miOttawa Department of Public Health

Sexually Transmitted Infections in Ottawa County

2023 Annual Report

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Methodology

Case Data

Case data was obtained from the Michigan Disease Surveillance System (MDSS) on October 4, 2024. Case inclusion criteria is as follows:

1. Confirmed or Probable case with a status of Complete or Complete – follow-up
2. Onset date (if missing, referral date) 1/1/2023 through 12/31/2023
3. Resident of Ottawa County

Population data

Population figures for rate calculations were primarily derived from the American Community Survey (ACS) 1-year estimates.[1] However, since ACS 1-year estimates were unavailable in 2020, ACS 5-year estimates were used instead. For detailed population breakdowns, such as gender by age categories, where no ACS estimates were available, data from the 2020 Decennial Census was utilized (Figures 3 and 10).[2]

State and National Case data

Statewide case counts were sourced from the 2023 MDHHS Sexually Transmitted Infections (STI) Report.[3] National case counts were obtained from the Centers for Disease Control and Prevention's (CDC) 2023 STI Surveillance Report.[4]

Rate calculations

Rates per 100,000 residents are used throughout this report to account for population differences and facilitate meaningful comparisons between jurisdictions with varying population sizes. In this context, "rate" and "incidence" refer to the number of cases per 100,000 residents.

Race and Ethnicity Classifications

Race and ethnicity classifications followed stratification methodologies established by the CDC and U.S. Census Bureau:

- Cases identified as Hispanic or Latino were classified as such, regardless of listed race(s).
- Cases identified as non-Hispanic with a single race were classified under that specific race.
    - Asian and Native Hawaiian or Pacific Islanders are two separate race groups that were at times combined in this report to increase case counts and stabilize rates.
- "Other," "Two or More Races," or "Unknown" non-Hispanic cases were grouped accordingly.

Statistical Analysis

Statistical evaluations were conducted using SAS 9.4 at an alpha level of 0.05. The following procedures were used:

- **Regression Analysis:** The "proc reg" procedure assessed trends in case counts and rates over the past ten years by calculating net slopes.
- **T-Tests:** The "proc ttest" procedure was used to compare averages between two groups and identify significant differences.
- **Chi-Squared Analysis:** The "proc freq" procedure, with the "chisq" option, examined case distribution differences across multiple demographic groups, such as age or race/ethnicity.

Reinfection & Coinfection

Reinfections were defined as a positive test for the same STI in an individual within 365 days, but no sooner than 30 days, after the initial positive test. **Coinfections** were defined as a positive test for either chlamydia or gonorrhea while symptoms for the other STI were still present.

Sexually Transmitted Infections in Ottawa County 2023

The 2023 Sexually Transmitted Infection (STI) report presents a detailed summary of STIs reported in Ottawa County residents during 2023. It illustrates recent trends, estimates differences in STI burden in different demographic groups, and provides information about public health programming and planning.

See the Ottawa County Department of Public Health (OCDPH) 2023 Annual Summary of Reportable Diseases for a comprehensive summary of other selected reportable diseases in the county.[5]

Five-Year STI Trends

Chlamydia and gonorrhea were the top two most frequently reported STIs in Ottawa County over the last five years (2019 to 2023).

Table 1 shows yearly counts of bacterial STIs reported among Ottawa residents.

- Chlamydia cases in Ottawa County decreased during 2022 and 2023 from record-high counts reported in 2021. From 2021 to 2023, chlamydia case counts declined 29%.
- Gonorrhea saw a small increase in 2023 after a dramatic decline the previous year.

Table 1. Confirmed and Probable STI Cases Reported to OCPDH, 2019-2023

Sexually Transmitted Infection	2019	2020	2021	2022	2023	5-Year Total
Chlamydia	795	790	1007	770	715	**4077**
Gonorrhea	160	198	257	151	167	**933**
Syphilis - Primary	3	4	5	2	5	**19**
Syphilis - Secondary	0	3	3	1	4	**11**
Syphilis - Congenital	0	1	1	0	0	**2**
Syphilis - Latent	5	11	6	7	6	**35**
Syphilis – Unknown Duration or Late	6	5	12	12	12	**47**

Incidence for both chlamydia and gonorrhea peaked in 2021 and then decreased in 2022. In 2023, rates of chlamydia and gonorrhea moved in opposite directions, with chlamydia decreasing and gonorrhea increasing (Figures 1 and 2).

- Incidence decreased for chlamydia by 8% and increased for gonorrhea by 10% from 2022 to 2023.

- Although incidence has fluctuated, the rates of both chlamydia and gonorrhea in Ottawa County remain well below the U.S. and Michigan rates.[3,4]

Figure 1: Chlamydia - Incidence Rates of Reported Cases, Ottawa County, Michigan, & USA, 2014 - 2023

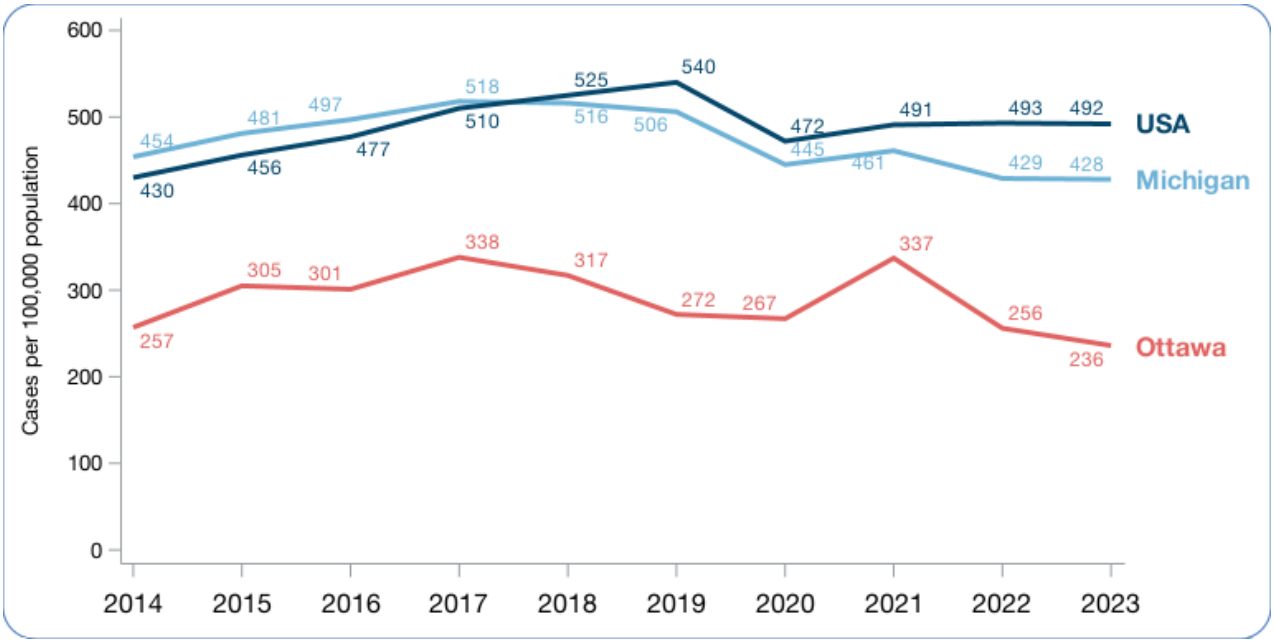
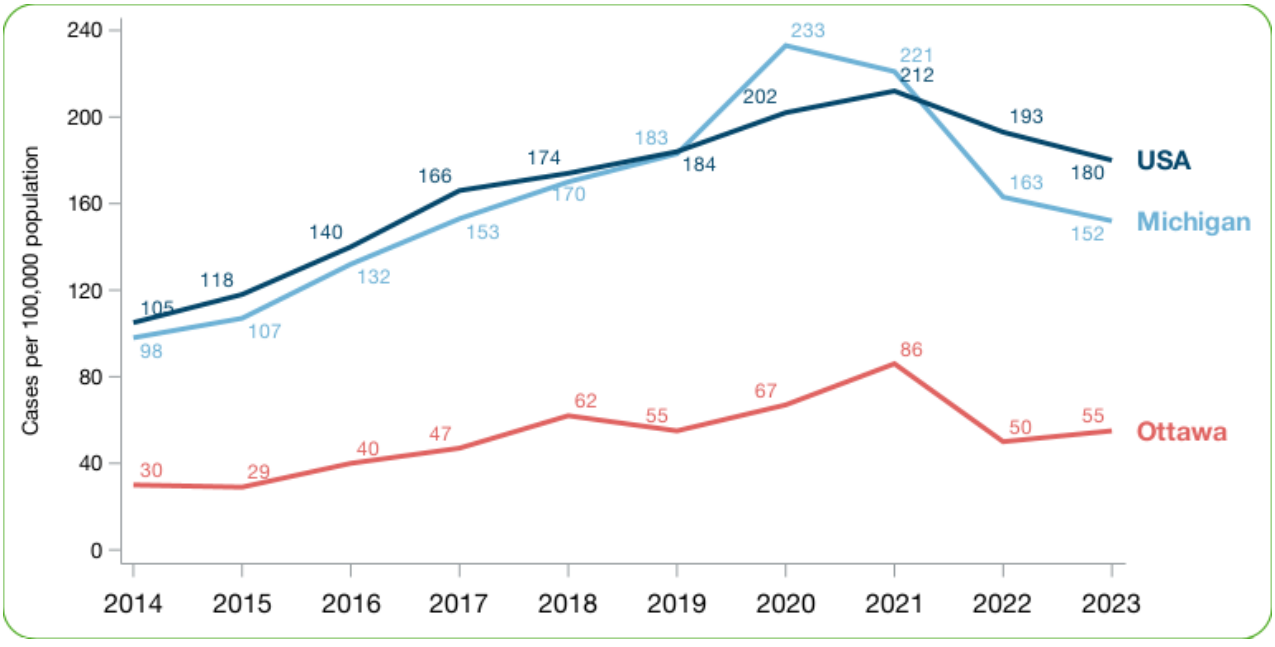


