



CITY OF CLEVELAND
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Cleveland Department of Public Health

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Trends in HIV & STIs in Cleveland

2017-2021

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Executive Summary

The 2017-2021 HIV & STI Surveillance Report provides data on new infections reported to the Ohio Department of Health by healthcare providers and laboratories per ORC 3701-3-02. This report focuses on a subset of these diseases, including:

- Chlamydia
- Gonorrhea
- Syphilis
- HIV

The intended audience for this annual surveillance report includes the clinicians and laboratory professionals who report cases, community organizations, local public health departments, advocates, policymakers, and researchers interested in the health of Cleveland residents.

Data Summary

	Diagnoses in Cleveland 2017-2021	Percent Change in Diagnoses 2017-2021 ^a	Average Yearly Case Rate (per 100,000) 2017-2021	U.S. Average Yearly Case Rate 2017-2021
HIV	634	+6.5%	34 ^b	13 ^b
Syphilis	1,314	+102.3%	70	40
Congenital Syphilis	10	+100.0%	46.7	49
Chlamydia	29,819	-8.2%	1557	516
Gonorrhea	17,617	+20.7%	940	190

a. Calculated using the percent change of the 2021 case count compared to the 2017 case count.

b. Case Rate of individuals older than 13 years. Cleveland residents with HIV below 13 years old (n = 2) excluded from case rate.

Abbreviations and Definitions

Abbreviations

Abbreviation	Meaning
AIAN	American Indian (Native American)/Alaskan Native
CDC	Centers for Disease Control and Prevention
CDPH	Cleveland Department of Public Health
EHE	Ending the HIV Epidemic
HIV	Human Immunodeficiency Virus
MSM	Men who have sex with men
NH	Non-Hispanic
NHPI	Native Hawaiian or Pacific Islander
ODRS	Ohio Disease Reporting System
PLIV	Person(s) living with HIV
STI	Sexually transmitted infection
TFSM	Trans-female who has sex with men
Transgender: FtM	Female to male transgender person
Transgender: MtF	Male to female transgender person

Definitions

	Meaning
Case	An instance of sexually transmitted infection that meets laboratory and/or clinical criteria. More than one instance can occur in the same person. ¹
Case Rate	The rate that sexually transmitted infections appear in a population. Note that this is also known as incidence.
Co-Infection	A case of multiple specified sexually transmitted infections within a certain timeframe in the same individual.
Diagnosis	The number of cases newly diagnosed over a given period of time, usually a year. The date assigned to a reported sexually transmitted infection is the symptom onset date. If that date is missing, the diagnosis date is used.
Gender	A person's self-identity as male or female, and the social construct of how institutions respond based on that person's identity. ²⁻³
Individual	A person who has been diagnosed with one or more cases of sexually transmitted infections.
Opt-Out HIV Testing	HIV testing that is done on every individual that goes to that clinical setting, unless that individual refuses to undergo testing. ⁴
Re-Infection	A repeat infection of the same sexually transmitted infection in the same individual.
Sex	A classification of a person as male or female based on a person's reproductive organs, genetics, and hormone levels, among other biological characteristics. ²⁻³

Sexual Orientation	Terms used to describe and classify a person’s physical, emotional, and/or romantic attraction towards other people. ³
Sexually Transmitted Infection	An infectious disease that is often transmitted through sexual activity. ⁵
Surveillance	The systematic collection, analysis, interpretation, and dissemination, of health data on an on-going basis, to gain knowledge of the pattern of disease occurrence and potential in a community in order to control and prevent disease in the community. ⁵
Transgender	Term used to describe people who have a different gender than their sex at birth. ²⁻³

Trends in HIV Diagnoses in Cleveland, 2017-2021

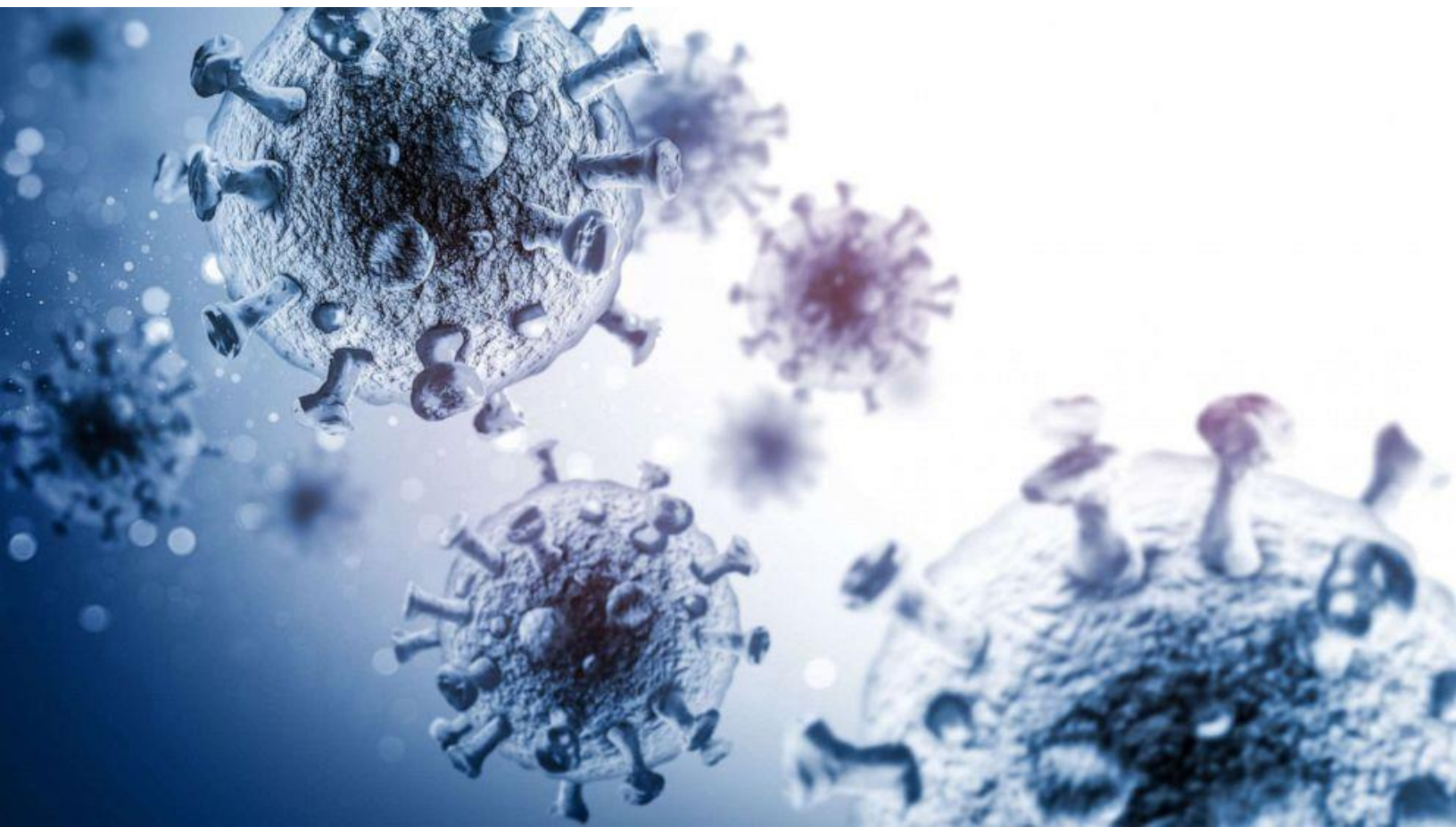
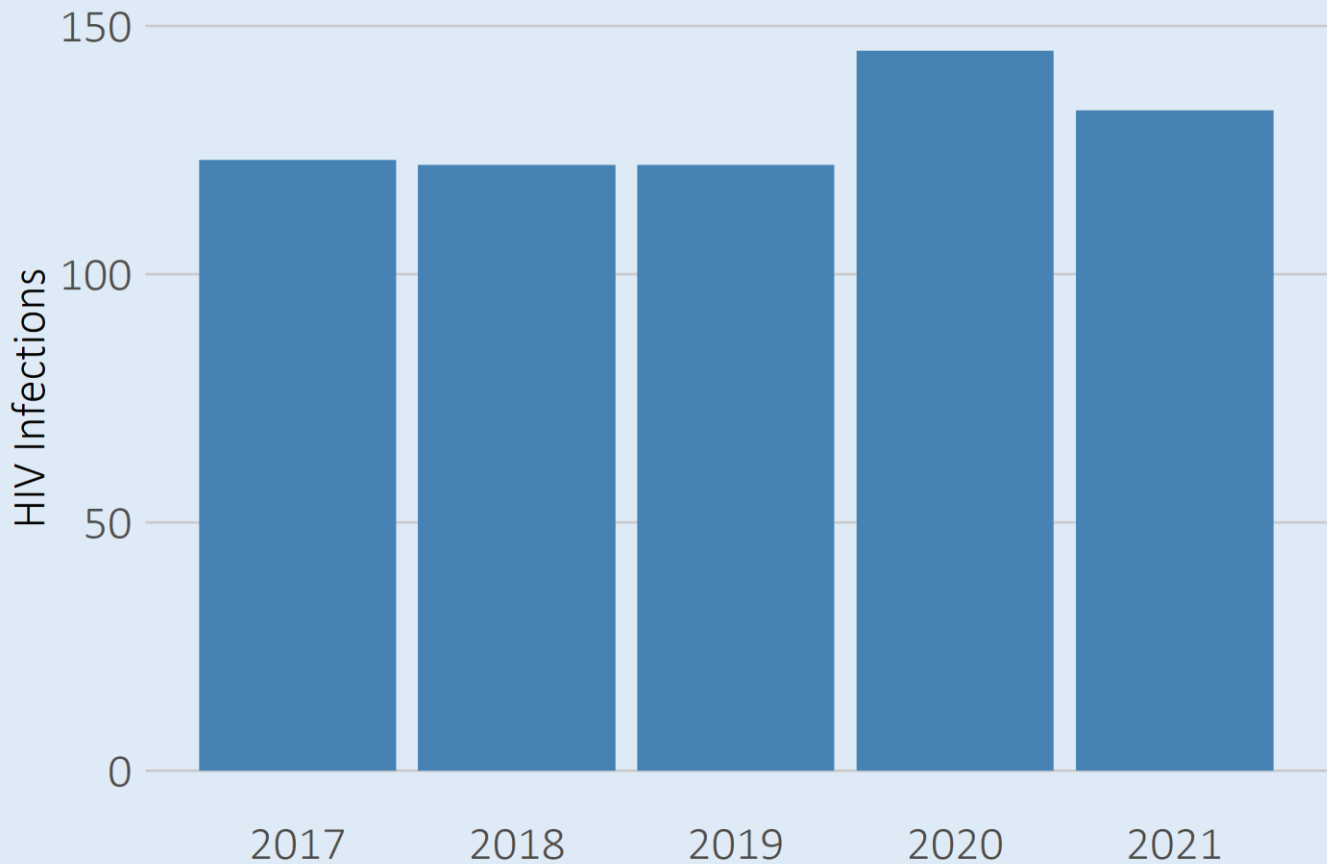


Figure 1. HIV diagnoses in Cleveland by year, 2017-2021



In 2019, the Centers for Disease Control (CDC) started the End the HIV Epidemic (EHE) Initiative, stating a goal to decrease new HIV diagnoses in the United States by 90% by 2030.² This initiative also prioritized 50 jurisdictions where over half of new HIV diagnoses occur in the nation. Cuyahoga County, which includes Cleveland, is one of those prioritized regions.⁶ Cleveland accounted for approximately 76% of HIV diagnoses in Cuyahoga County for the 2017-2021 time period. For Cleveland, a 90% reduction of HIV diagnoses from 2019 would mean a goal of reducing new diagnoses per year by approximately 110 residents.

