

*mi*Ottawa Department of
Public Health

**Sexually Transmitted Infections
in Ottawa County**

2021 Annual Report

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Sexually Transmitted Infections in Ottawa County

2021

The 2021 Sexually Transmitted Infection (STI) report presents a detailed summary of STIs diagnosed among Ottawa County residents during 2021. 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. Although this report details the two most common STIs in the county (chlamydia and gonorrhea), the true disease burden is likely much higher because many infections are asymptomatic, and therefore go undetected. See the Ottawa County Department of Public Health (OCDPH) [2021 Annual Summary of Reportable Diseases](#)¹ for a comprehensive summary of selected reportable diseases in the county.

Five-Year STI Trends

Chlamydia and gonorrhea were the top two most frequently reported STIs in Ottawa County over the last five years (2017 to 2021). Table 1 shows yearly counts of the bacterial STIs reported among Ottawa residents.

Table 1. Confirmed and Probable STI Cases Reported to OCPDH, 2017-2021

Sexually Transmitted Infection	2017	2018	2019	2020	2021	5-Year Total
Chlamydia	967	922	796	790	1003	4478
Gonorrhea	135	181	160	198	256	930
Syphilis - Primary	0	2	3	4	5	14
Syphilis - Secondary	1	3	0	3	3	10
Syphilis - Congenital	0	0	0	1	1	2
Syphilis - Latent	4	1	5	11	6	27
Syphilis – Unknown Duration or Late	1	6	6	5	12	30

Overall, the number of chlamydia and gonorrhea cases increased between 2017 and 2021 in Ottawa County (Table 1). In 2021, chlamydia and gonorrhea rates per 100,000 population also increased by about 27.0% and 28.4% respectively from 2020 (Figures 1 and 2). Increases in incidence rates have also been reported nationwide in 2021 and may be attributed to an increase in screening and service utilization as healthcare clinics re-opened following several months of reduced screenings, limited resources, social distancing, and changes in healthcare-seeking behavior during the first year of the COVID-19 pandemic.² However, incidence rates for both chlamydia and gonorrhea in Ottawa County remain well below those reported in Michigan and the United States.^{2,3}

Figure 1. Chlamydia – Incidence Rates of Reported Cases, Ottawa County, Michigan, and USA 2017-2021

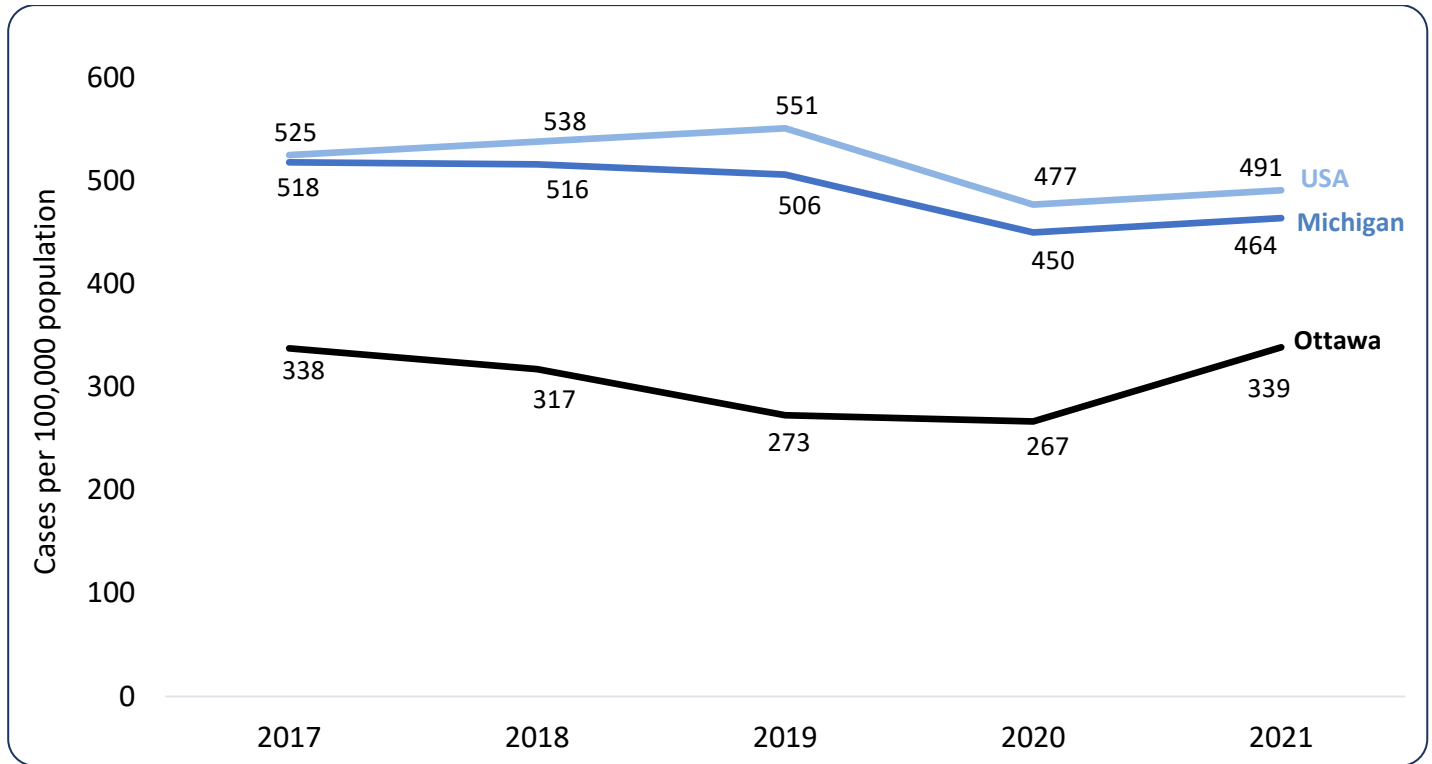
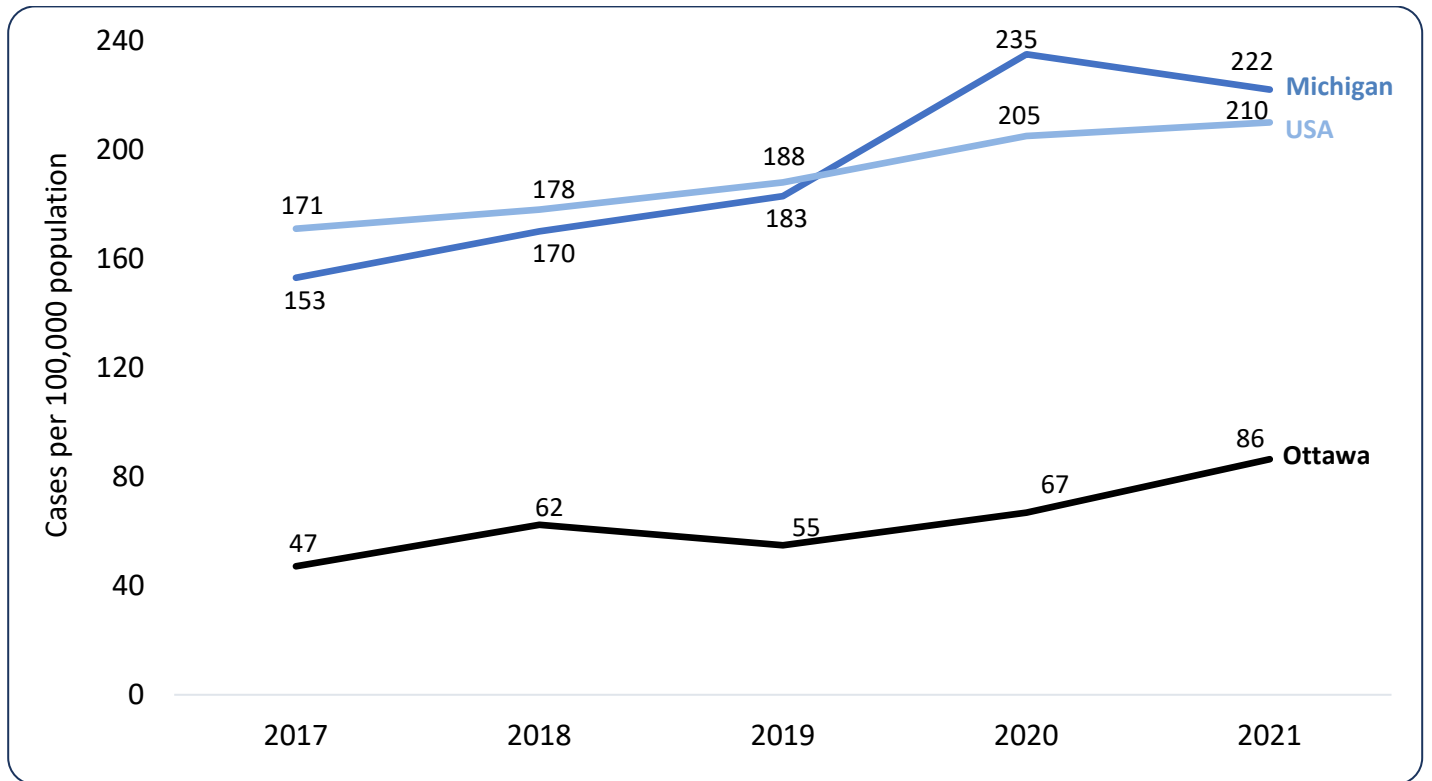