Figure 2: Gonorrhea - Incidence Rates of Reported Cases, Ottawa County, Michigan, & USA, 2014 - 2023



2023 Details by Infection

All reported cases of chlamydia and gonorrhea in Ottawa County in 2023 are described in Table 2 and 3 below.

Table 2. Chlamydia and Gonorrhea – Characteristics of Reported Cases, Ottawa County, 2023

Characteristic	Chlamydia		Gonorrhea	
Total	**715**	**100.0%**	**167**	**100.0%**
Sex at Birth, n (%)				
Female	453	63.3%	72	43.1%
Male	262	36.6%	95	56.8%
Age Group, n (%)				
0-14 years	2	0.2%	0	0
15-19 years	151	21.1%	24	14.3%
20-24 years	322	45.0%	52	31.1%
25-29 years	102	14.2%	22	13.1%
30-34 years	61	8.5%	16	9.5%
35-39 years	28	3.9%	20	11.9%
40+ years	49	6.8%	33	19.7%
Race/Ethnicity, n (%)				
American Indian or Alaska Native	3	0.4%	0	0
Asian	29	4.0%	5	2.9%
Hispanic or Latino	160	22.3%	29	17.3%
Native Hawaiian or Other Pacific Islander	3	0.4%	0	0
Non-Hispanic Black or African American	97	13.5%	41	24.5%
Non-Hispanic White	410	57.3%	91	54.4%
Other Race	10	1.3%	1	0.5%
Two or More Races	2	0.2%	0	0
Unknown	1	0.1%	0	0

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

Table 3. Chlamydia and Gonorrhea – Average Age of Reported Cases, Ottawa County, 2023

Characteristic	Chlamydia	Gonorrhea
Mean Age (years)	**24.8**	**30.6**
Sex at Birth		
Female	23.6	27.7
Male	27.0	32.7

Chlamydia

Chlamydia is the most common bacterial STI reported in Ottawa County, Michigan, and the United States.[3–5] Some key facts about chlamydia:

- It is caused by the bacteria *Chlamydia trachomatis*.
- It is treatable with antibiotics.
- If left untreated, it can result in pelvic inflammatory disease (PID), which is a significant cause of infertility, ectopic pregnancy, and chronic pelvic pain.[6]
- It is transmitted mainly through unprotected sexual contact with an infected person and can also be transmitted from mother to baby during delivery.
- It is known to facilitate the transmission of human immunodeficiency virus (HIV).[7]
- Prevention methods include proper condom use during sexual intercourse, limiting the number of sexual partners, regular testing per CDC guidance, proper treatment of cases, and abstinence.

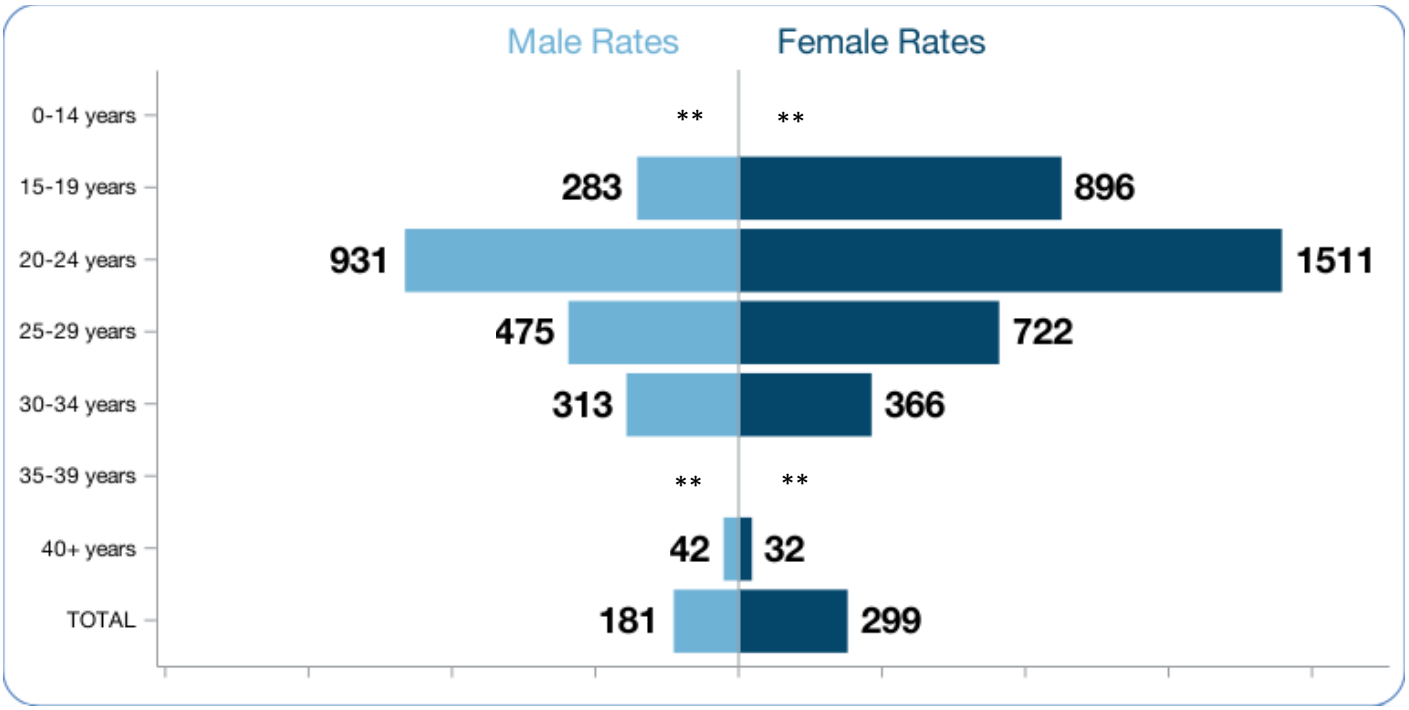
Chlamydia by Sex

The number of chlamydia cases in 2023 in females was 453 (63.3% of cases) and 262 (36.6% of cases) in males. The rates were 299 for females and 181 for males (Figure 3).