Data on new HIV diagnoses in Cleveland show that residents aged 20-29, men who have sex with men (MSM), and non-Hispanic Black and African American residents have the highest rates of new diagnoses in the city (Figures 2, 3, and 7). Responses to case interview questions show that the health behaviors including inconsistent condom use and intercourse with anonymous partners are common among people newly diagnosed with HIV (Figure 5).

How COVID-19 Affected Data

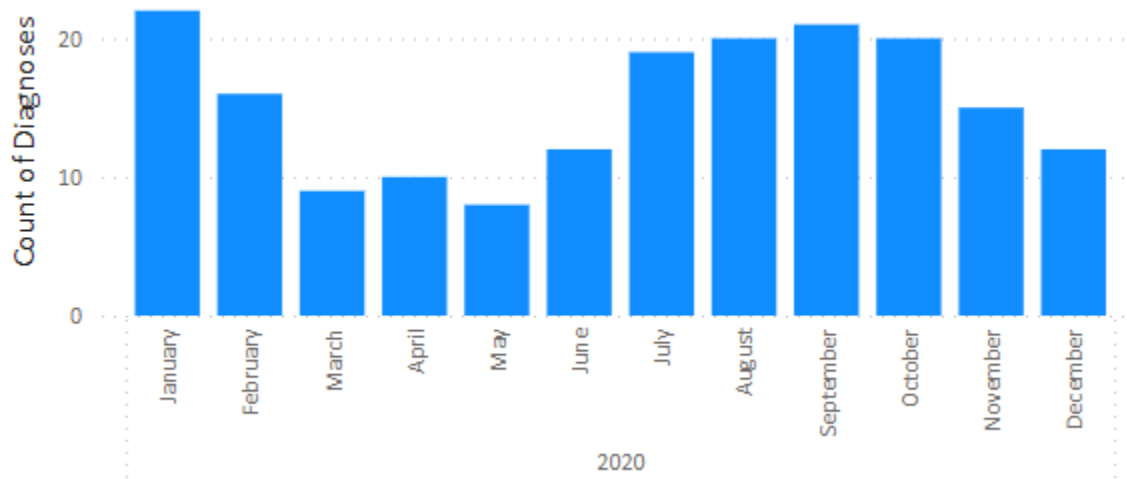


Figure 2. Reported COVID-19 diagnoses in 2020 by month.

Nationally, the overall number of HIV diagnoses in the United States in 2020 was 17% lower than in 2019 (Centers for Disease Control and Prevention, 2022). This national reduction in HIV diagnoses potentially caused by “disruptions in clinical care services, patient hesitancy in accessing clinical services, and shortages in HIV testing reagents/materials.”

While total HIV diagnoses in the United States decreased, diagnoses in Cleveland increased by 20% in 2020 from 2019. In Cleveland, the COVID-19 pandemic impacted STI surveillance data most acutely in March and April 2020 resembling national trends (Figure 2). It is difficult to determine whether this increase is due to an increase in transmission of HIV, an increase of HIV screening, or some other cause.

One explanation for this increase in local diagnoses may be found in healthcare system changes. The Cleveland Clinic Foundation implemented a system-wide screening policy regarding HIV testing in emergency rooms in 2020.⁴ According to data on diagnosing facilities, the Cleveland Clinic Foundation hospitals diagnosed approximately 42% more Cleveland residents compared to previous years. This new policy may have captured additional people unknowingly living with HIV. People who interact with healthcare primarily through emergency rooms are now screened for HIV and more people are getting into care for HIV earlier.

Demographics

Table 1. HIV diagnosis rates per 100,000 in Cleveland by selected demographics, 5-year average, 2017-2021.

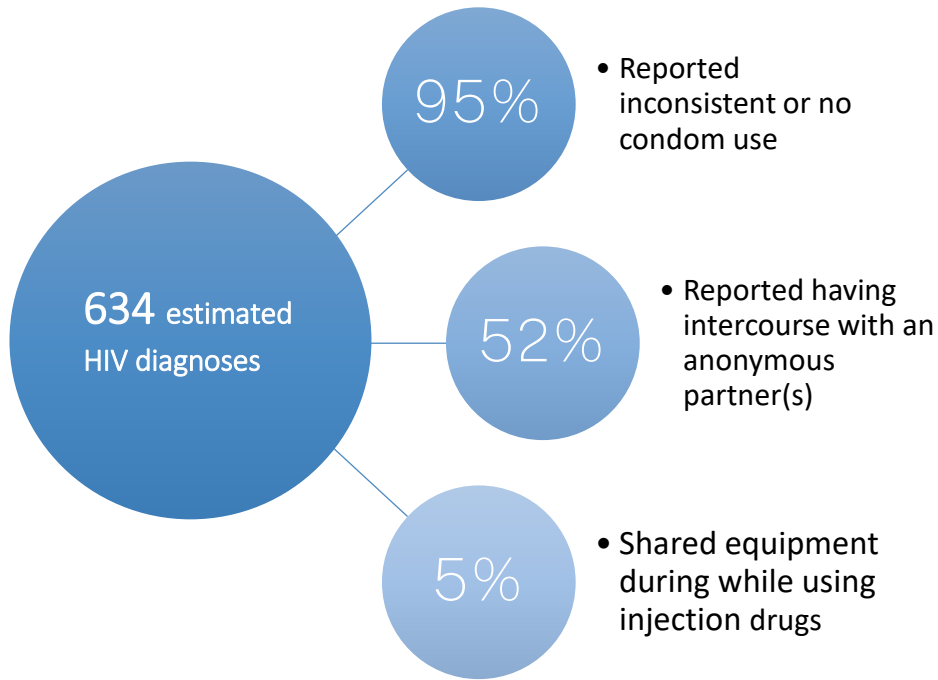
	Count <i>n</i> = 643	Cleveland Population <i>n</i> = 374,861	Case Rates Per 100,000
Gender			
Female	91	194,111	9
Male	554	180,750	61
Transgender (Male to Female)			---
Age Group			
0-9	2	44,274	1
10-19	38	47,300	16
20-29	309	60,388	102
30-39	148	52,293	57
40-49	77	41,707	37
50-59	46	50,118	18
60-64	12	25,745	9
65+	11	53,036	4
Combined Race and Ethnicity			
Hispanic or Latino	43	45,805	19
Black, non-Hispanic	448	174,893	51
White, non-Hispanic	102	127,355	16
Multiracial, non-Hispanic	37	15,492	48
Other, non-Hispanic	7	11,316	62

Notes:

- Rates are calculated per 100,000 population.
- The “other, non-Hispanic,” category includes people identifying as Asian, Native Hawaiian or Pacific Islander, American Indian or Alaskan Native, or any other race. These racial and ethnic identities have been aggregated due to individual counts <10.
- Cleveland Populations are estimates from the American Community Survey 2021 5-Year Estimates (data.census.gov)

Risk Factors

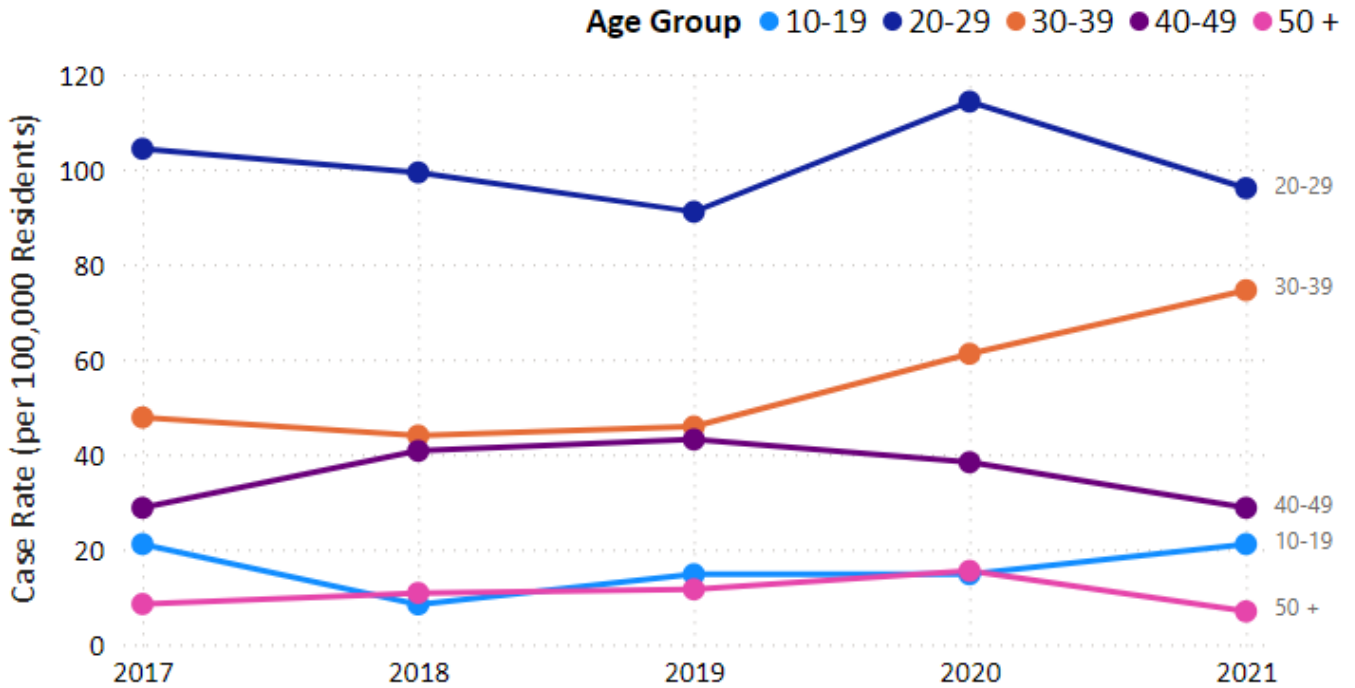
Figure 3. Risk factors of Clevelanders diagnosed with HIV, 2017-2021



People with new HIV diagnoses between 2017-2021 reported inconsistent or no condom use as the most common risk factor at 95%, followed by intercourse with anonymous partners at 52%. 5% of people diagnosed with HIV reported having shared equipment during injection drug use (IDU).