Figure 2. Gonorrhea – Incidence Rates of Reported Cases, Ottawa County, Michigan, and USA 2017-2021



Data sources: CDC Preliminary 2021 STD Surveillance Data.⁷ MDHHS Annual STI Report.³ Michigan Disease Surveillance System (MDSS) and CDC Wonder Bridged-Race Population Estimates. Due to limited data availability at the time of report compilation, incidence rates for 2021 throughout this report were calculated with 2020 population estimates.

2021 Details by Infection

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

Table 2. Chlamydia and Gonorrhoea – Characteristics of Reported Cases, Ottawa County, 2021

Characteristic	Chlamydia	Gonorrhoea
Total	1003 (100%)	256 (100%)
Sex at Birth, n (%)		
Female	695 (69.3%)	131 (51.2%)
Male	308 (30.7%)	125 (48.8%)
Average Age		
Overall	23.7 years	29.2 years
<i>Females</i>	22.9 years	27.2 years
<i>Males</i>	25.6 years	31.4 years
Age Group, n (%)		
0-14 years	3 (0.3%)	1 (0.4%)
15-19 years	205 (20.4%)	35 (13.7%)
20-24 years	487 (48.6%)	75 (29.3%)
25-29 years	169 (16.8%)	48 (18.8%)
30-34 years	68 (6.8%)	35 (13.7%)
35-39 years	31 (3.1%)	21 (8.2%)
40+ years	40 (3.4%)	41 (16.0%)
Race/Ethnicity, n (%)		
Asian, Native Hawaiian or Pacific Islanders	36 (3.6%)	8 (3.1%)
Non-Hispanic Black or African American	101 (10.1%)	45 (17.6%)
Hispanic or Latino	207 (20.6%)	44 (17.2%)
Non-Hispanic White	628 (62.6%)	151 (59.0%)
Other Race	31 (3.1%)	8 (3.1%)

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

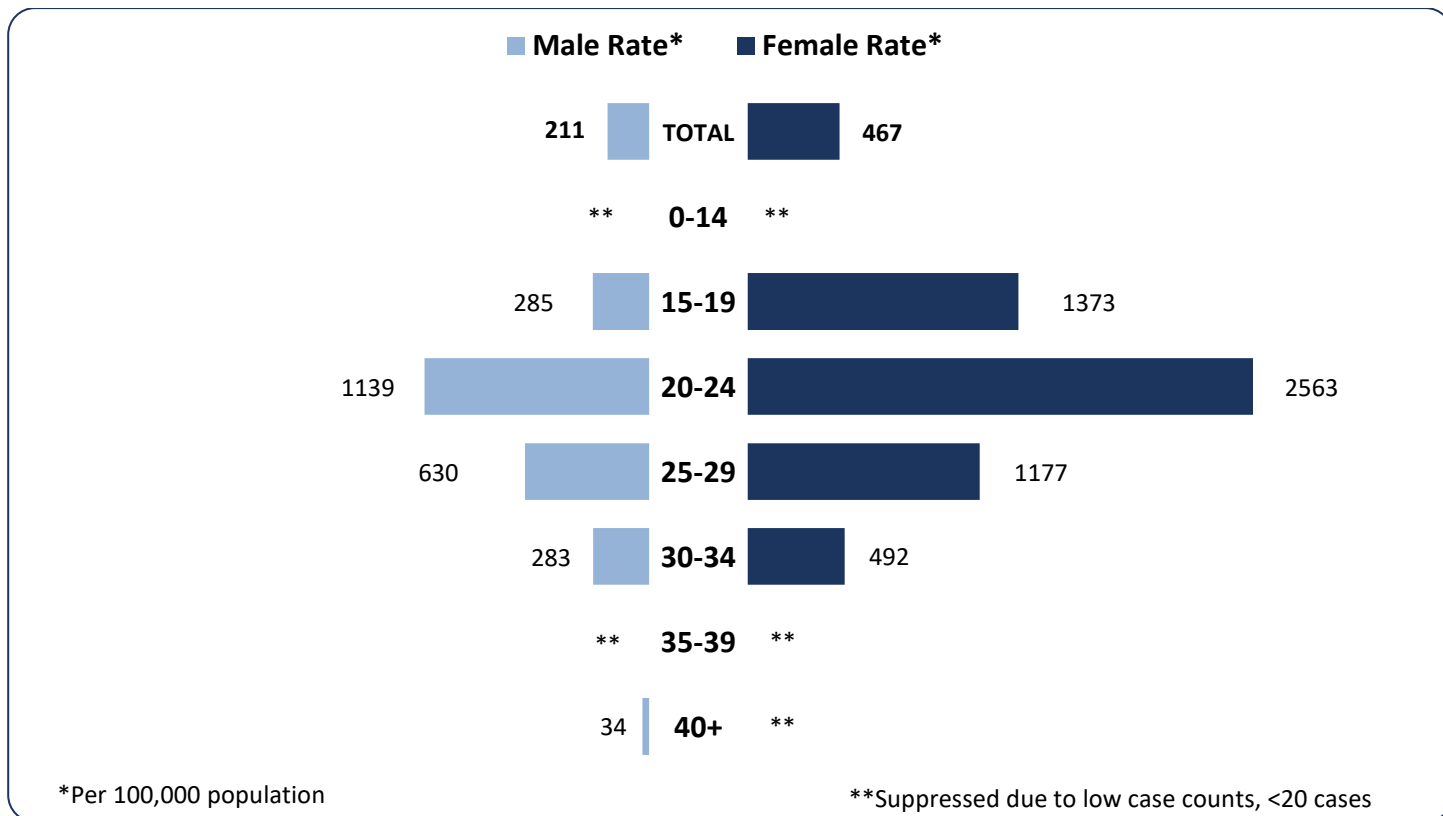
Chlamydia

Chlamydia is the most common bacterial STI reported in Ottawa County, the State of Michigan, and in the United States.^{1,4} 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 screening of sexually active individuals (at least once a year), proper treatment of cases, and abstinence. Unrecognized and/or untreated chlamydia infections can result in pelvic inflammatory disease (PID), which is a major cause of infertility, ectopic pregnancy, and chronic pelvic pain.⁵ Chlamydia infections are also known to facilitate the transmission of human immunodeficiency virus (HIV).⁶