Key points:

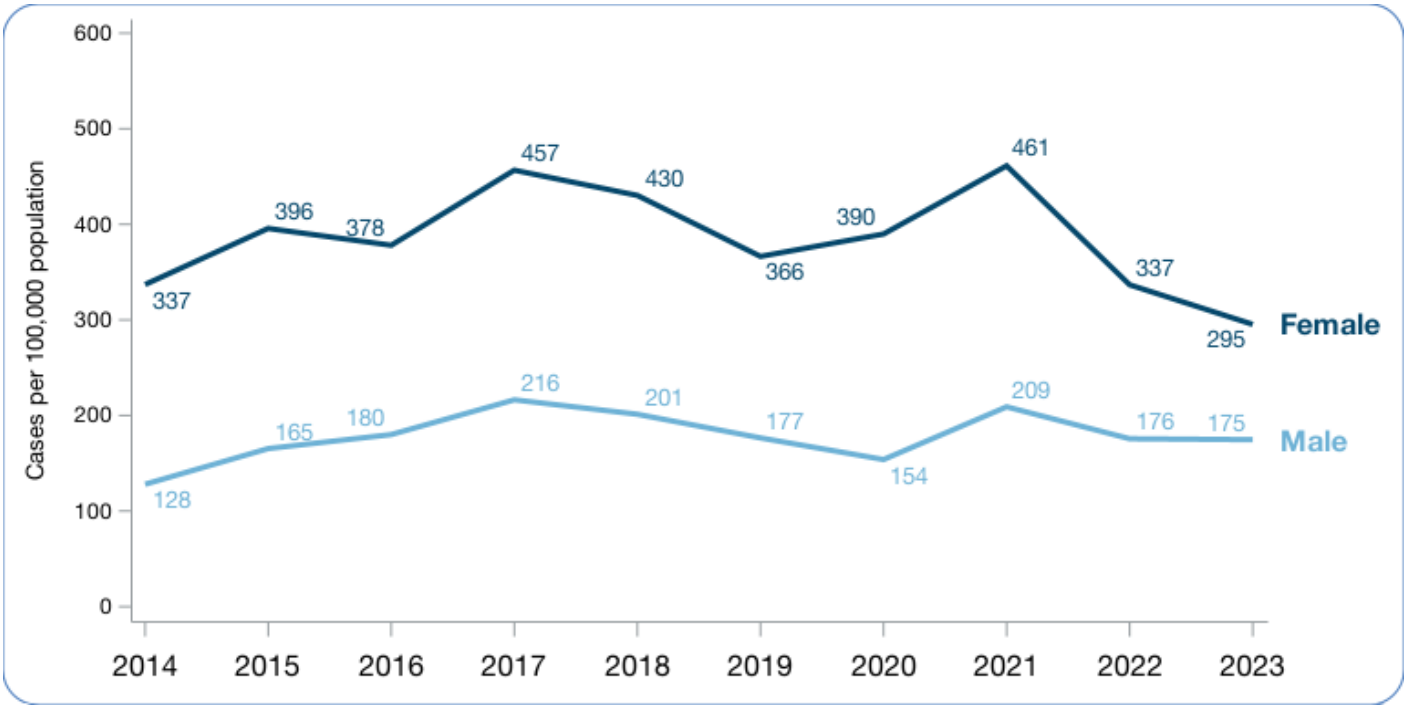
- Rates were almost twice as high in females compared to males in 2023, consistent with state and national data from the MDHHS and the CDC.[3,4]
- Higher rates among females have been attributed to higher transmissibility from men to women[8] and more screening and healthcare-seeking behavior among women.[9]
- Conversely, the lower rates among men suggest that many male sex partners of females with this disease may be undiagnosed.
- Despite consistently higher rates among females in Ottawa County, no statistically significant trend has been observed among either females or males.
- Rates by sex have generally been stable between 2014 and 2023 (Figure 4).

Figure 3. Chlamydia - Incidence of Reported Cases by Sex and Age Group, Ottawa County, 2023



Population Data Source: 2020 Decennial Census[2]

Figure 4. Chlamydia – Incidence among Males and Females, Ottawa County, 2014 - 2023



Population Data Source: American Community Survey.[1] Where 1-year estimates were unavailable (2020) 5-year estimates were used.

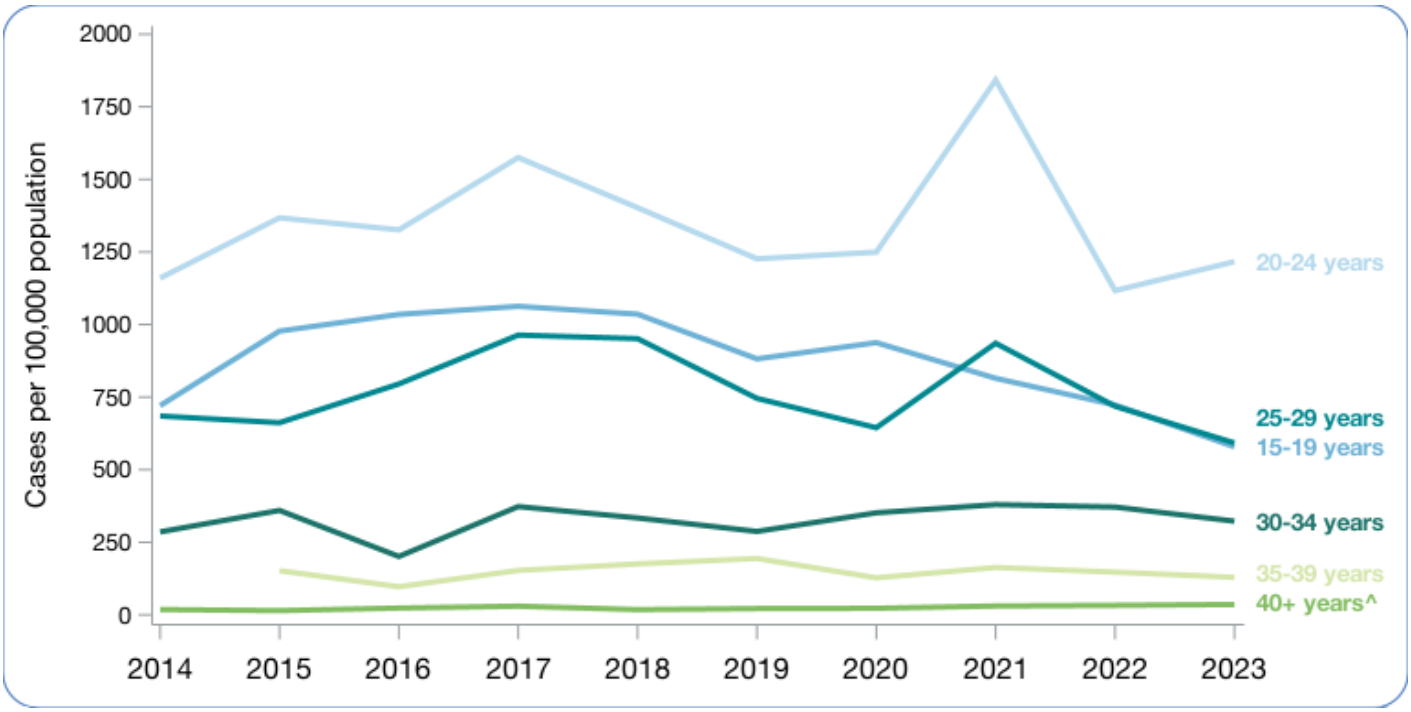
Chlamydia by Age Groups

In 2023, the overall average age of chlamydia cases in Ottawa County was about 24.8 years (Table 3).