Demographic Temporal Trends

Figure 4. HIV case rates per 100,000 population by age and year, Cleveland, 2017-2021



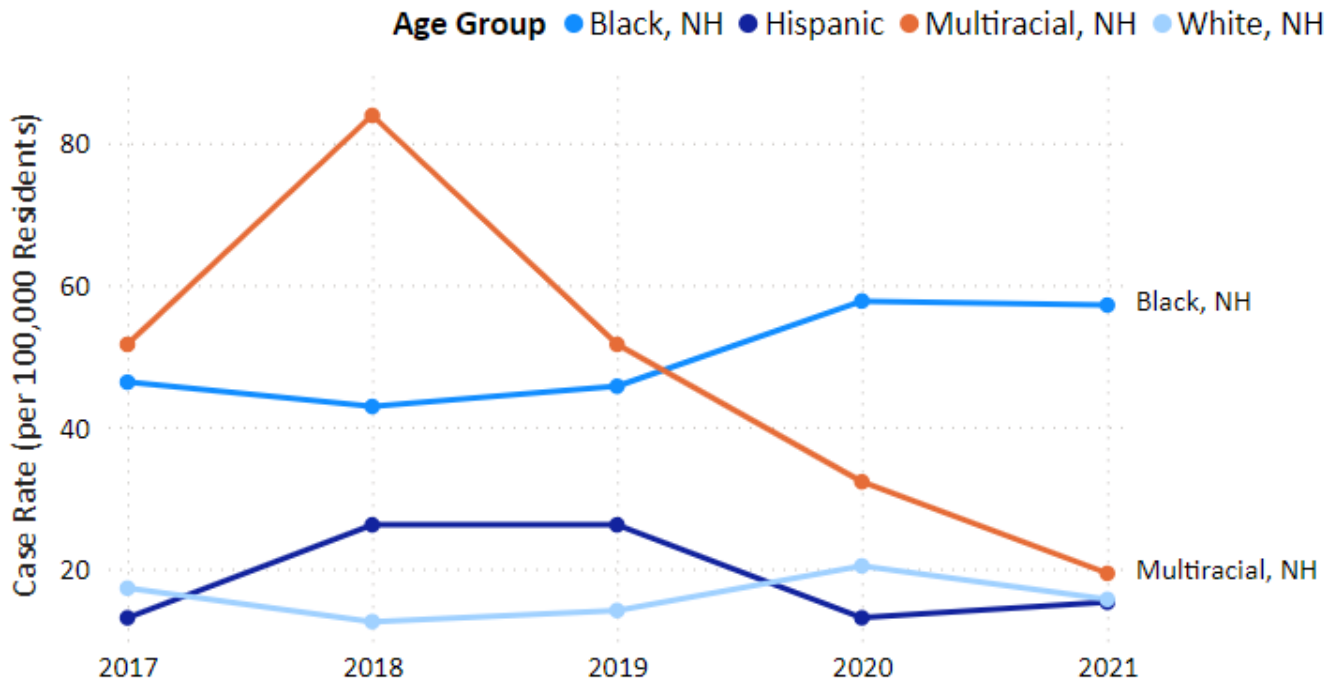
From 2017-2021, the age distribution of people newly diagnosed with HIV has changed. The cumulative rate of Cleveland residents diagnosed with HIV increased by 1.5 times from ~100 cases per 100,000 residents in 2019 to 150 cases per 100,000 residents in 2020.

Diagnoses among 15–19 year-olds has steadily increased since 2018, from 10 cases per 100,000 to 20 cases per 100,000.

20–29 year-old Cleveland residents have the highest incidence of HIV on average (102 per 100,000 population), largely driven by individuals 20-24. Rates of diagnoses among 20–24 year-olds increased 1.5 times from 2019 to 2020, the largest increase of any age group. In contrast, diagnoses among 25–29 year-olds have steadily decreased during the same five-year period.

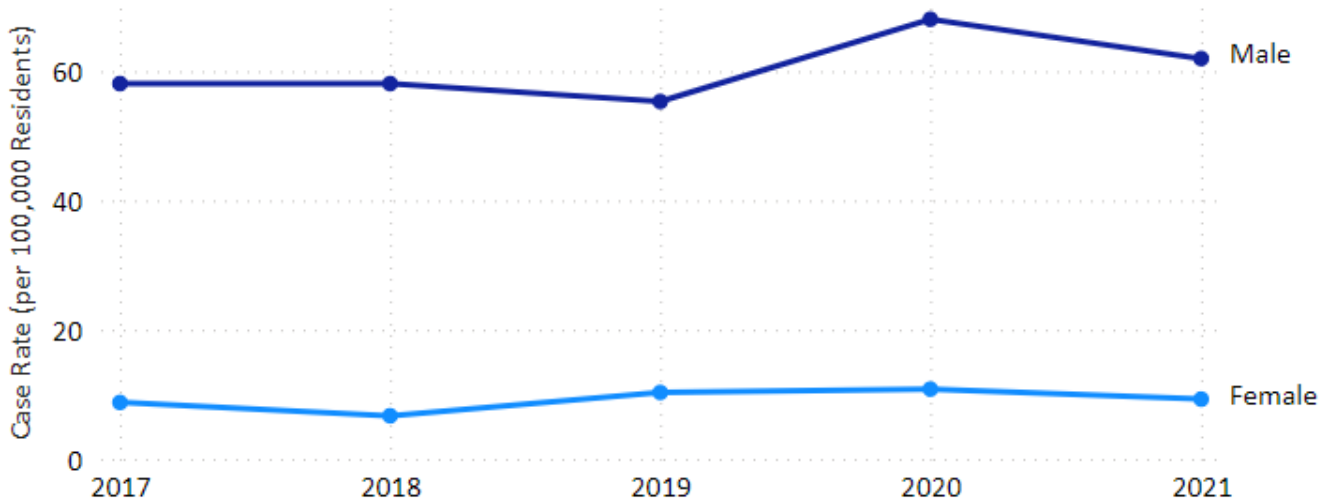
30–39 year-olds have the next highest rate of infection (57 per 100,000 population). Transmission among people ages 40+ has been stable over time.

Figure 5. HIV case rates per 100,000 population by race and ethnicity, Cleveland, 2017-2021



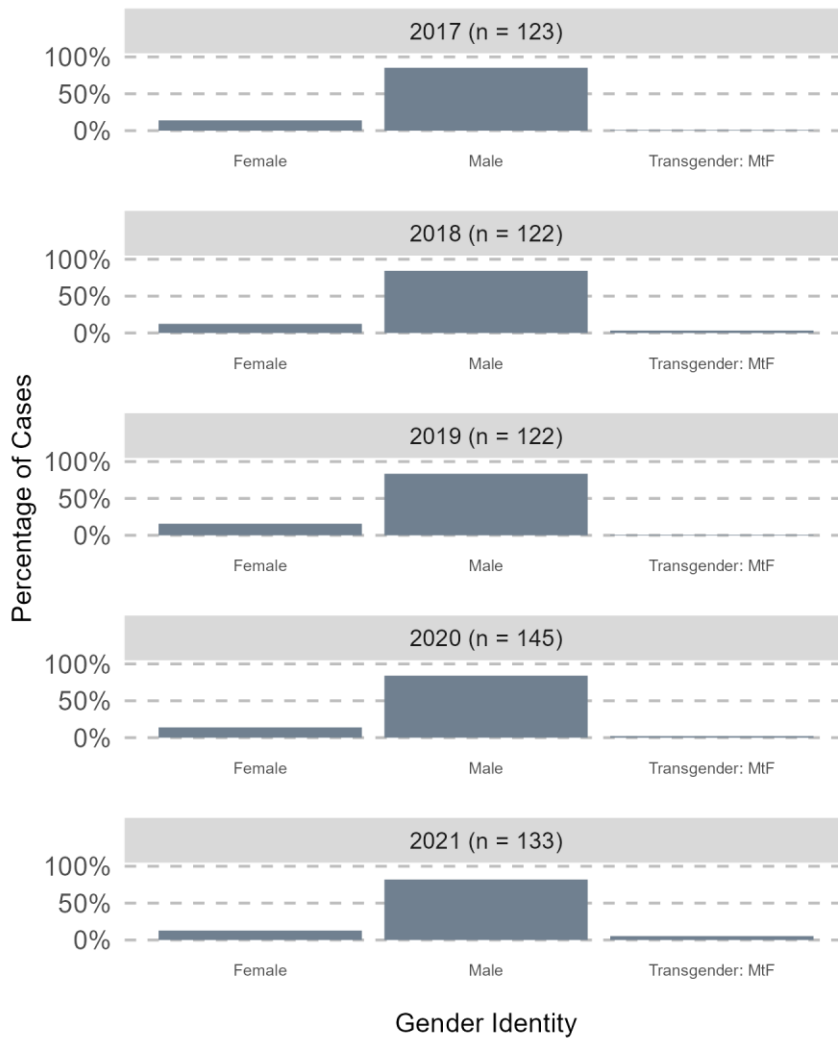
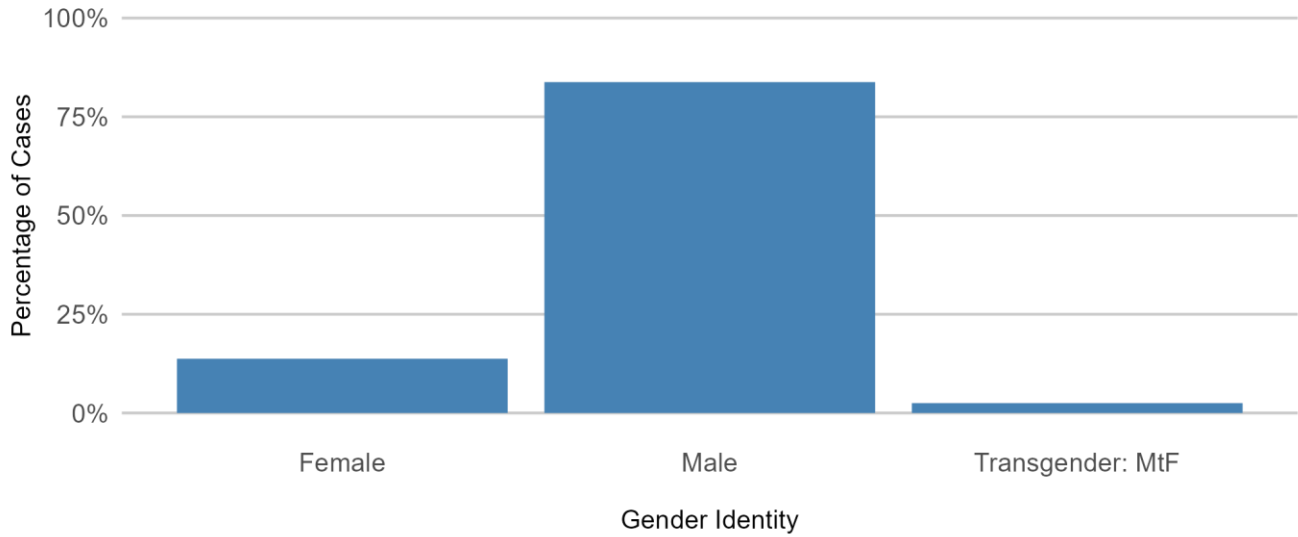
Black, non-Hispanic residents (average HIV incidence 51 per 100,000 population) overtook multiracial, non-Hispanic residents (average HIV incidence 48 per 100,000 population) in highest incidence of HIV in 2020.