Chlamydia by Sex

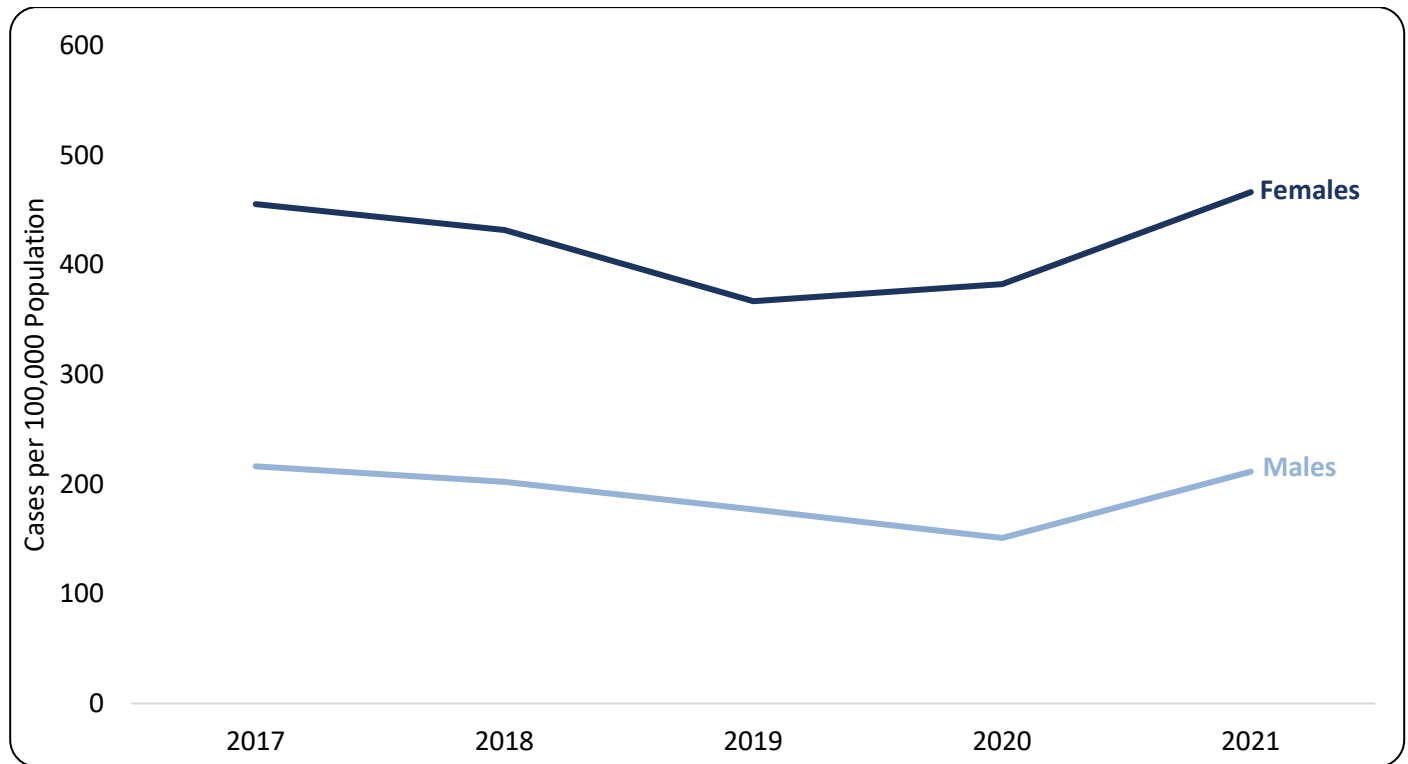
The number of chlamydia cases in 2021 was 695 (69.3%) for females and 308 (30.7%) for males. The rates were 467 cases per 100,000 females and 211 cases per 100,000 males (Figure 3). Rates remained more than twice as high in females compared to males in 2021, consistent with state and national data from the Michigan Department of Health and Human Services (MDHHS) and the Centers of Disease Control and Prevention (CDC).^{7,8} 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 maybe going undiagnosed. Despite consistently higher rates among females in Ottawa County, no statistically significant trend has been observed. Rates by sex have generally been stable between 2017 and 2021 (Figure 4).

Figure 3. Chlamydia – Incidence Rates of Reported Cases by Sex and Age Group, Ottawa County, 2021



Data sources: Michigan Disease Surveillance System (MDSS). CDC Wonder Bridged-Race Population Estimates (due to limited data availability at the time of report compilation, 2021 rates were calculated with 2020 population estimates).

Figure 4. Chlamydia – Trends[†] in Incidence Rates among Males and Females, Ottawa County, 2017-2021



[†]Results from JoinPoint regression analyzing five-year trends in chlamydia incidence rates for male and female residents.

