported cases of chlamydia and gonorrhea in Ottawa County to ensure access to appropriate treatment.
- The [Wear One](#) campaign aimed at creating awareness, increasing condom availability, and promoting condom use among adults.

For more information on OCDPH sexual and reproductive health resources, click [HERE](#).

Methods

Data sources

Ottawa County STI case data for this report was sourced from the Michigan Disease Surveillance System (MDSS). STI case data for Michigan and the United States were sourced from public reports. See References for more information.

Population and Rate Calculations

CDC Wonder Bridged-Race Population Estimates were used for all underlying population estimates and rate calculations. Due to limited population data availability at the time of report compilation, 2021 or 2022 rates were calculated using 2020 population estimates. All rates displayed are cases per 100,000 population.

Statistical Methods and Trend Analysis

All cases were counted in the year of symptom onset or referral to OCDPH, with symptom onset superseding referral date for counting purposes. Diagnosis date was used in addition to referral date or symptom onset date to calculate reinfections.

Rate calculations for age, race/ethnicity, and sex categories with fewer than 20 cases in the group under analysis were suppressed due to low case counts that may result in rate instability.

Where mean age of male and female cases for chlamydia and gonorrhea were compared, independent samples t-tests were used.

Ottawa County trends were evaluated using JoinPoint regression. Trends for Michigan and the United States were not assessed. All trend analyses evaluated 10 years of data. Statistically significant trends are noted on figures throughout this report with a “^”.

An alpha of 0.05 was used as the cutoff for statistical significance for all tests and trend analyses in this report.

References

1. Ottawa County Department of Public Health. *2021 Annual Communicable Disease Report*. https://www.miottawa.org/Health/OCHD/pdf/data/2022_CD_Annual.pdf
2. Michigan Department of Health and Human Services. *STI Annual Diagnosis and Trends*. <https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Keeping-Michigan-Healthy/HIVSTI/Data-and-Statistics/2022/2022-STIs-and-Trends-in-Michigan-Overview.pdf>
3. Centers for Disease Control and Prevention (CDC). *National Overview of STDs, 2021*. <https://www.cdc.gov/std/statistics/2021/default.htm>
4. Centers for Disease Control and Prevention (CDC). *Prevention – Which STD Tests Should I Get?* <https://www.cdc.gov/std/prevention/screeningreccs.htm>
5. Centers for Disease Control and Prevention (CDC). *Pelvic Inflammatory Disease (PID) – CDC Basic Fact Sheet*. <https://www.cdc.gov/std/pid/stdfact-pid.htm>
6. Michigan Department of Health and Human Services. *STI Diagnosis in Michigan, 2022*. <https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Keeping-Michigan-Healthy/HIVSTI/Data-and-Statistics/2022/2022-STIs-in-Michigan-Tables-Summary.pdf>
7. Centers for Disease Control and Prevention (CDC). *Gonorrhea – CDC Detailed Fact Sheet* <https://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea-detailed.htm>
8. Fleming D, Wasserheit J. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Dis*, 75(1), 3–17 (1999)
9. Korenromp EL, Sudaryo MK, de Vlas SJ, et al. What proportion of episodes of gonorrhoea and chlamydia becomes symptomatic? *International Journal of STD & AIDS*. 2002;13(2):91-101. doi:10.1258/0956462021924712

Please scan the code below to tell us what you think of this report, or click [here](#).