Figure 6. HIV case rates by birth sex and year, Cleveland, 2017-2021



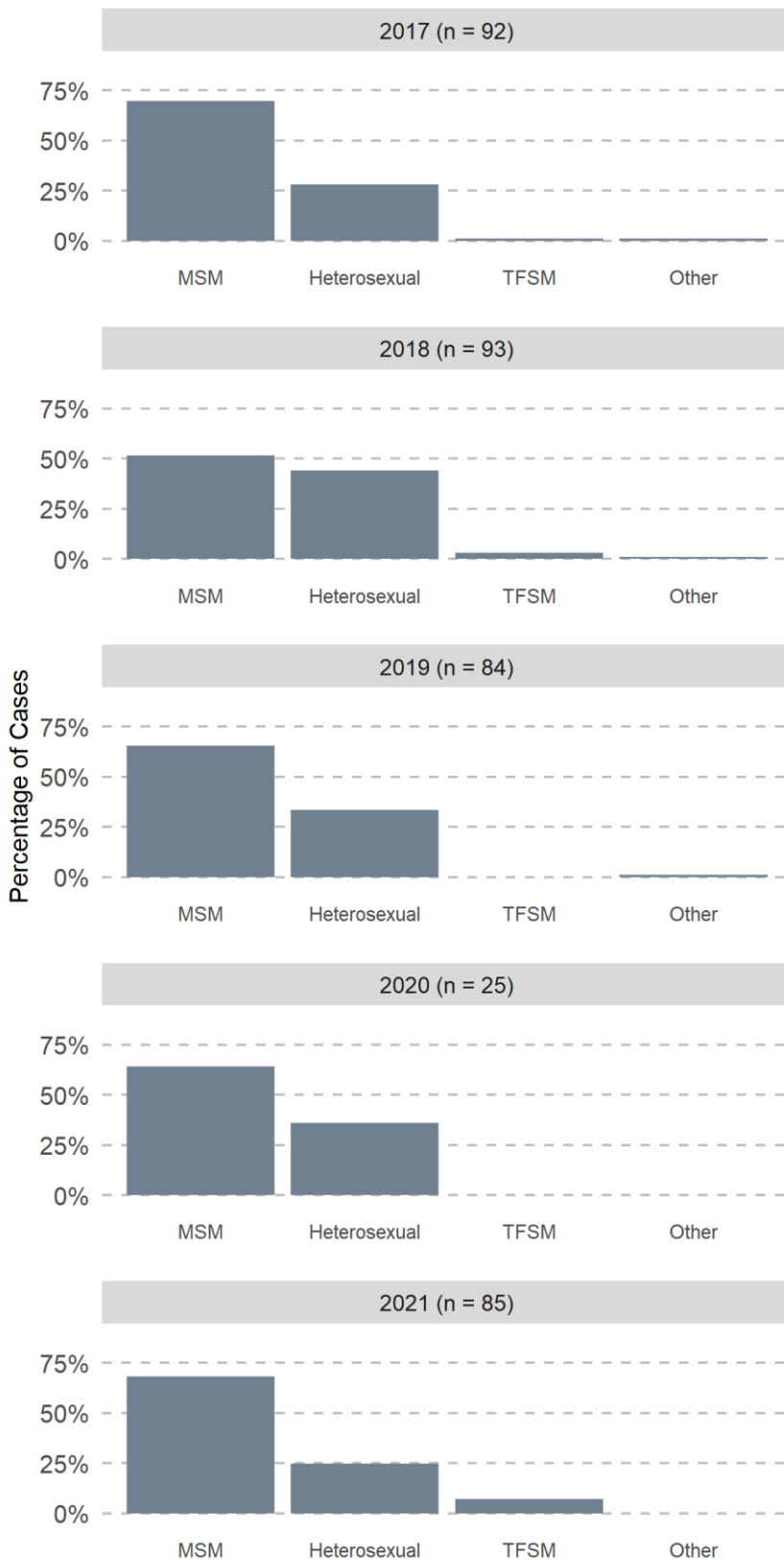
Male residents had consistently higher HIV incidence (61 per 100,000 population) than female residents (average HIV incidence 9 per 100,000 population) in 2017-2021.

Figure 7. Top: percent distribution of gender among cumulative HIV diagnoses, Cleveland, 2017-2021. Bottom: percent distribution of gender among HIV diagnoses per year, Cleveland 2017-2021.



Over the five-year period, 84% of new diagnoses were cis-gender males, 13% were cis-gender females, and 3% were transgender females. This distribution of gender among newly diagnosed people remains stable over time.

Figure 8. Top: percent distribution of transmission groups among cumulative HIV diagnoses, Cleveland, 2017-2021. Bottom: percent distribution of transmission groups per year, Cleveland, 2017-2021.

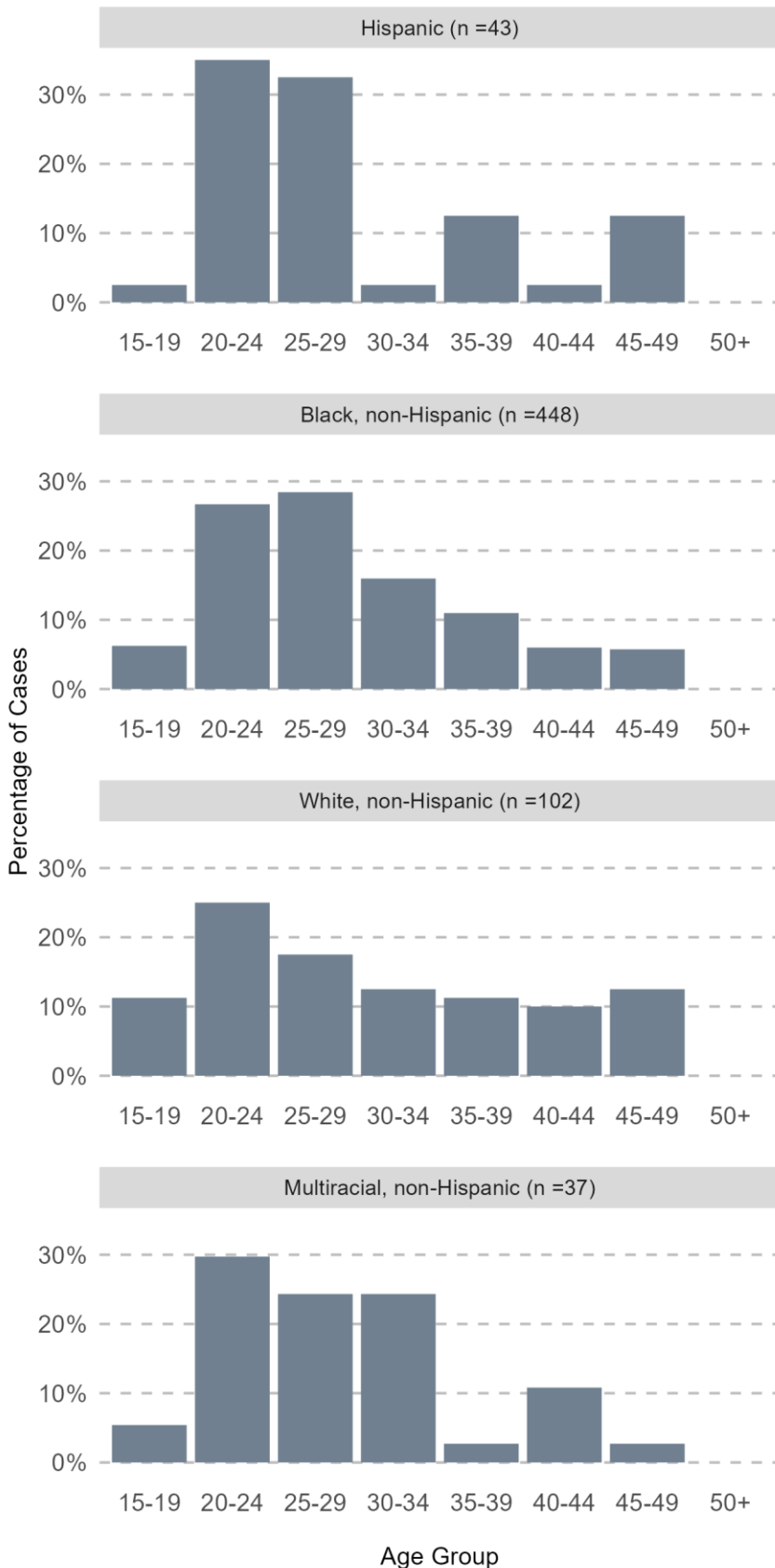


Transmission group combines sexual orientation and gender identity (SOGI) to understand HIV diagnosis trends among these groups.⁸ Rates are not calculated for these groups because data on total population counts of SOGI populations are not available for Clevelanders.

For the 2017-2021 period, men who have sex with men (MSM) shared the highest number of diagnoses (63% of all interview respondents) consecutively each year. People identifying as heterosexual comprised 34% of respondents, and trans-females who have sex with men comprised less than 5% of respondents.

Individuals with unreported sexual orientations and gender identities are not shown in these graphs. Collection of these data relies on disease intervention specialists who attempt to contact newly diagnosed individuals. Missing responses to gender or sexual orientation increased from approximately 50% of respondents in 2019 to 75% in 2020.

Figure 9. Age distribution by race and ethnicity of HIV diagnoses, Cleveland, 2017-2021



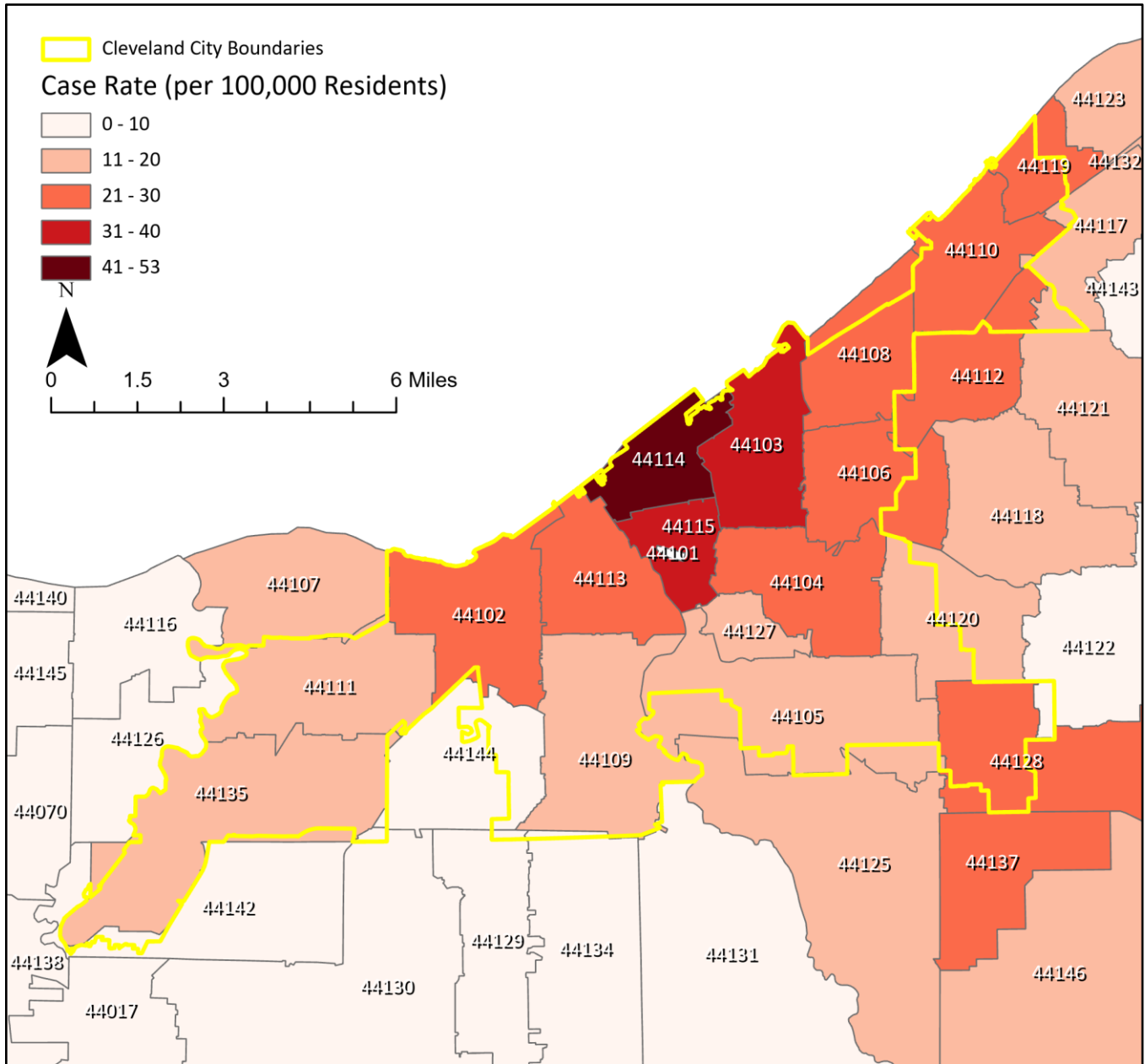
Overall, 20-24 year old Cleveland residents had the highest amount of new diagnoses compared to other age groups. However, the age distribution changes by racial and ethnic group.