Chlamydia by Age Groups

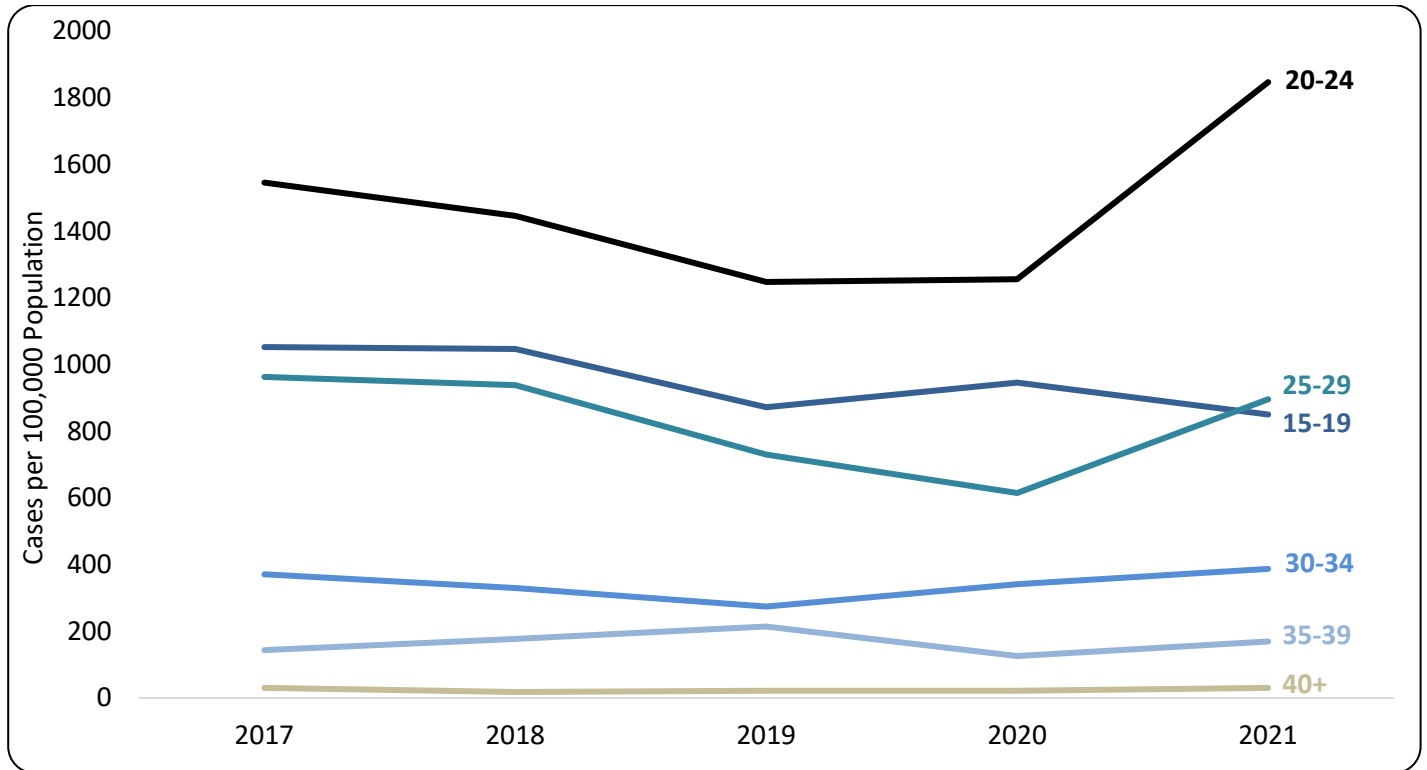
In 2021, the overall average age of chlamydia cases in Ottawa County was about 23.7 years (Table 2). However, female cases were significantly younger (22.9 years) than male cases (25.6 years, $p < 0.001$).[§] As shown in Figure 3, incidence rates were highest among young adults aged 20-24 years for both males and females. The highest age-specific chlamydia incidence rate was among 20–24-year-old females (2,563 cases per 100,000 females), about 2.3 times the rates of their male counterparts (1,139 cases per 100,000 males). Although chlamydia incidence rates have been consistently higher among the 20-24 years age group, no statistically significant trend was detected for any age group in the 2017-2021 timeframe (Figure 5). Incidence rates among age groups with low case counts have been suppressed because of resulting rate instability.

Chlamydia by Race and Ethnicity

In 2021, 628 (62.6%) of the chlamydia cases reported were among non-Hispanic Whites, at a rate of 253 cases per 100,000 population. About 207 (20.6%) cases were Hispanic or Latino, at a rate of 683 cases per 100,000 population. Although non-Hispanic Black or African Americans made up a relatively lower proportion of the chlamydia cases in 2021 ($n=101$, 10.1%), Figure 6 shows the highest rates were reported among this population (1,616 cases per 100,000 population). Asians and Native Hawaiian or Pacific Islanders made up 3.6% (36 cases) at a rate of 404 cases per 100,000 population. Incidence rates among other racial and ethnic groups have been suppressed due to low case counts that result in rate instability.

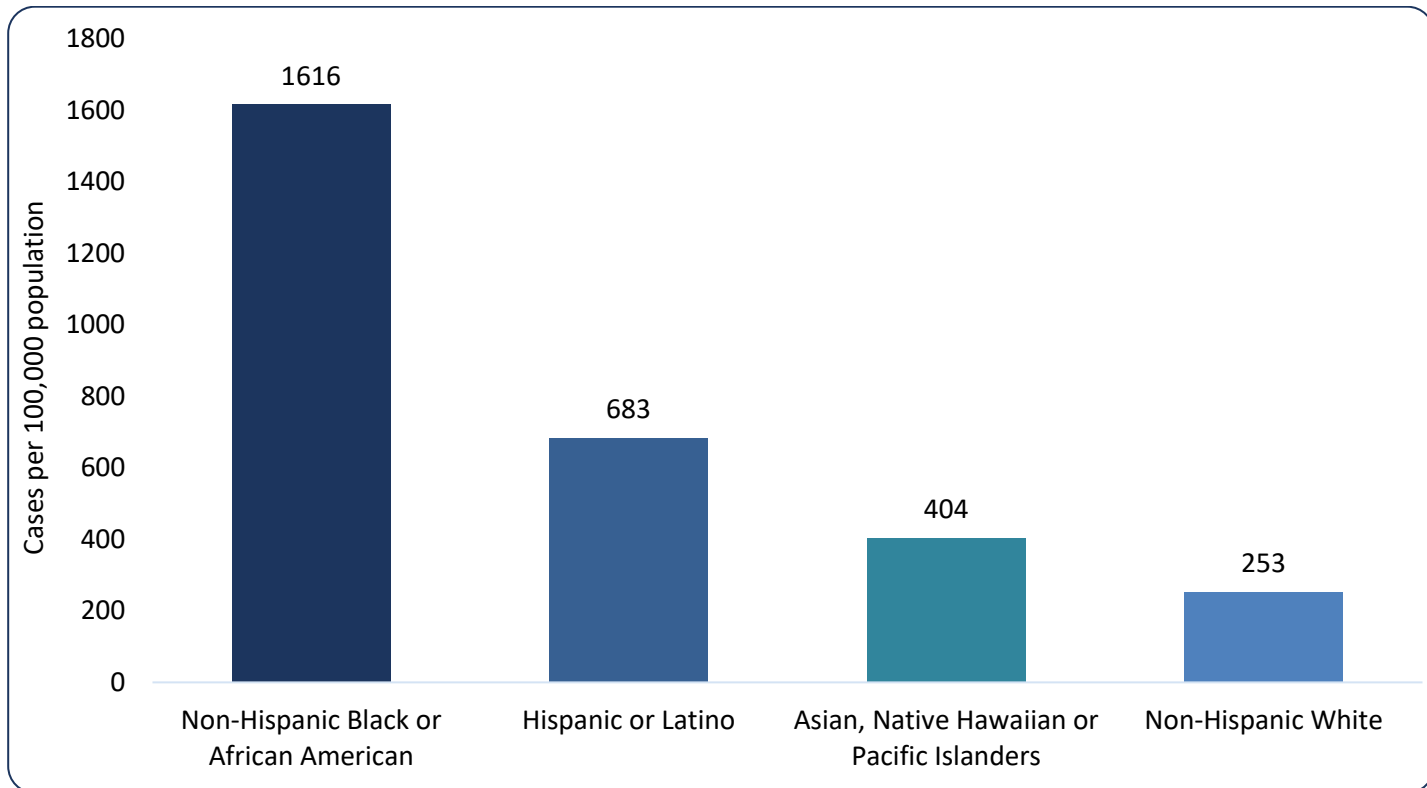
[§] Results from independent sample t-tests comparing the mean ages for male and female cases.

Figure 5. Chlamydia – Trends[†] in Incidence Rates by Age Group, Ottawa County, 2017-2021



[†]Results from JoinPoint regression analyzing five-year trends in chlamydia incidence rates by age group. Age groups with less than 20 cases in any given year were not included on this chart.