Key Points:

- Female cases were significantly younger (23.5 years) than male cases (27 years) (*p<0.001)*.
- Incidence was highest among young adults aged 20-24 years (Figure 5) and much higher in females than males (1,511 per 100,000 females vs. 931 per 100,000 males) (Figure 3).
- A statistically significant increase in the rate (*p = 0.0057*) among those aged 40+ was observed over the ten-year period from 2014-2023 (Figure 5). No statistically significant linear trend was observed among the other age groups over a similar timeframe.

Figure 5. Chlamydia – Incidence by Age Group, Ottawa County, 2014 - 2023



^Age groups with statistically significant ten-year linear trends that indicate change upwards or downwards using SAS 9.4.

Chlamydia by Race and Ethnicity

Rates of chlamydia were significantly different by race and ethnicity ($p < 0.001$)

Key Points:

- In 2023, 410 (57.3%) of the chlamydia cases reported were among non-Hispanic Whites (at a rate of 165).
- Hispanic or Latino residents account for 188 (24.4%) cases (at a rate of 507).
- Non-Hispanic Black or African Americans accounted for 97 (13.6%) cases. Although this is a relatively low proportion of the chlamydia cases in 2023, Figure 6 shows the highest *rate* was reported among this population (at a rate of 2,137).
- Asians and Native Hawaiian or Pacific Islanders made up 32 (4.5%) cases (at a rate of 393).

Figure 6. Chlamydia – Incidence Rates of Reported Cases by Race and Ethnicity, Ottawa County, 2023

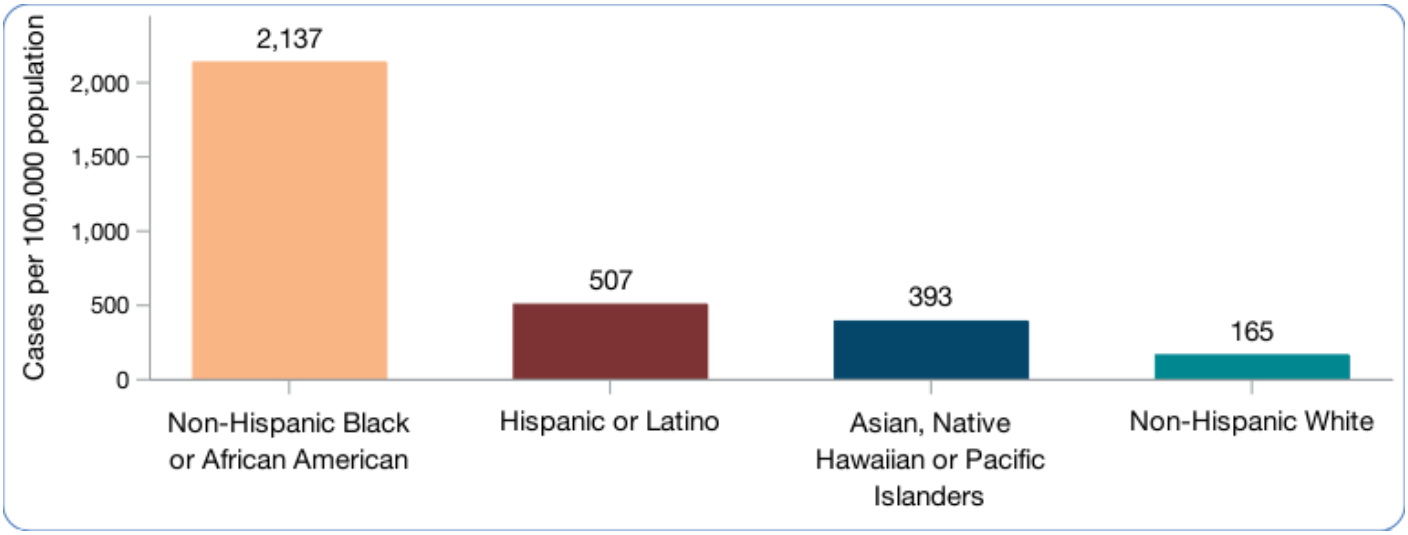


Figure 7 shows ten-year trends in chlamydia incidence by race and ethnicity in Ottawa County between 2014 and 2023.

- Rates were consistently higher among racial and ethnic minority groups when compared to the rates among the non-Hispanic White population.
- Results showed little evidence of an up or downtrend among any of these groups from 2014-2023.

Figure 7. Chlamydia – Incidence by Race and Ethnicity, Ottawa County, 2014 - 2023

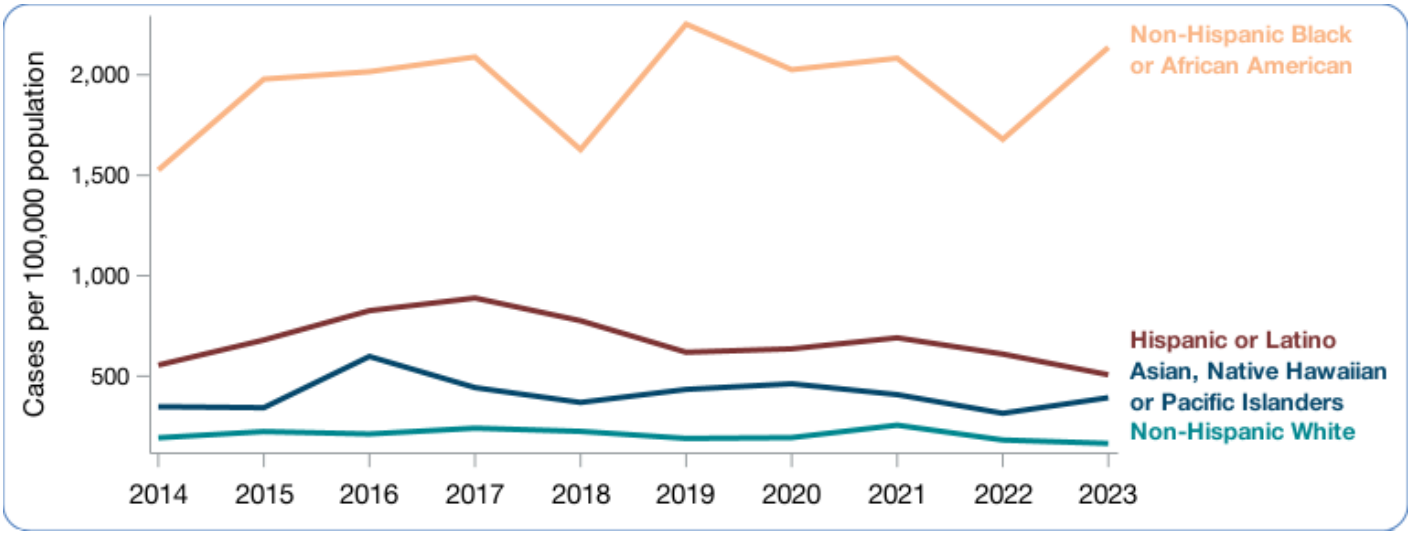


Table 4 shows chlamydia incidence rate ratios among racial and ethnic minority groups compared to the rate in non-Hispanic White residents.

- Overall, the chlamydia incidence in 2023 among non-Hispanic Black or African Americans was 13 times the rate among non-Hispanic Whites, 5.4 times the rate among Asians and Native Hawaiian or Pacific Islanders, and 4.2 times the rate among Hispanic or Latino residents.
- The rates were also 3.1 times and 2.4 times higher among Hispanic or Latino residents and Asian/Native Hawaiian or Pacific Islanders respectively, compared to non-Hispanic White residents (Table 4).
- Similar, but smaller disparities in chlamydia incidence were also reported in Michigan and the U.S. in 2023.[3,4]

Table 4: Chlamydia – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2023

Race/Ethnicity	Incidence Rate per 100,000 people	Rate Ratio
Non-Hispanic White	165	**Ref**
Asian, Native Hawaiian or Pacific Islanders	393	**2.4**
Hispanic or Latino	507	**3.1**
Non-Hispanic Black or African American	2,137	**13**

Ref indicates the comparison group.