Among Hispanic or Latino residents, most newly diagnosed people were 20-24 or 25-29 years old, accounting for 65% of the total.

Among non-Hispanic Black or African American residents, these age groups accounted for 55% of new diagnoses, and among non-Hispanic white residents, 40%.

While non-Hispanic multiracial residents are affected, this group is shown aggregated to protect health information.

Figure 10. Average annual HIV diagnoses by zip code, Cleveland, 2017-2021

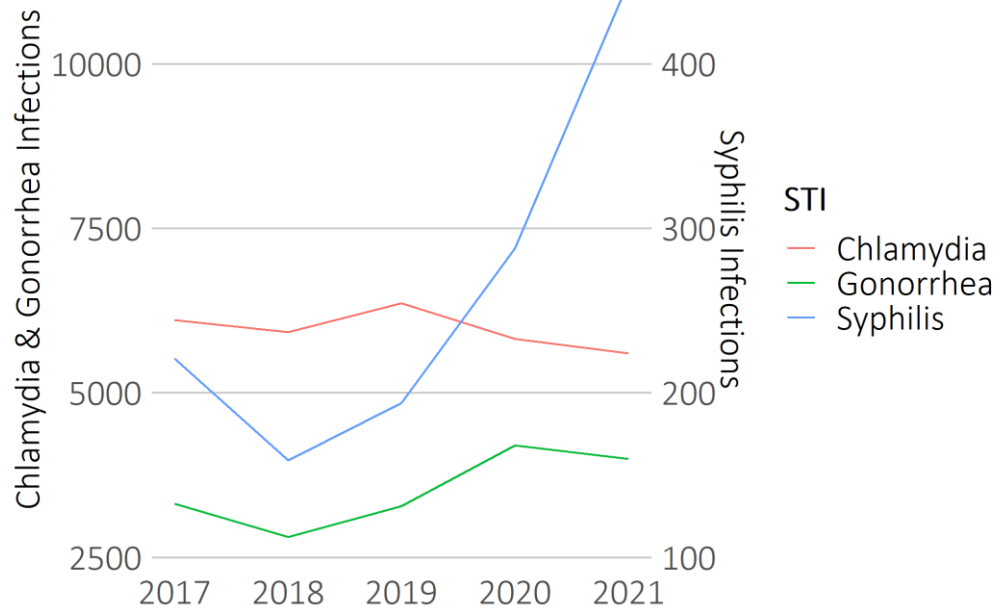


Cleveland’s downtown ZIP code 44114 has the highest incidence of HIV in 2017-2021, followed by the ZIP codes that immediately border the downtown area. This pattern is not explained by available data. However, professionals in HIV care suggest this may be linked to HIV among people experiencing homelessness. Downtown Cleveland is home to a number of shelters and services for this population, and individuals accessing these services may report the address of the shelter or service as an address of residence. While changes over time are not shown here, for each year in this five-year period, the eastern ZIP codes of Cleveland had consistently higher incidence of HIV.

Trends in Syphilis, Chlamydia, and Gonorrhea Incidence in Cleveland, 2017-2021



Chlamydia, gonorrhea, and syphilis are the three main reportable sexually transmitted infections (STIs). In this five-year range, STI case counts have increased in Cleveland across many sub-populations for both gonorrhea and syphilis, while chlamydia has decreased. For chlamydia, there was a peak in 2019 which was then followed by an overall decrease of incidence in 2021. For gonorrhea, there was a



Case Counts: Chlamydia (n = 29,819), Gonorrhea (n = 17,617), Syphilis (n = 1,314).

Figure 11. Chlamydia, gonorrhea, and syphilis infections by year, Cleveland, 2017-2021

peak in 2020 which has then been followed by a trend downwards, however 2021 still shows an increase in gonorrhea incidence from 2017. Syphilis incidence has been rapidly increasing since 2018.

Preliminary CDC STI data indicates that all three STIs have had increases between 2017-2021 in the United States.⁹ Syphilis cases are the most concerning, as it has been the fastest increasing STI in Cleveland.

STIs in Cleveland have varying most-affected populations. However, both non-Hispanic Black and multiracial residents tend to have the highest incidence of STIs in Cleveland in 2017-2021 (see Figures 14, 24, and 31). AIAN, non-Hispanic residents also periodically have the highest incidence of syphilis and chlamydia, which may also be due to a lower population overall in Cleveland (see Figures 14 and 24). Consistent with national trends, 15-24 year old residents are some of the highest impacted age groups for chlamydia and gonorrhea (see Figures 23 and 30).¹⁰ 30-34 year olds are becoming one of the age groups with the highest incidence with syphilis in Cleveland. This trend is also reported by other local and state health departments.¹¹⁻¹³

Syphilis

2017-2021

1,189 People diagnosed in 2017-2021	1,314 Total diagnoses in 2017-2021	125 People with more than one infection 2017-2021
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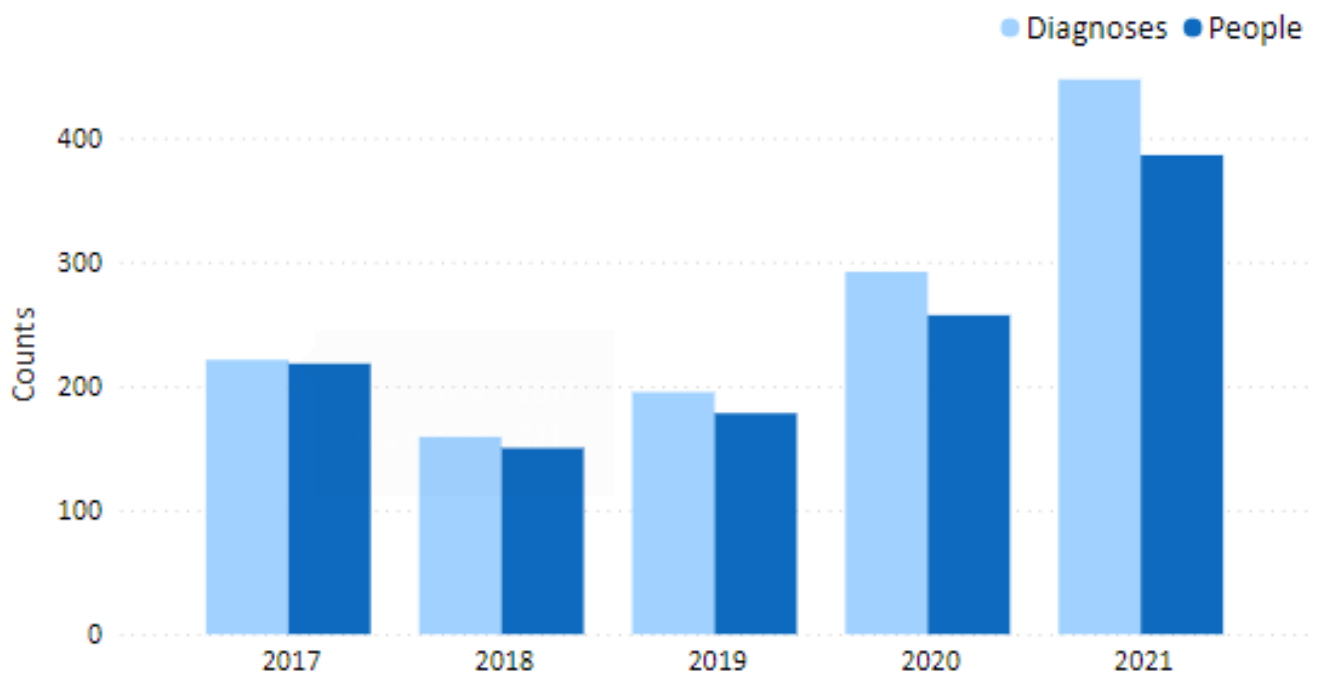


Figure 12. Syphilis diagnoses per year, Cleveland, 2017-2021

Syphilis cases decreased initially in 2018 but have been sharply increasing since then. These data are consistent with national trends.⁹