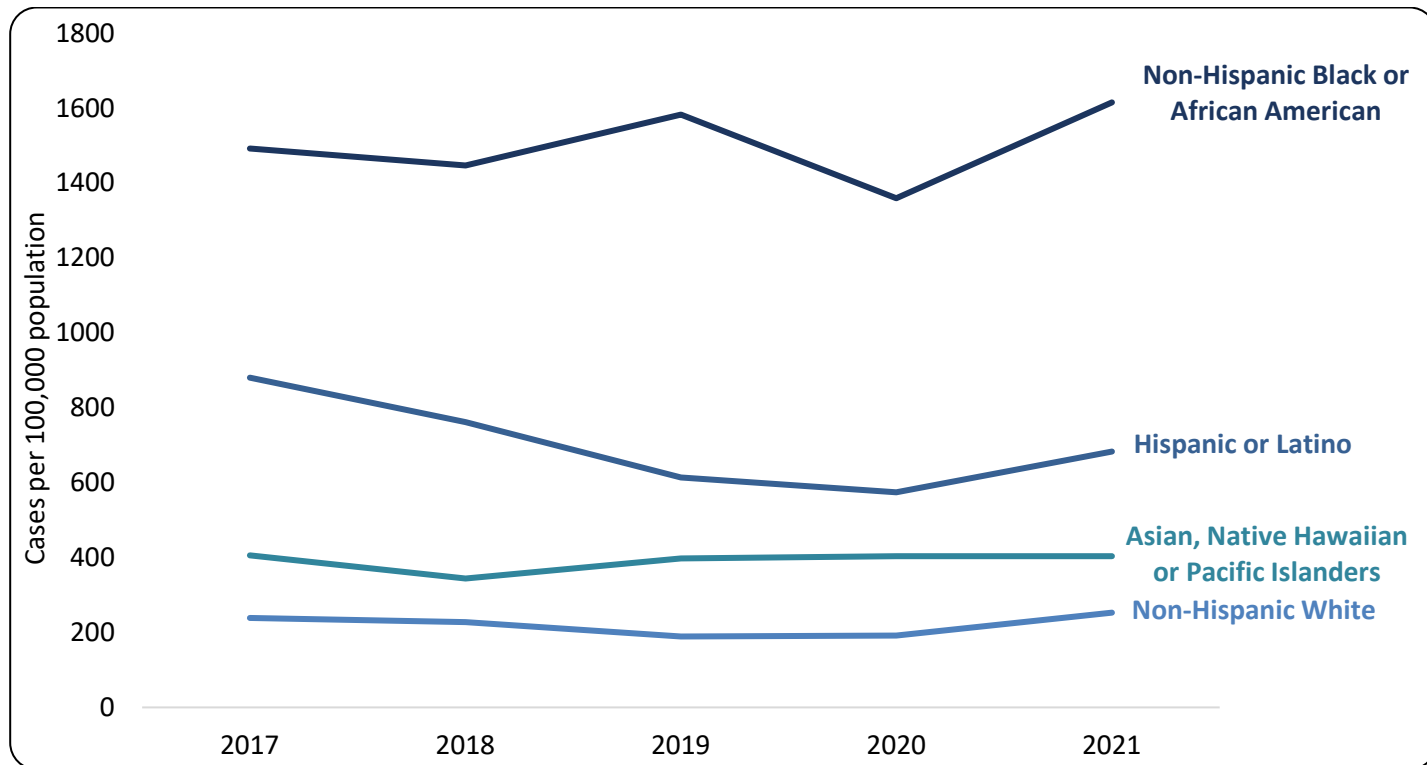
Figure 6. Chlamydia – Incidence Rates of Reported Cases by Race and Ethnicity, Ottawa County, 2021



Data sources: Michigan Disease Surveillance System (MDSS). CDC Wonder Bridged-Race Population Estimates (due to limited data availability at the time of report compilation, 2021 rates were calculated with 2020 population estimates).

Figure 7 shows five-year trends in chlamydia incidence rates by race and ethnicity in Ottawa County between 2017 and 2021. Rates were consistently higher among racial and ethnic minority groups when compared to the rates among the non-Hispanic White population. Based on JoinPoint regression analysis, there was little evidence of an up or downtrend among any of these groups from 2017-2021.

Figure 7. Chlamydia – Trends in Incidence Rates by Race and Ethnicity, Ottawa County, 2017-2021



†Results from JoinPoint regression analyzing five-year trends in chlamydia incidence rates by race and ethnicity.

Race and ethnic groups with less than 20 cases in any given year were not included on this chart.

Overall, the chlamydia incidence rate in 2021 among non-Hispanic Black or African Americans was 6.4 times the rate among non-Hispanic Whites, 4 times the rate among Asians and Native Hawaiian or Pacific Islanders, and 2.4 times the rate among Hispanic or Latino people (Figure 6). The rates were also 2.7 times and 1.6 times higher among Hispanic or Latino people and Asian/Native Hawaiian or Pacific Islanders respectively, compared to non-Hispanic White people (Table 3). Similar disparities in chlamydia incidence rates have also been observed and reported by MDHHS⁸ and CDC.⁷ Table 3 shows chlamydia incidence rate ratios among racial and ethnic minority groups compared to the rate in non-Hispanic White people.

Table 3: Chlamydia – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2021

Race/Ethnicity	Incidence Rate	Rate Ratio
Non-Hispanic White	253 cases per 100,000 people	**
Asian, Native Hawaiian or Pacific Islanders	404 cases per 100,000 people	1.6
Hispanic or Latino	683 cases per 100,000 people	2.7
Non-Hispanic Black or African American	1,616 cases per 100,000 people	6.4

** Reference 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 2021, the chlamydia reinfection rate among reported cases was 14%, similar to the 14.2% reported in 2020. About 77 (7.7%) of the chlamydia cases diagnosed in 2021 were also coinfecting with gonorrhea.

Gonorrhea

Gonorrhea is the second most common bacterial STI reported in Ottawa County, the State of Michigan and in the United States.^{1,4} Like chlamydia, gonorrhea is also transmitted mainly through unprotected sexual contact with an infected individual.⁹ Gonorrhea infections can also result in pelvic inflammatory disease (PID), and can facilitate the transmission of HIV.^{9,10} Because of the considerable burden and risks associated with these infections, at least an annual screening of sexually active individuals is [recommended](#).¹¹ A total of 256 gonorrhea cases were reported in 2021, marking a 29.3% increase from the case count reported in 2020 (Table 1). The gonorrhea incidence rate was 86 per 100,000 population, 28.3% higher than the rate reported in 2020 (Figure 2).

Gonorrhea by Sex

In contrast to chlamydia, the distribution of gonorrhea was less disparate by sex. Of the 256 gonorrhea cases reported in 2021, 131 (51.2%) cases were female and 125 (48.8%) were male. Gonorrhea incidence rates were 88 per 100,000 population and 86 per 100,000 population among females and males respectively (Figure 8). Although gonorrhea incidence rates in Ottawa County were similar among males and females in 2021, historical local and national data have repeatedly reported higher gonorrhea rates among males than in females.⁷ This observation may be attributed to gonorrhea being more likely than chlamydia to cause symptoms in males than in females,¹² potentially motivating males to seek care and receive a gonorrhea diagnosis. Gonorrhea incidence rates among females in Ottawa County were found to have increased significantly ($p < 0.05$)[†] over the five-year period from 2017-2021 (Figure 9). No statistically significant trend was observed among male residents over a similar timeframe.