Chlamydia Reinfection and Coinfection

Key Points:

- In 2023, the chlamydia **reinfection** rate among reported cases was 7.1%, much improved from the 9.9% reported in 2022 and 13.9% reported in 2021 (Figure 8).
- At least 41 (5.7%) of the chlamydia cases diagnosed in 2023 were also **coinfected** with gonorrhea, down from about 7.7% in 2021 but up from 4.0% in 2022 (Figure 9).

Figure 8. Reinfection - Proportion of Chlamydia Cases that were Reinfections, Ottawa County, 2014 – 2023

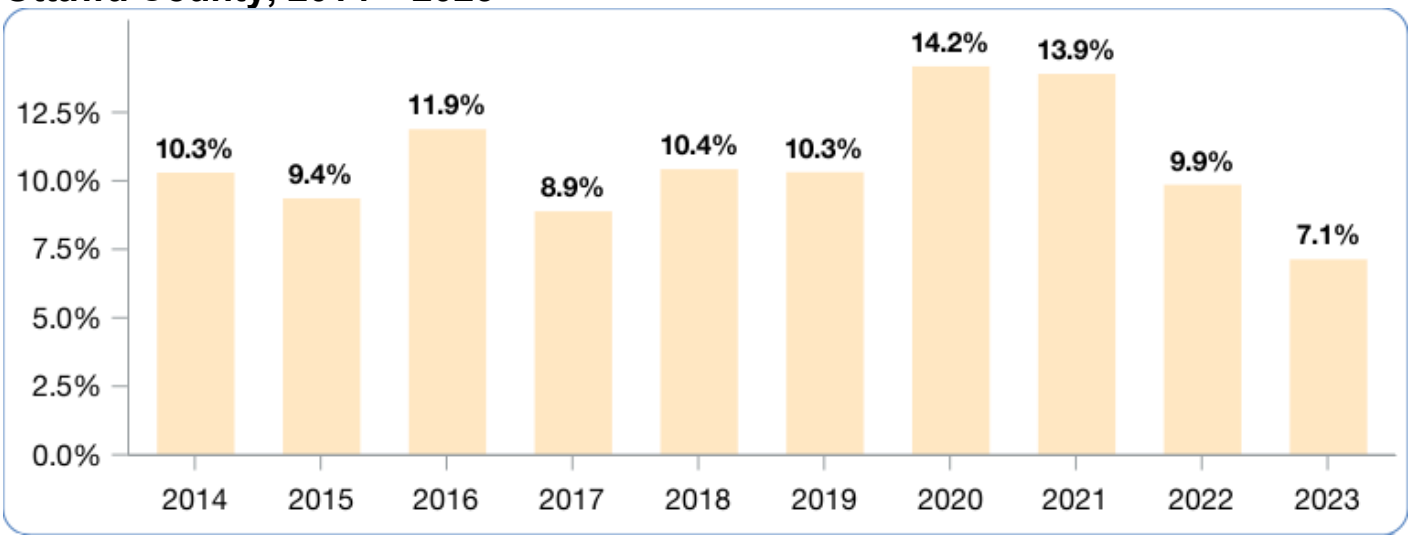
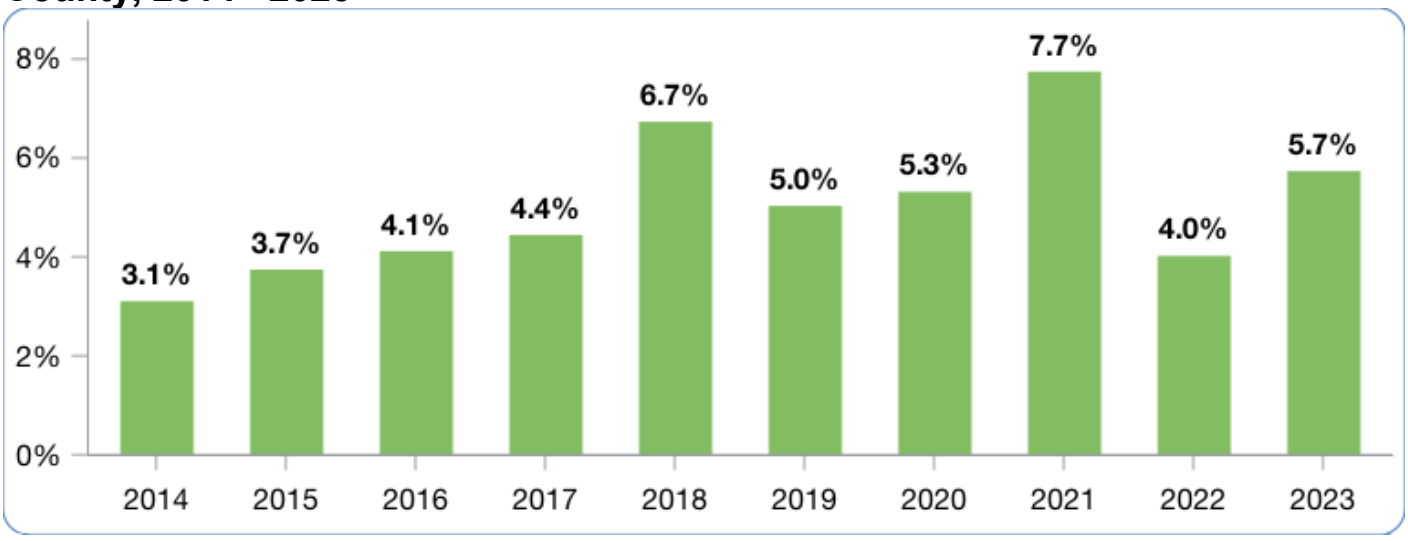


Figure 9. Proportion of Chlamydia Cases Coinfected with Gonorrhea, Ottawa County, 2014 - 2023



Gonorrhea

Gonorrhea is the second most common bacterial STI reported in Ottawa County, Michigan, and the United States.[3–5] Some key facts about gonorrhea:

- It is caused by *Neisseria gonorrhoeae*
- It is transmitted mainly through unprotected sexual contact with an infected individual.
- It can result in PID and can facilitate the transmission of HIV.[6,10]
- Annual screening of sexually active individuals is recommended because of the considerable burden and risks associated with these infections.[11]
- A total of 167 gonorrhea cases were reported in 2023 (Table 1), down 35.0% from the case count reported in 2021, but a 10.6% increase from 2022.
- The gonorrhea incidence was 55 cases per 100,000 population, a 34% decrease from 2021 yet a 10% increase from 2022 (Figure 2).