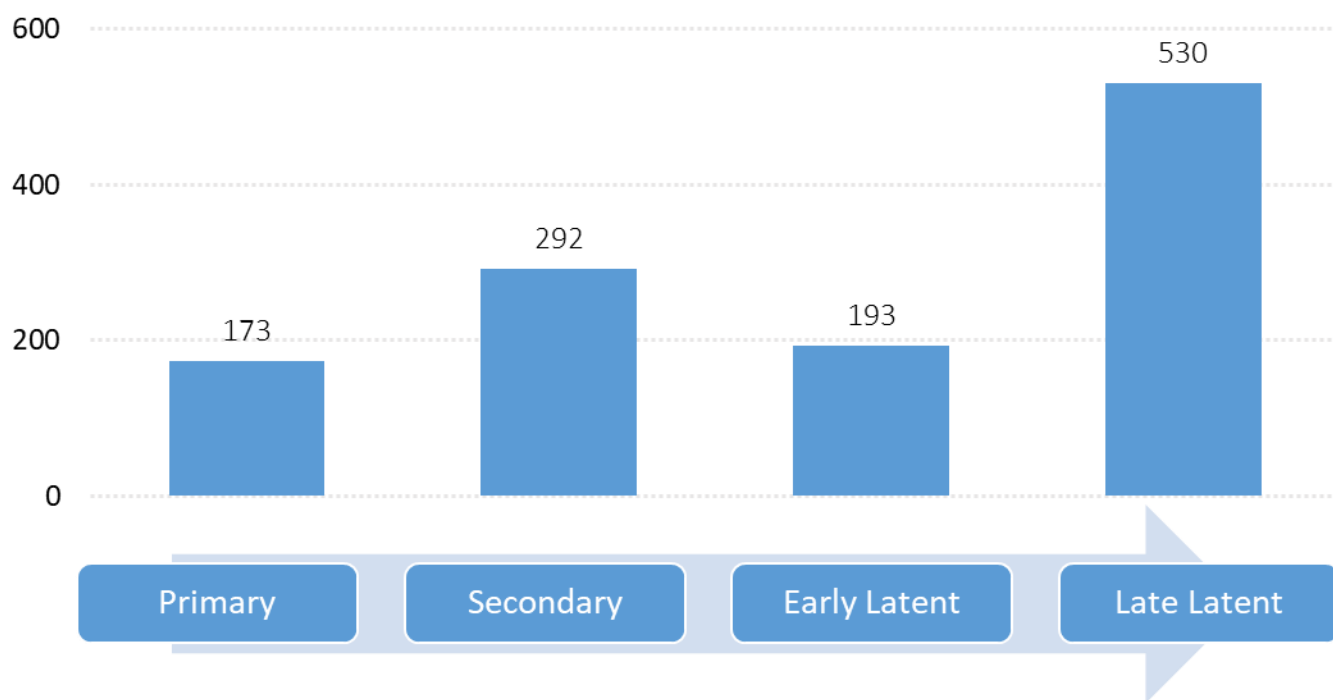


Figure 13. Syphilis counts by stage at diagnosis, Cleveland, 2017-2021. The labels over the blue arrow indicates the stages of syphilis. Each stage has different signs and symptoms. The bars indicate how many individuals were diagnosed with that stage of syphilis during the five-year period. In Cleveland, syphilis is most often diagnosed in the late latent stage.

Table 2. Syphilis case rates by select demographics and stage, Cleveland, 5 year averages, 2017-2021

	Primary		Secondary		Early Latent		Late Latent	
Total Count (1,189)	173		292		193		530	
Percent of Cases (%)	14.6		24.6		16.2		44.6	
Sex	%	Rate	%	Rate	%	Rate	%	Rate
Female	13.9	2.5	17.8	5.4	16.1	3	23.6	13
Male	86.1	16.5	82.2	26.7	83.9	18	76.4	45
Age Group								
0-9	NA	NA	NA	NA	NA	NA	NA	NA
10-19	5.8	4.2	6.9	8.4	4.2	3	6.2	14.0
20-29	41.0	23.5	43.2	41.7	37.3	24	35.7	62.6
30-39	25.4	16.8	27.1	30.2	33.1	24	30.4	61.2
40-49	13.9	11.5	13.4	18.7	13.0	12	17.7	45.1
50-59	8.1	5.6	6.9	8.0	11.4	9	7.6	16.0
60-69	5.2	4.0	1.7	2.2	1.0	1	1.3	3.1
70 +	0.6	0.6	1.0	1.8	NA	NA	1.1	3.5
Combined Race and Ethnicity								
Hispanic	5.8	4.3	7.1	9.2	9.8	8	8.7	20.1
Black, non-Hispanic	67.1	13.3	65.4	21.2	62.7	14	66.4	40.3
White, non-Hispanic	13.9	3.8	18.2	8.3	17.1	5	16.4	13.7
Asian, non-Hispanic	0.6	2.2	0.3	2.2	NA	NA	0.2	2.2
AIAN, non-Hispanic	NA	NA	0.3	38.7	NA	NA	NA	NA
Multiracial, non-Hispanic	9.3	20.7	6.2	23.2	9.3	23	6.0	41.3
Other, non-Hispanic	2.3	44.8	1.4	44.8	NA	NA	0.6	33.6

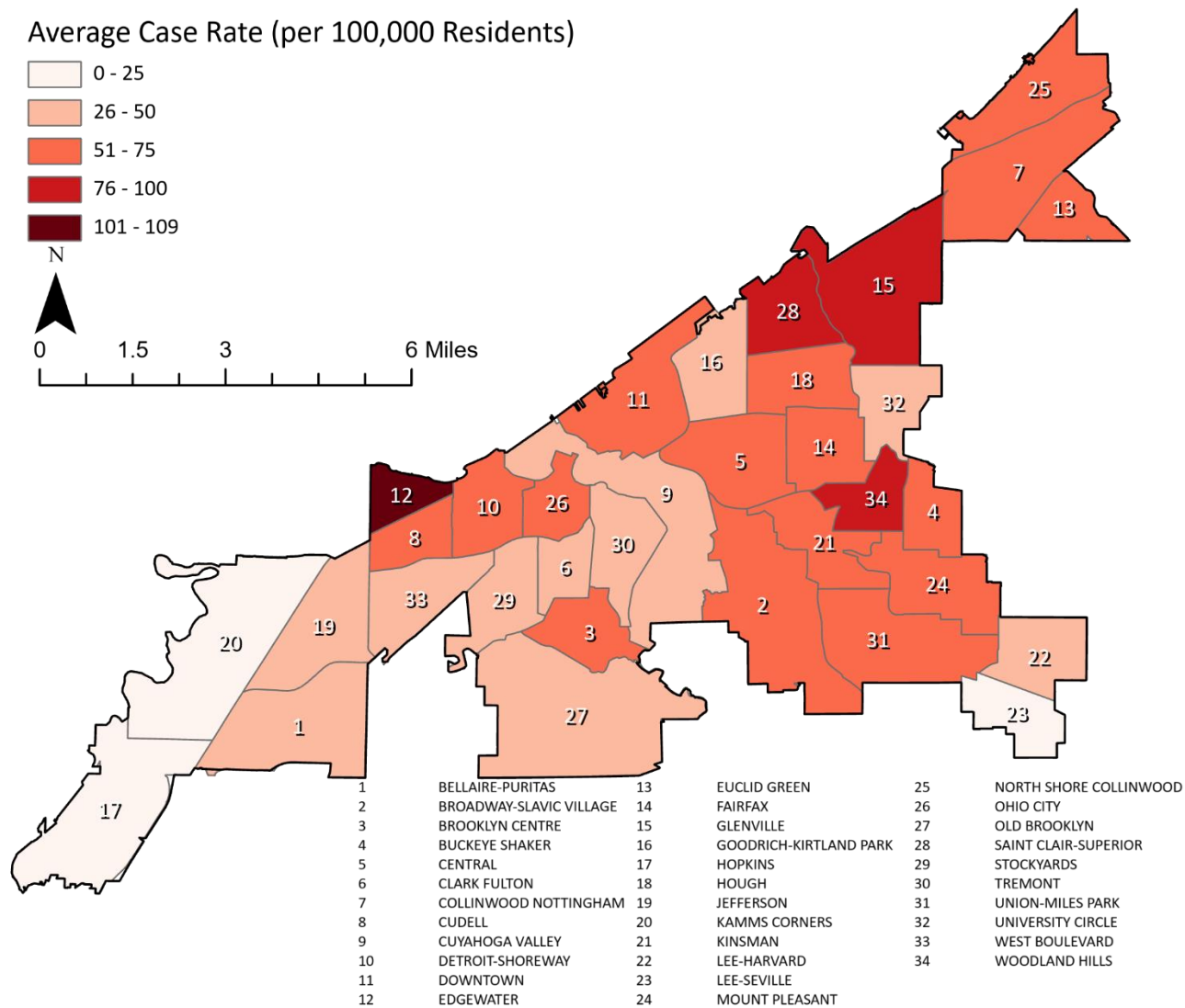
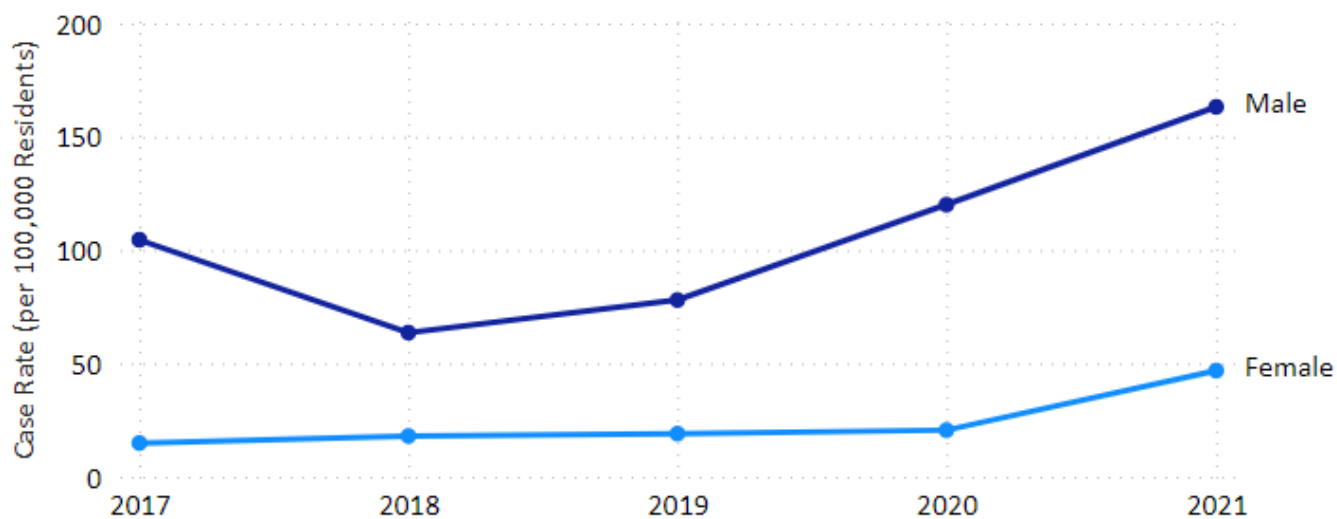


Figure 14. Average annual syphilis case rates by neighborhood, Cleveland, 2017-2021