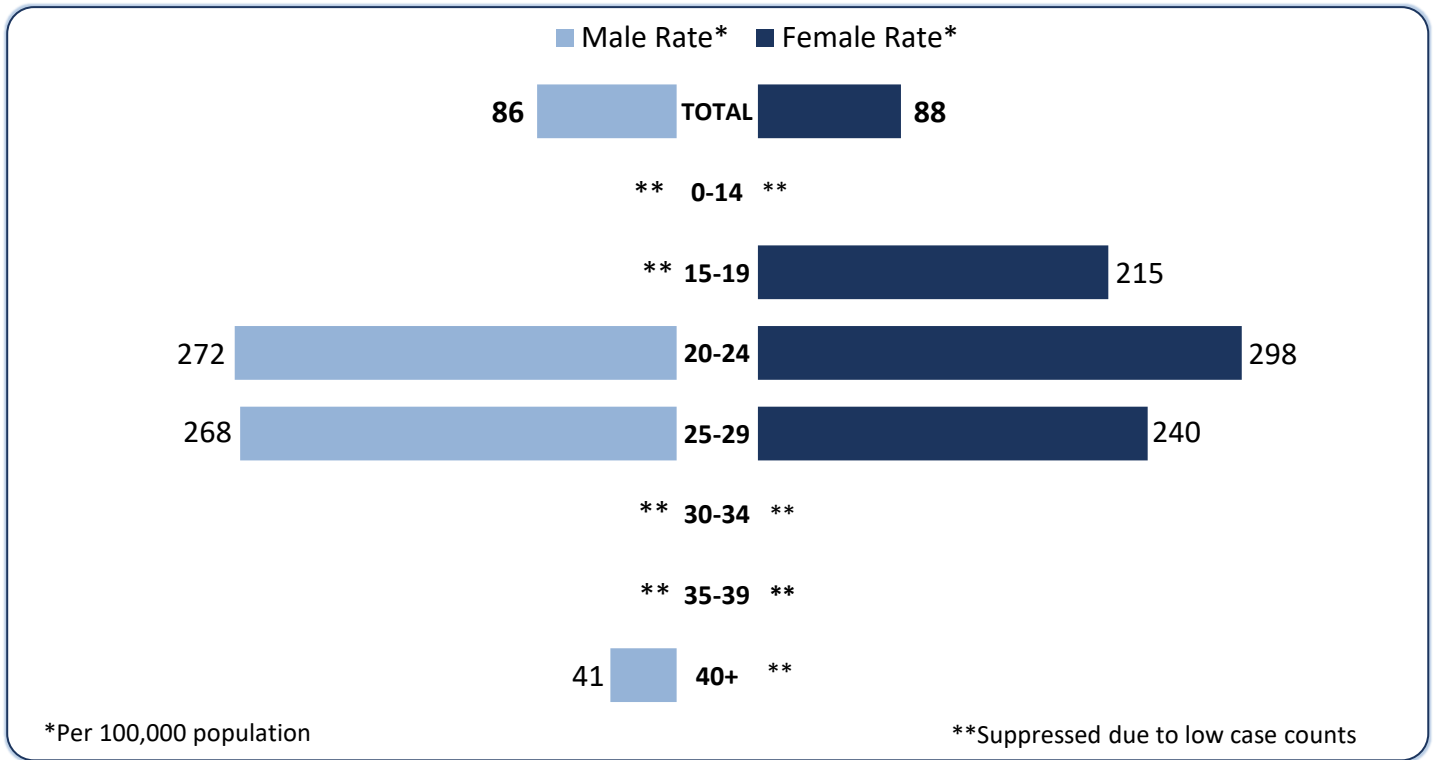
Gonorrhea by Age Groups

In 2021, the average age of gonorrhea cases in Ottawa County was about 29.2 years (Table 2). However, female cases were significantly younger (27.2 years) than the male cases (31.4 years), similar to the observation made with chlamydia cases ($p < 0.05$)[§]. Figure 8 shows gonorrhea incidence rates in 2021 by sex and specific age groups. Like chlamydia, gonorrhea incidence rates were highest among young adults aged 20-24 years (298 cases per 100,000 females and 272 cases per 100,000 males). Some incidence rates among other age groups in Figure 8 have been suppressed due to low case counts resulting in statistically unstable rates. While trends in gonorrhea incidence rates were mostly stable or flat among the different age groups, there was a statistically significant increase ($p < 0.05$)[†] among the 20-24 years age group over the five-year period from 2017-2021 (Figure 10).

[§] Results from independent sample t-tests comparing the mean ages for male and female cases.

[†] Results from JoinPoint regression analyzing five-year trends in gonorrhea incidence rates by sex and by age group.

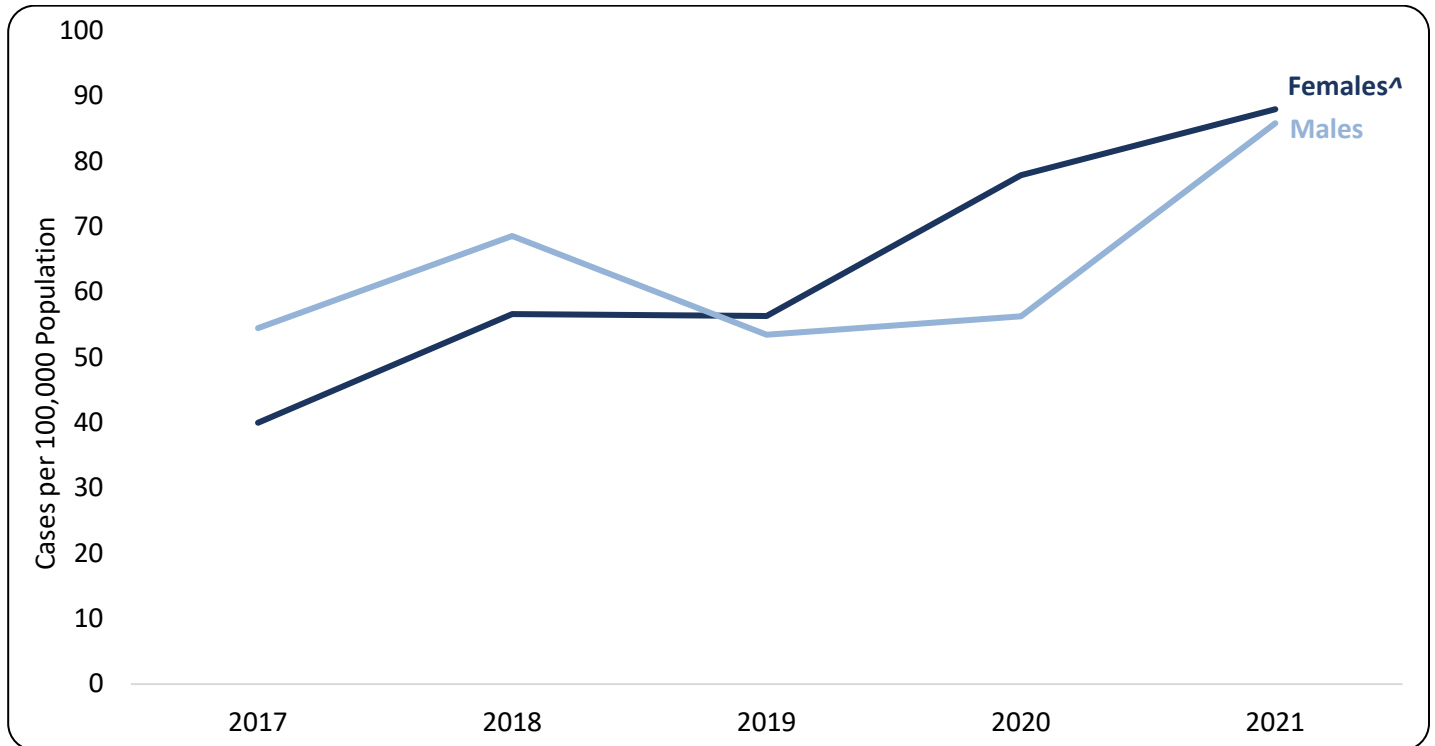
Figure 8. Gonorrhea – Incidence Rates of Reported Cases by Sex and Age Group, Ottawa County, 2021



Data sources: Michigan Disease Surveillance System (MDSS). CDC Wonder Bridged-Race Population Estimates (due to limited data availability at the time of report compilation, 2021 rates were calculated with 2020 population estimates).