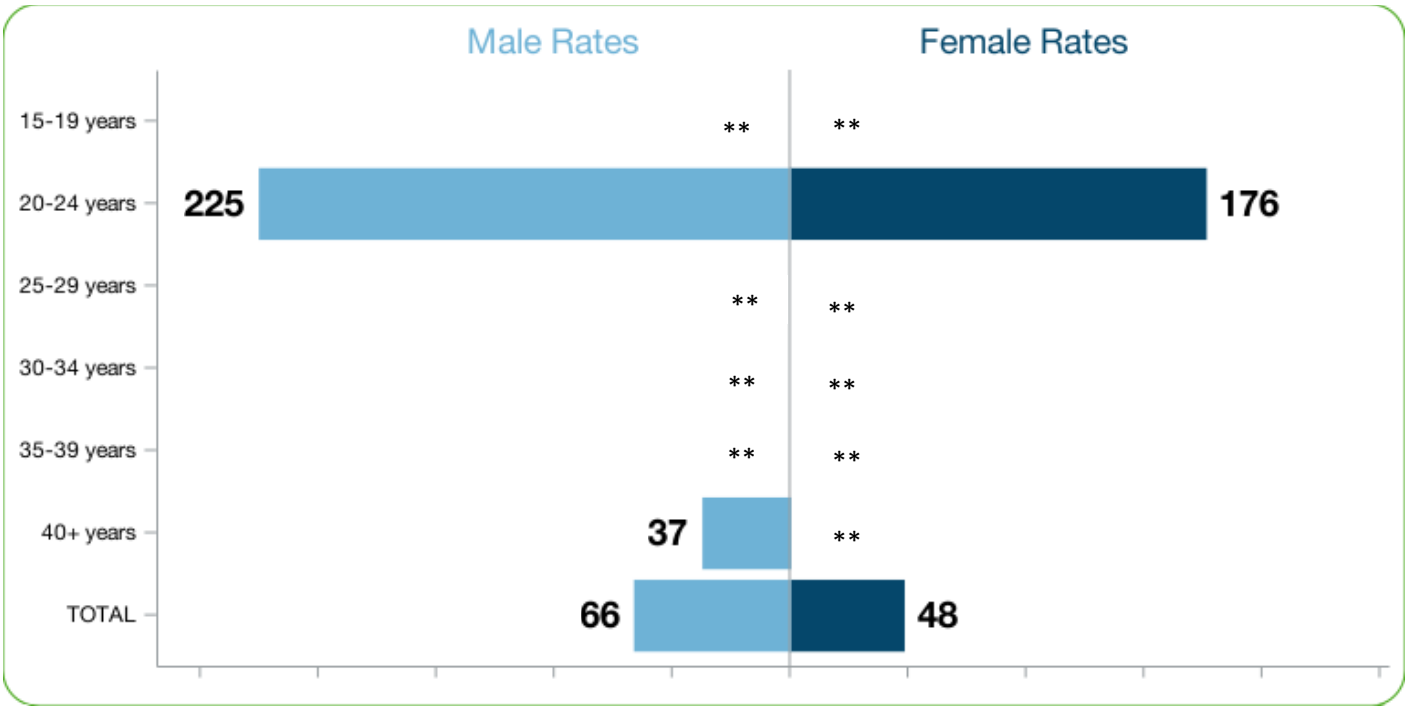
Gonorrhea by Sex

In contrast to chlamydia, the distribution of gonorrhea cases was similar by sex. Of 167 gonorrhea cases reported in 2023, 72 (43.1%) cases were female and 95 (56.8%) were male (Table 2). The rates were 48 females and 66 for males (Figure 10).

Key Points:

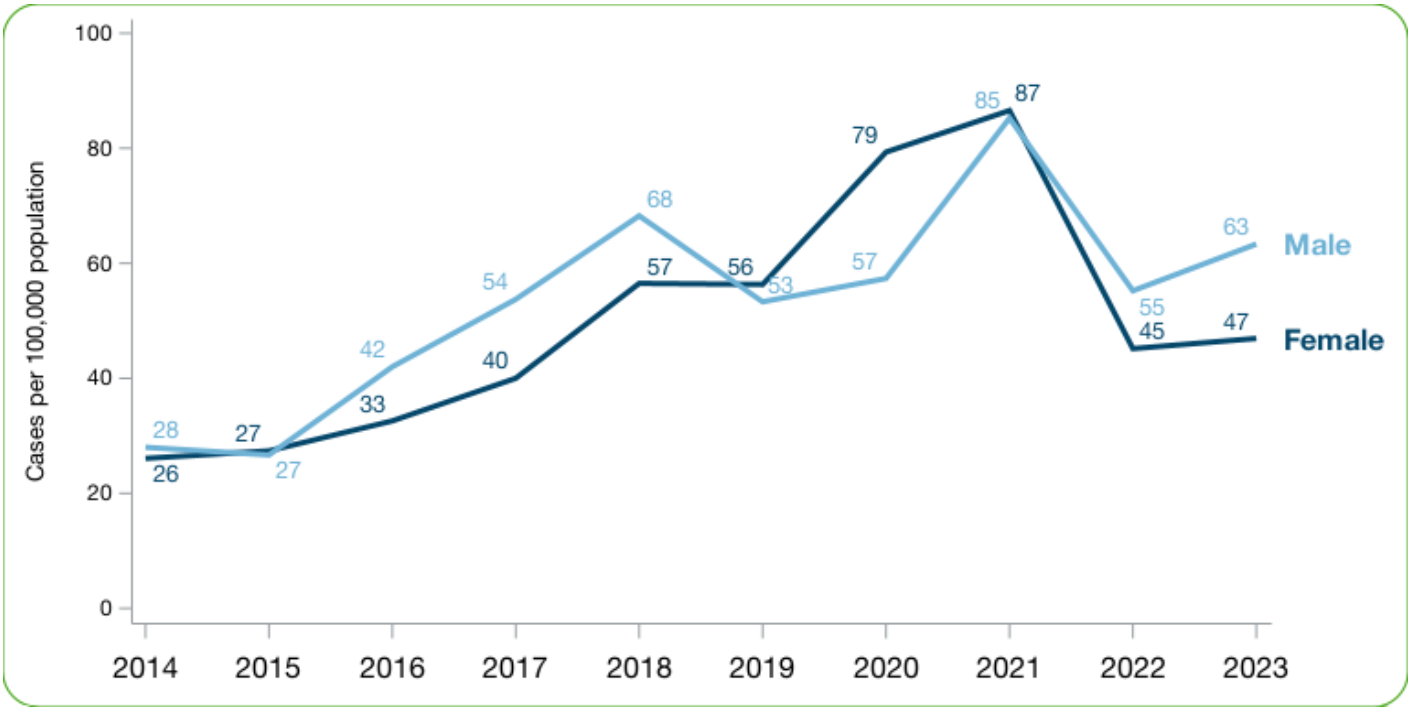
- Although gonorrhea incidence in Ottawa County was generally similar between males and females in 2023, historically, local and national data have repeatedly reported higher gonorrhea rates among males than in females.[4] This observation may be attributed to gonorrhea being more likely than chlamydia to cause symptoms in males than in females, potentially motivating males to seek care and receive a gonorrhea diagnosis.[12]
- No statistically significant trend was observed among males or females over the ten-year period from 2014-2023 (Figure 11).

Figure 10. Gonorrhea - Incidence of Reported Cases by Sex and Age Group, Ottawa County, 2023



Population Data Source: 2020 Decennial Census[2]

Figure 11. Gonorrhea – Incidence among Males and Females, Ottawa County, 2014 - 2023



Population Data Source: American Community Survey.[1] Where 1-year estimates were unavailable (2020) 5-year estimates were used.