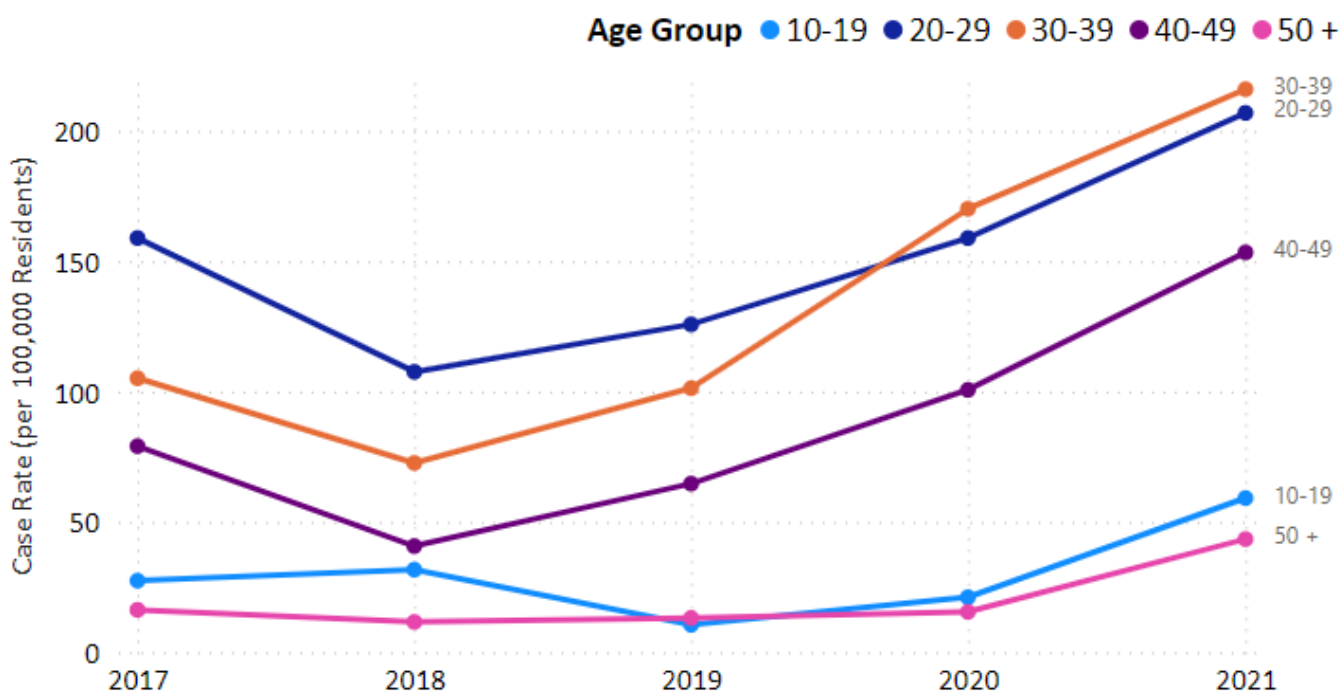
Edgewater is shown to have the highest incidence of syphilis during the 2017-2021 period. Consistent with other STIs, the eastern neighborhoods of Cleveland had higher incidence of syphilis.

Figure 15. Syphilis case rates by birth sex, Cleveland, 2017-2021



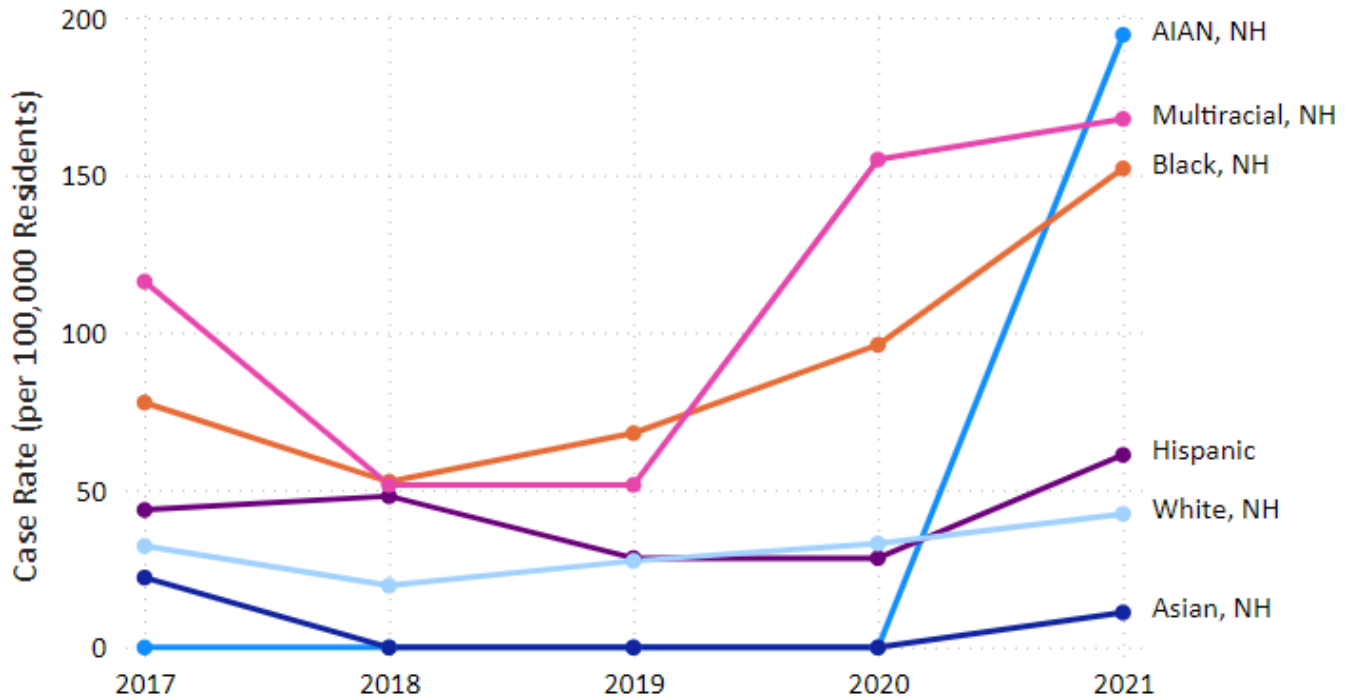
Male residents (averaging 106 cases per 100,000 population) follow the overall syphilis trends seen in Cleveland. Cases among female residents (averaging 24 cases per 100,000 population) were stable from 2017-2020, but nearly doubled in 2021. Therefore, the increase in total diagnoses from 2018 to 2020 was mostly comprised of males, and the increase in 2021 had a greater share of females.

Figure 16. Syphilis case rates by age, Cleveland, 2017-2021



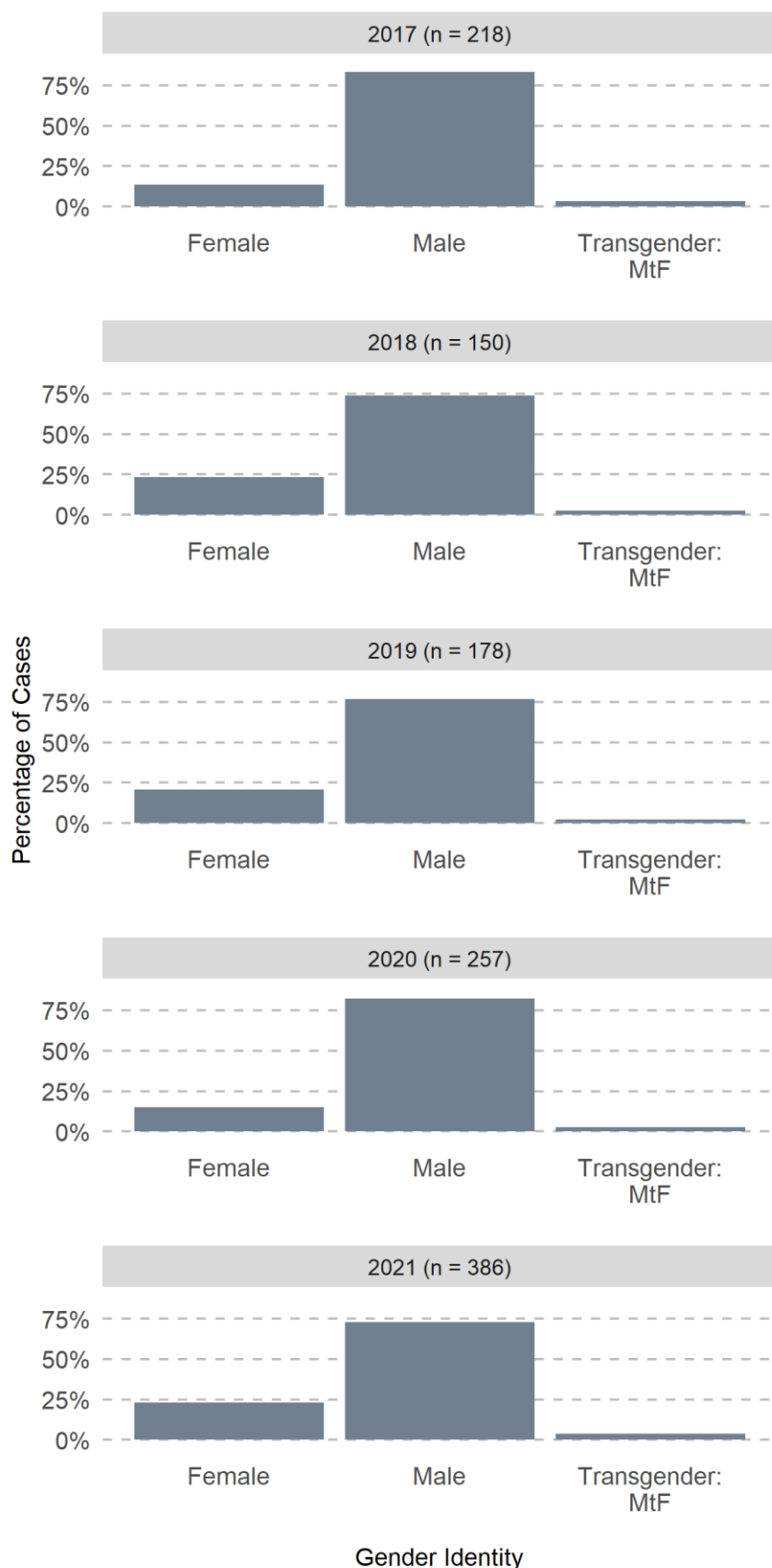
Across all age groups, case rates are increasing. The 30-39 age group grew to have the highest case rate from 2019 to 2020, slightly exceeding the case rate of 20-29 year olds.