[§] Results from independent sample t-tests comparing the mean ages for male and female cases.

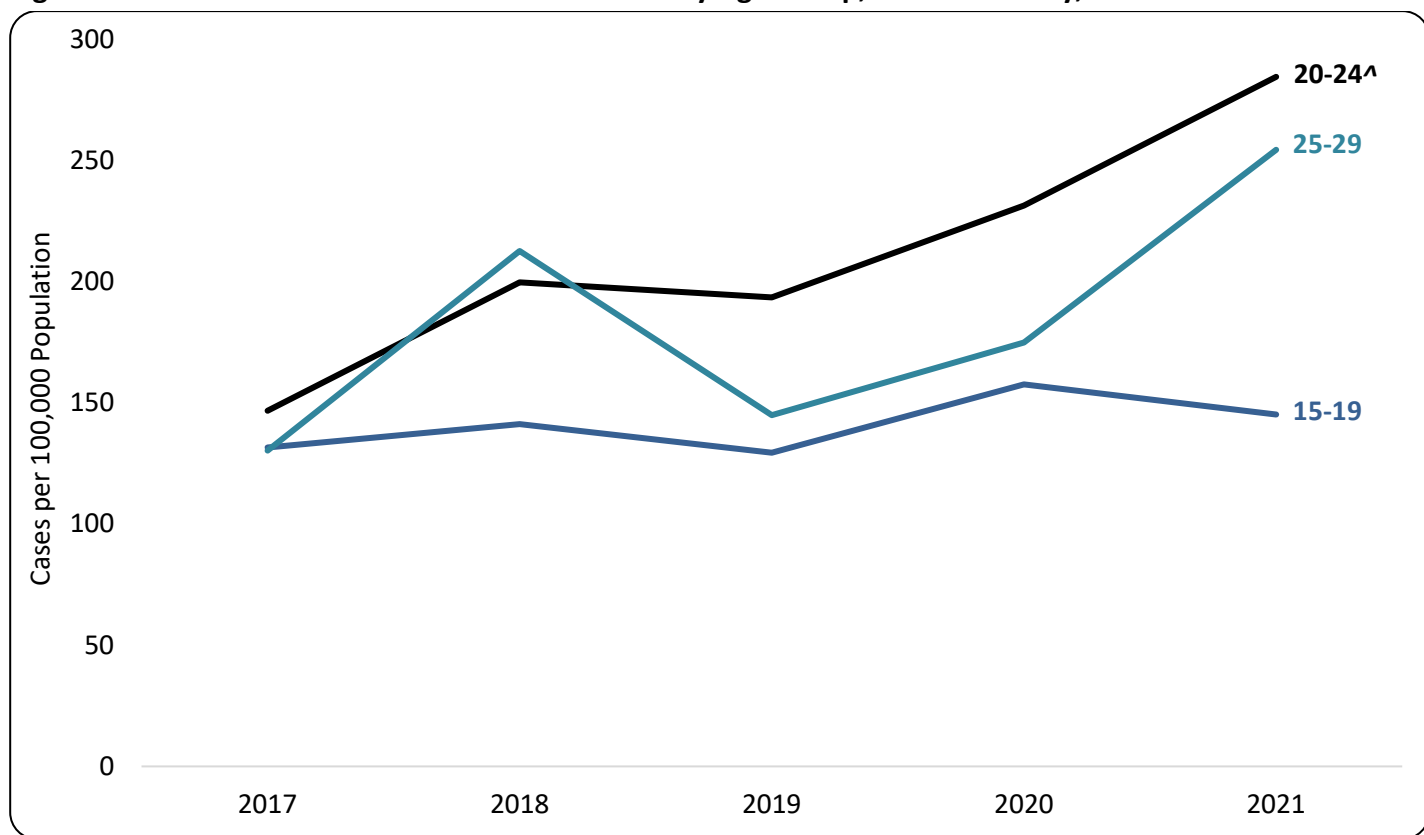
Figure 9. Gonorrhea – Trends[†] in Incidence Rates among Males and Females, Ottawa County, 2017-2021



[†] Results from JoinPoint regression analyzing five-year trends in gonorrhea incidence rates among males and females.

[^] Statistically significant up-trend ($p < 0.05$).

Figure 10. Gonorrhea – Trends[†] in Incidence Rates by Age Group, Ottawa County, 2017-2021



[†]Results from JoinPoint regression analyzing five-year trends in gonorrhea incidence rates by age group.

[^] Statistically significant up-trend ($p < 0.05$).

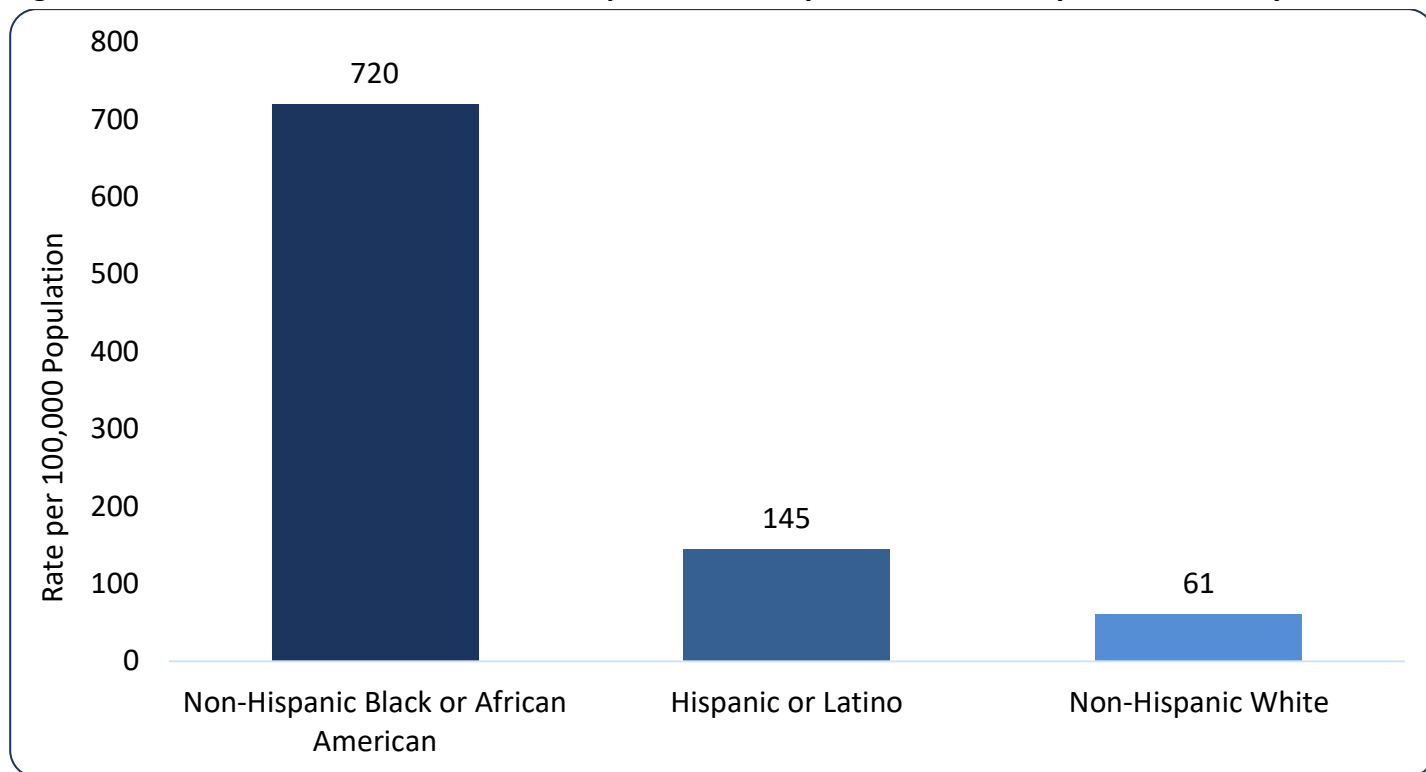
Age groups with less than 20 cases in any given year were not included on this chart.