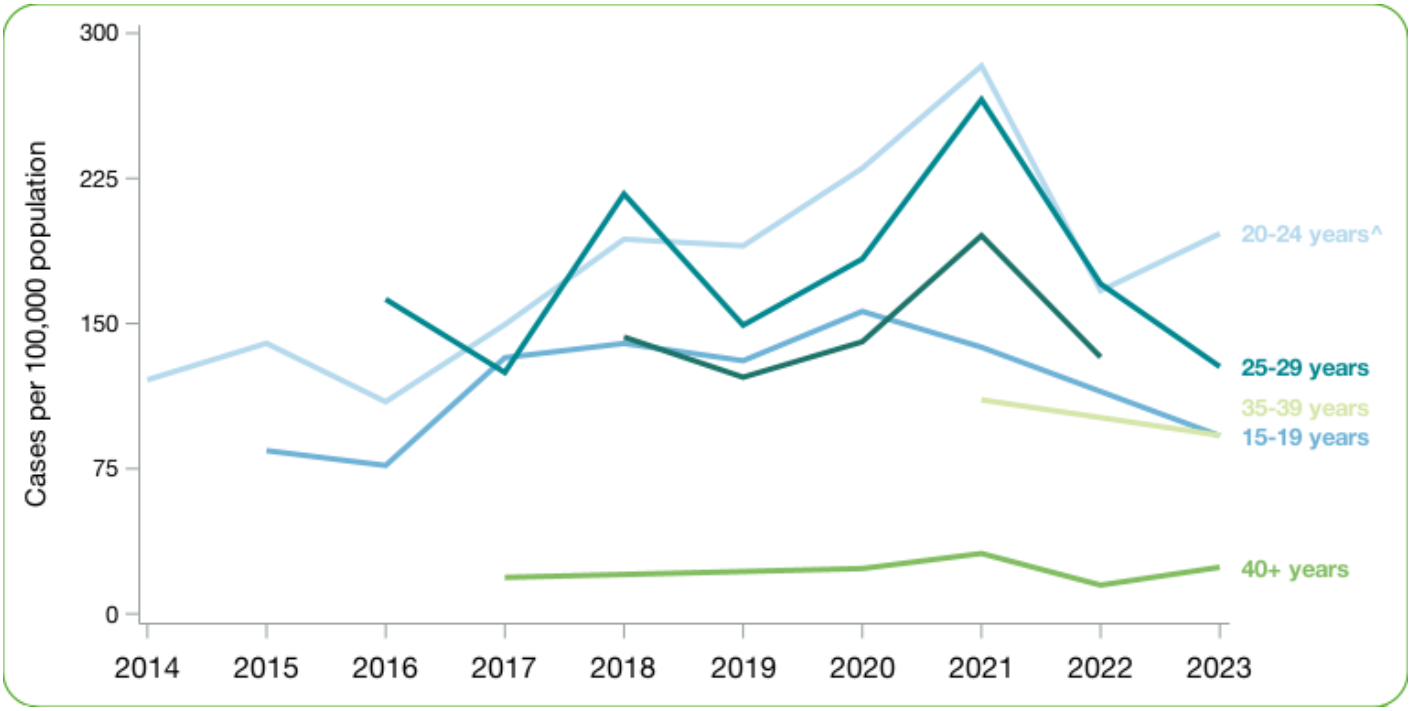
Gonorrhea by Age Groups

In 2023, the average age of gonorrhea cases in Ottawa County was about 30.5 years (Table 3).

Key Points:

- Female cases were significantly younger (27.7 years) than the male cases (33.7 years) ($p < 0.05$), similar to the observation made with chlamydia cases.
- Figure 10 shows gonorrhea incidence in 2023 by sex and specific age groups. Like chlamydia, gonorrhea incidence was highest among young adults aged 20-24 years (176 for females and 225 for males). The only other age group with enough data was the 40+ age group in males with an incidence of 37.
- Trends in gonorrhea incidence among the different age groups were mostly stable or flat, with no statistically significant change noted over the ten-year period from 2014-2023, aside from the 20-24 age group increasing. (Figure 12).

Figure 12. Gonorrhea – Incidence by Age Group, Ottawa County, 2014 - 2023



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

Gonorrhea by Race and Ethnicity

Like chlamydia rates, gonorrhea rates were consistently higher among racial and ethnic minority groups, particularly non-Hispanic Black or African American and Hispanic or Latino residents when compared to the rates among non-Hispanic White residents (Figure 13).

Key Points:

- In 2023, 91 (54.4%) of the gonorrhea cases reported were among non-Hispanic Whites (rate of 37).
- Non-Hispanic Black or African Americans made up 41 or 24.5% of the reported cases. Figure 13 shows the highest rate was reported among this population (at a rate of 903).
- Hispanic or Latino residents accounted for 29 (17.3%) cases (rate of 92).

The trends were relatively stable among each of the racial and ethnic groups over the ten-year period from 2014-2023, with no statistically significant up or downtrend detected (Figure 14).

Figure 13. Gonorrhea – Incidence of Reported Cases by Race and Ethnicity, Ottawa County, 2023

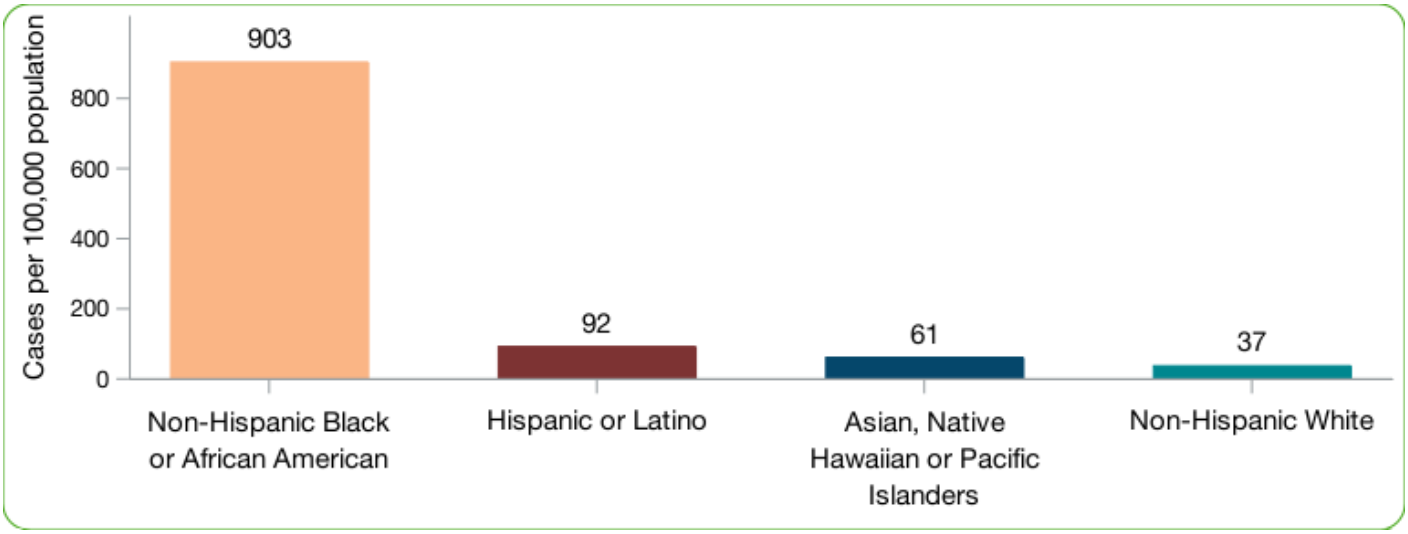


Figure 14. Gonorrhea – Incidence by Race and Ethnicity, Ottawa County, 2014 - 2023