Gonorrhea by Race and Ethnicity

In 2021, 151 (59%) of the gonorrhea cases reported were among non-Hispanic Whites, at a rate of 61 cases per 100,000 population. Non-Hispanic Black or African Americans made up 45 or 17.6% of the reported cases, equivalent to a rate of 720 cases per 100,000 population (Figure 11). Forty-four or 17.2% of the cases were among Hispanic or Latino residents, at a rate of 145 cases per 100,000 population. Incidence rates among some racial and ethnic groups have been suppressed due to low case counts that result in rate instability.

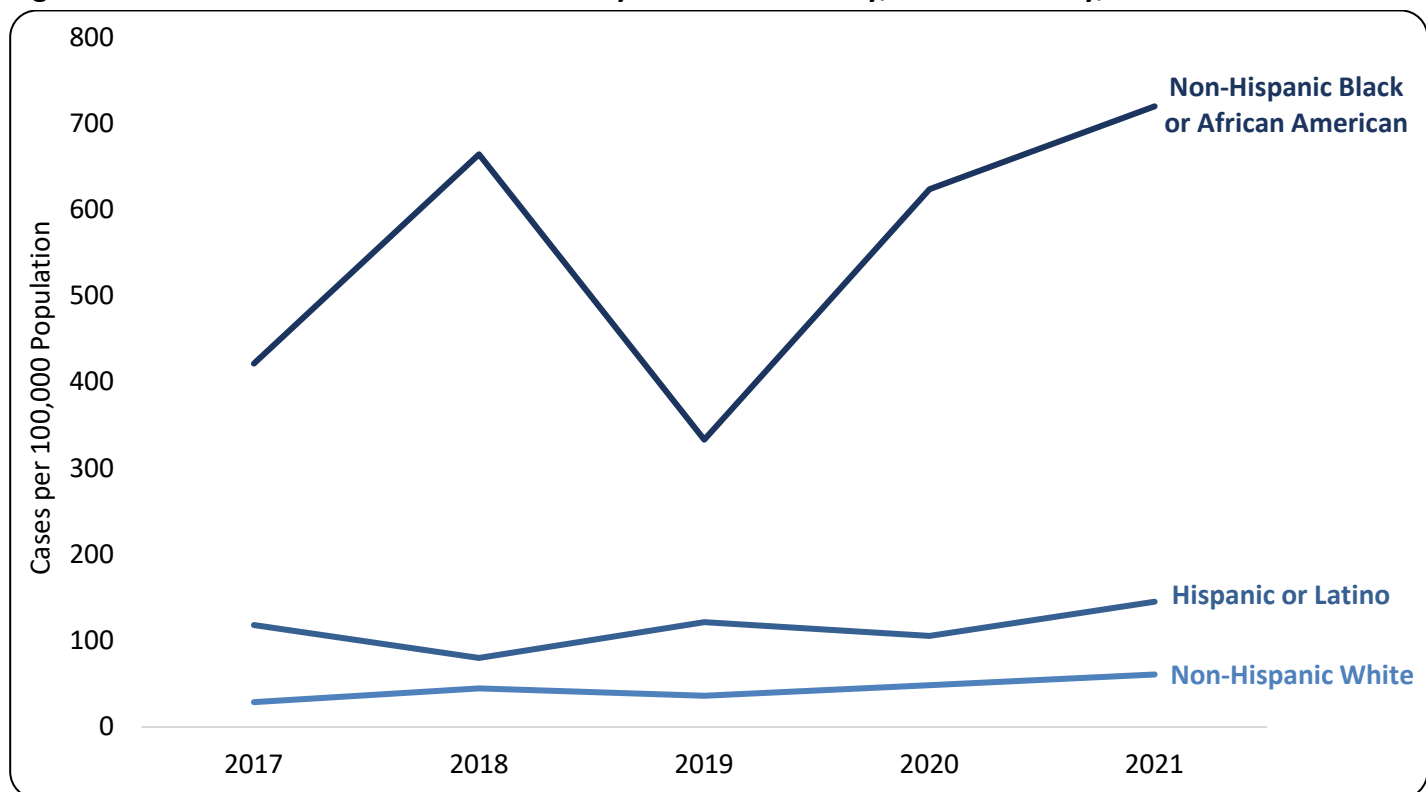
Figure 12 shows five-year trends in gonorrhea incidence rates by race and ethnicity in Ottawa County between 2017 and 2021. Similar to chlamydia rates by race and ethnicity, gonorrhea rates were consistently higher among racial and ethnic minority groups, particularly non-Hispanic Black or African American and Hispanic or Latino people when compared to the rates among non-Hispanic White people. The trends were also relatively stable among each of the racial and ethnic groups over the five-year period from 2017-2021, with little evidence of a statistically significant up or downtrend (Figure 12).

Figure 11. Gonorrhea – Incidence Rates of Reported Cases by Race and Ethnicity, Ottawa County, 2021



Data sources: Michigan Disease Surveillance System (MDSS). CDC Wonder Bridged-Race Population Estimates (due to limited data availability at the time of report compilation, 2021 rates were calculated with 2020 population estimates).

Figure 12. Gonorrhea – Trends[†] in Incidence by Race and Ethnicity, Ottawa County, 2017-2021



[†]Results from JoinPoint regression analyzing five-year trends in gonorrhea incidence rates by race and ethnicity. Race and ethnic groups with less than 20 cases per year are not included on this chart.

Overall, gonorrhoea incidence rates among non-Hispanic Black or African Americans were about 11.8 times the rates in non-Hispanic White people, and 5.0 times the rate among Hispanic or Latino people (Figure 11). Table 4 shows gonorrhoea incidence rate ratios among racial and ethnic minority groups compared to that among non-Hispanic White people.

Table 4: Gonorrhoea – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2021

Race/Ethnicity	Incidence Rate	Rate Ratio
Non-Hispanic White	61 cases per 100,000 people	**
Hispanic or Latino	145 cases per 100,000 people	2.4
Non-Hispanic Black or African American	720 cases per 100,000 people	11.8

** Reference group.

Gonorrhoea Reinfection and Coinfection

Like chlamydia reinfection rates, gonorrhoea reinfection also measures the occurrence of positive gonorrhoea test within the previous 12 months of their current diagnosis. In 2021, gonorrhoea reinfection rate among cases reported Ottawa County was 10.2%, up from 3% in 2020. About 81 (31.6%) of the gonorrhoea cases diagnosed in 2021 were also coinfecting with chlamydia.

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 across the community.
- Family planning and sexual health clinical services.
- Review of all reported cases of chlamydia and gonorrhoea 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 health education and resources, click [HERE](#).

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