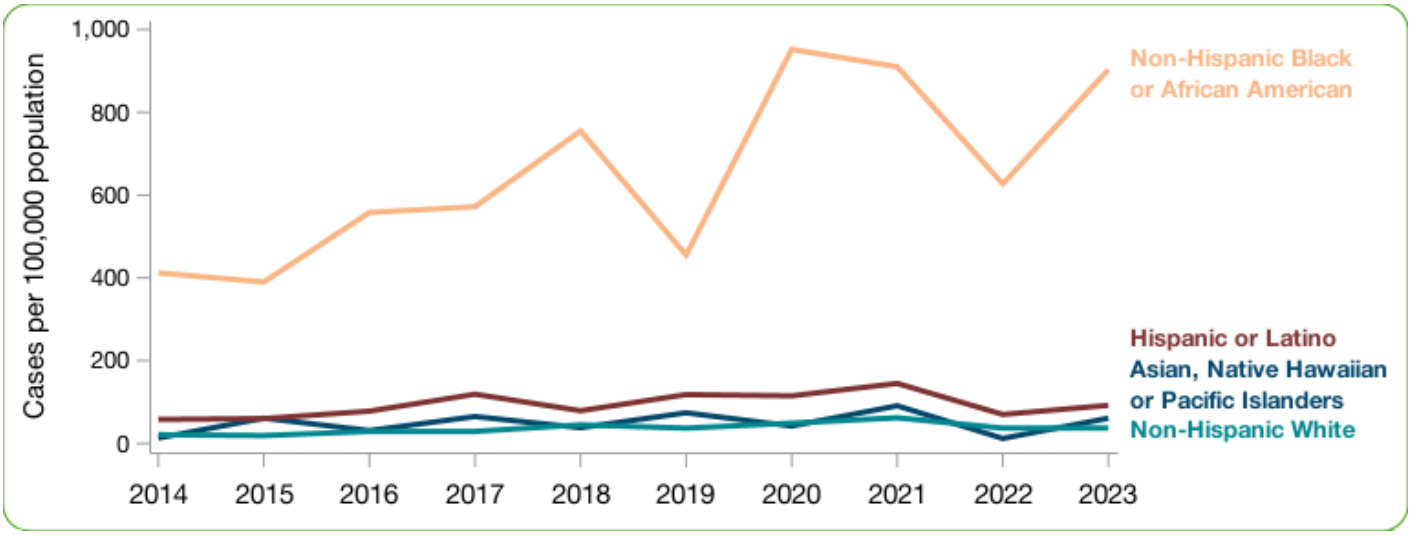


Table 5 shows gonorrhea incidence rate ratios among racial and ethnic minority groups using non-Hispanic White residents as the comparison group.

- Overall, gonorrhea incidence among non-Hispanic Black or African Americans were about 24.4 times the rate in non-Hispanic White residents, 14.8 times the rate among Asian and Native Hawaiian or Pacific Islanders, and 9.7 times the rate among Hispanic or Latino residents.

Table 5: Gonorrhea – Incidence Rate Ratios by Race and Ethnicity, Ottawa County, 2023

Race/Ethnicity	Incidence Rate per 100,000 people	Rate Ratio
Non-Hispanic White	37	**Ref**
Asian, Native Hawaiian or Pacific Islanders	61	**1.6**
Hispanic or Latino	92	**2.5**
Non-Hispanic Black or African American	903	**24.4**

Ref indicates the comparison group.

Gonorrhea Reinfection and Coinfection

- In 2023, the gonorrhea **reinfection** rate among cases reported in Ottawa County was 14.4%, slightly up from 11.9% in 2022 (Figure 15).
- About 41 (24.0%) of the gonorrhea cases diagnosed in 2023 were also **coinfected** with chlamydia, down from 31.5% in 2021 but up from 20.5% in 2022 (Figure 16).

Figure 15. Reinfection - Proportion of Gonorrhea Cases that were Reinfections, Ottawa County, 2014 -2023

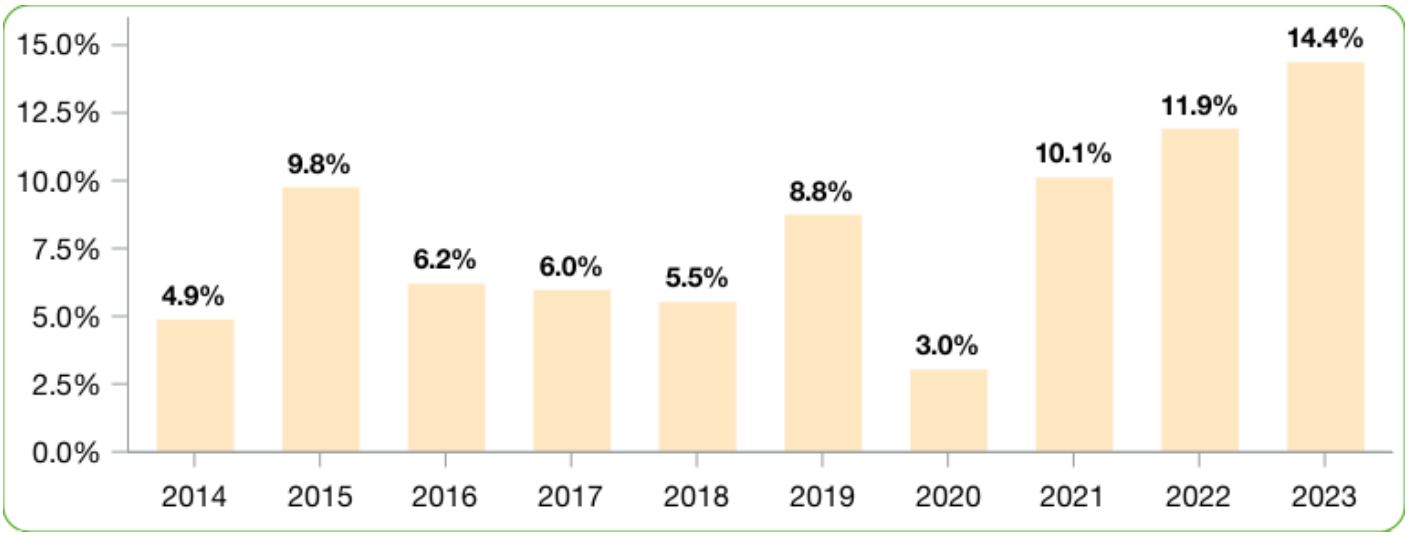
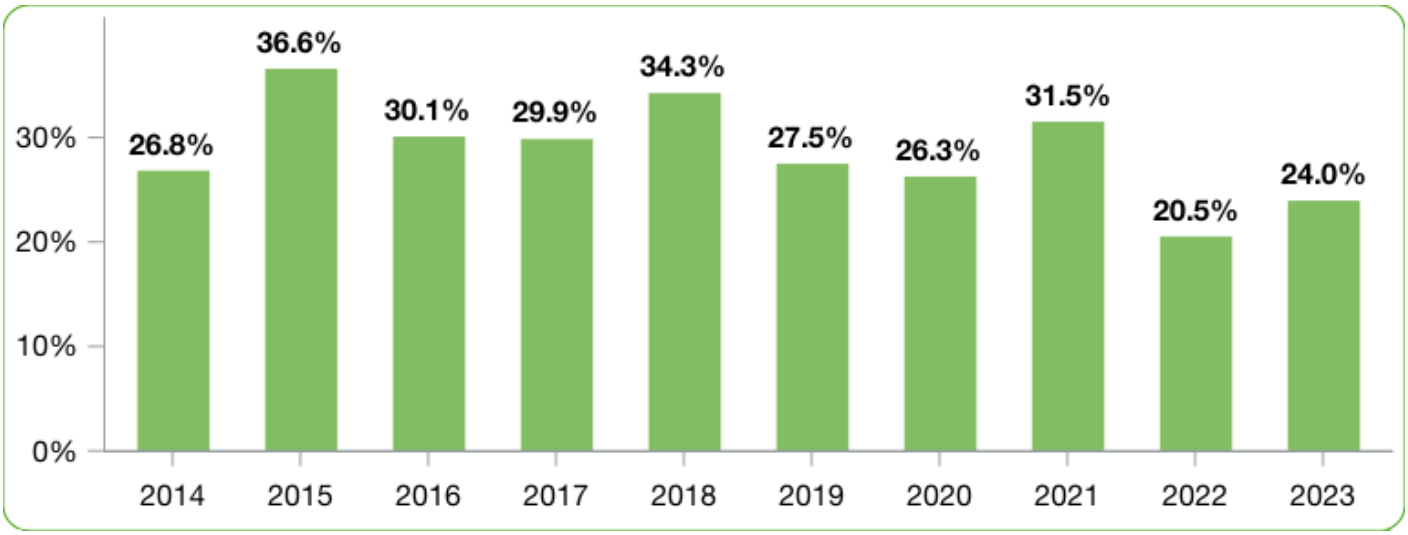


Figure 16. Proportion of Gonorrhea Cases Coinfected with Chlamydia, Ottawa County, 2014 - 2023



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 on regular intervals as recommended.
- Education on sexual health and STI prevention across the community.
- Family planning and sexual health clinical services, available regardless of insurance status or ability to pay.
- 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 health education and resources, click HERE.

References

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