Figure 17. Syphilis case rates by race and ethnicity, Cleveland, 2017-2021



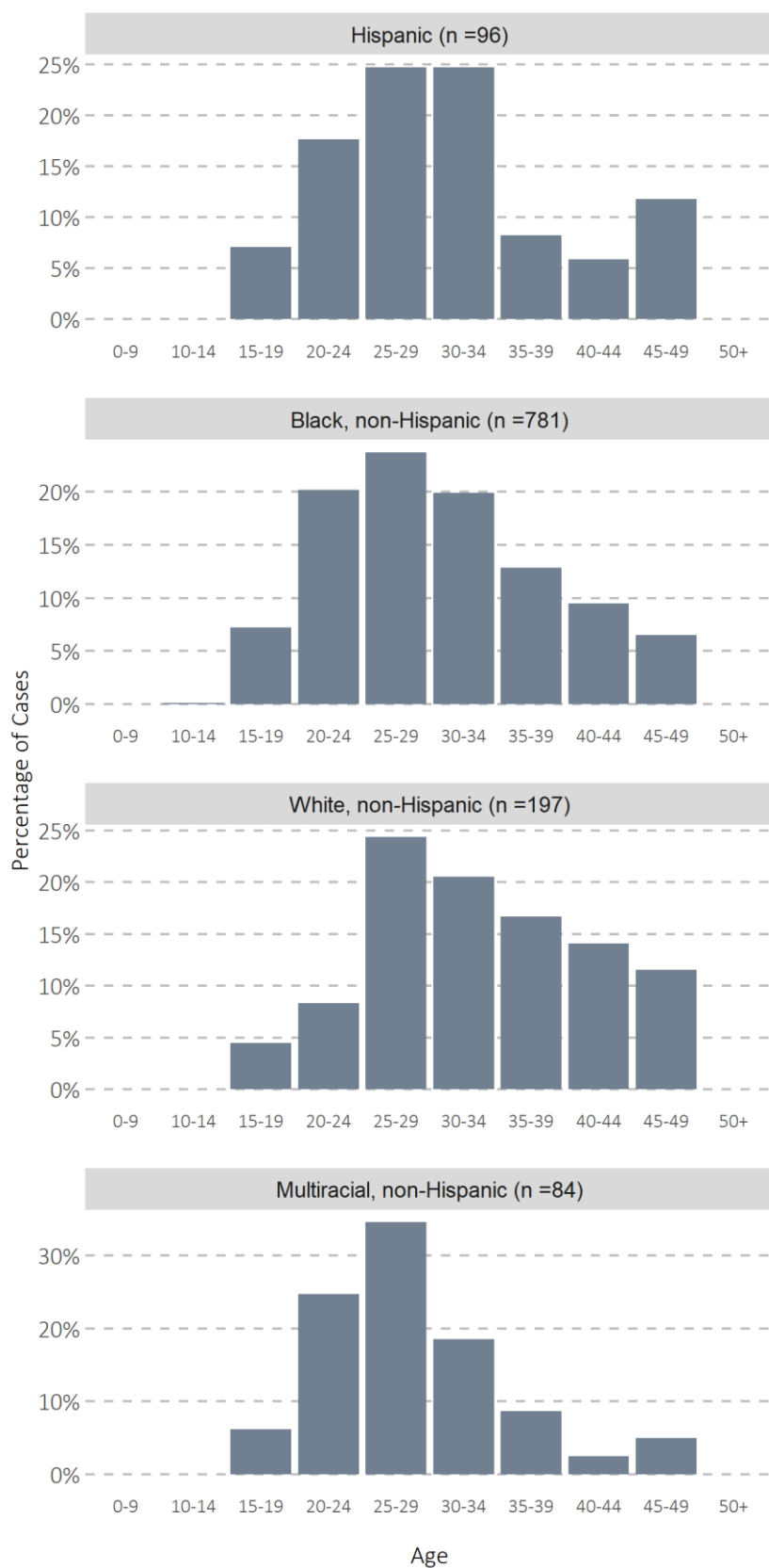
Non-Hispanic Black (average 89 per 100,000 population) and multiracial residents (average 108 per 100,000 population) have the highest incidence of. The sharp increase in 2021 among non-Hispanic American Indian or Alaskan Native (AIAN) residents may be exaggerated due to low estimated total population in Cleveland (1,790 ±581 according to American Community Survey 2021 5-year estimates). This increase represents <10 AIAN individuals being diagnosed compared to previous years.

Figure 18. Percent distribution of syphilis diagnoses by gender per year, Cleveland, 2017-2021



Along with residents diagnosed with HIV, gender identity data was available for residents diagnosed with syphilis. Over the five year period 78% of syphilis cases occurred among cisgender males. People identifying as transgender male to female (transgender: MtF in graphs) accounted for 3% of diagnoses every year.

Figure 19. Age distribution of syphilis diagnoses by race and ethnicity, Cleveland, 2017-2021



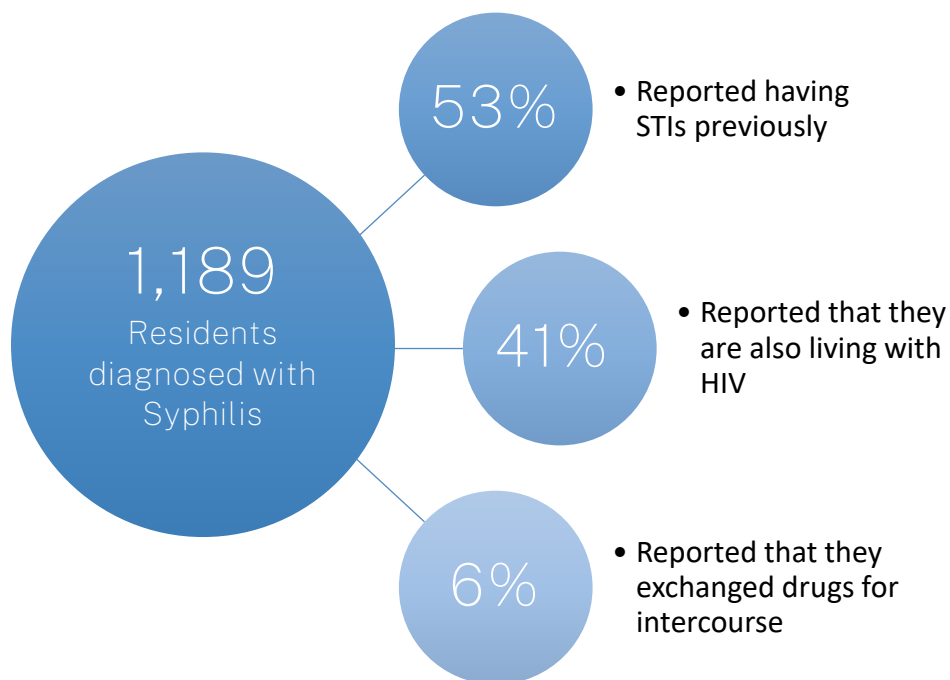
While all race and ethnicity groups in Cleveland were similar in that the 25-29 age group was one of the highest proportions diagnosed with syphilis. Multiracial, non-Hispanic and Hispanic residents diagnosed with syphilis had secondary peaks at the 45-49 age groups; Hispanic residents diagnosed with syphilis also had almost equal proportions of 25-29 and 30-35 year olds. This indicates that Hispanic and multiracial residents were older when diagnosed with syphilis compared to other race and ethnicity groups. Non-Hispanic AIAN and Asian people are omitted from this chart due to low counts (<10).

Figure 20. Age distribution of syphilis diagnoses by birth sex, Cleveland, 2017-2021



Males with a higher incidence of syphilis also tended to be older than females when diagnosed, with a peak at the 25-29 age group compared to the female residents' peak at 20-24.

Figure 21. Risk factors of Cleveland residents diagnosed with syphilis, 2017-2021



Risk Factors

Of residents diagnosed with syphilis who answered the risk factor questions, the most indicated risk factor was history of STI (53 percent of respondents). A large number of respondents also indicated that they were PLIV (41 percent of respondents). Taken together, this means that many residents may be continuing to have unsafe intercourse practices or conditions even after a previous STI diagnosis.

6% of respondents also indicated that they have exchanged drugs for intercourse, which could place them in unsafe situations where transmission of STIs can occur.

Congenital Syphilis

Cleveland had 10 cases of congenital syphilis in the 2017-2021 period, with a spike in 2020. Approximately 70% of cases were non-Hispanic Black or African American residents and the remaining 30% of cases were Hispanic residents. During this observed five-year period, increasing syphilis rates have not led to increases in infections among pregnant women and transmission to newborns. However, surveillance of congenital syphilis continues as national syphilis rates dramatically increase.

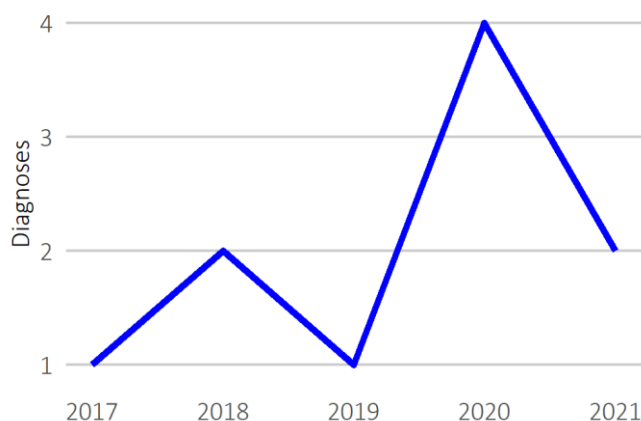


Figure 22. Congenital syphilis cases per year, Cleveland, 2017-2021

Chlamydia

21,194 People had chlamydia infections in 2017-2021	8,625 Reinfections of chlamydia in 2017-2021	29,819 Cases of chlamydia in 2017-2021
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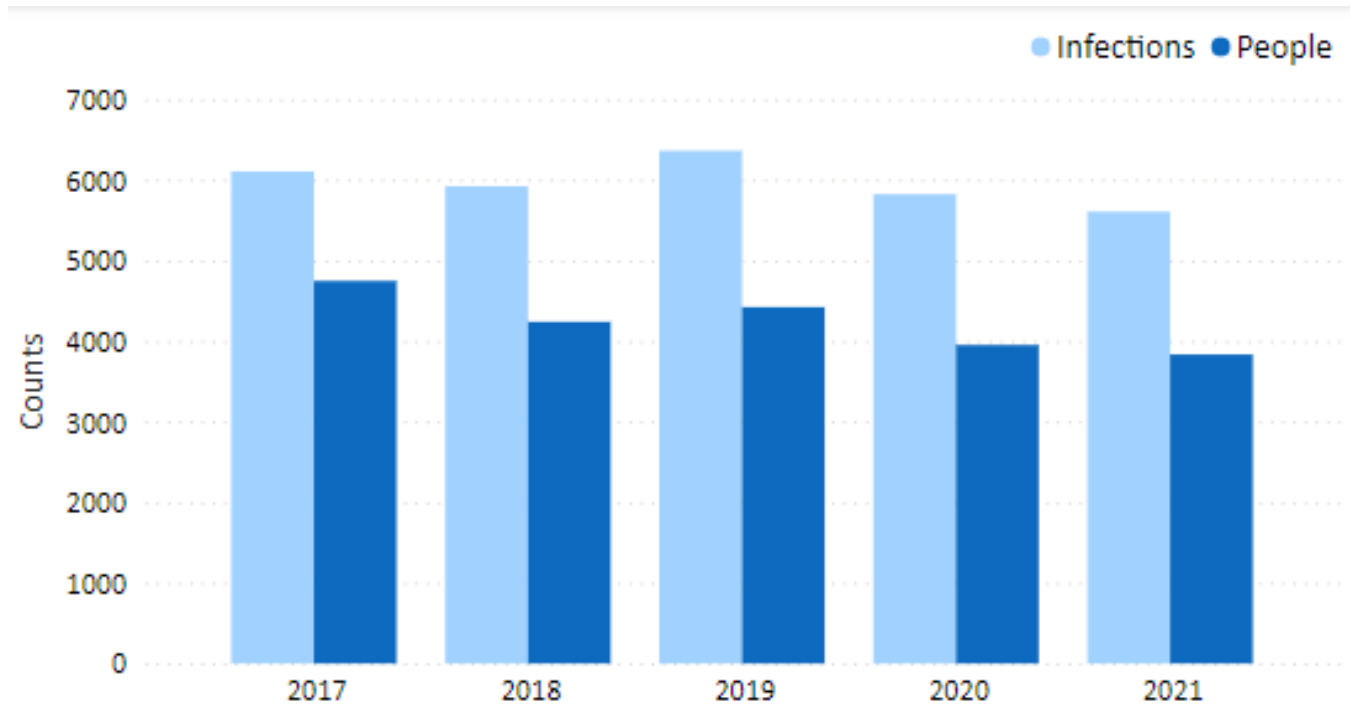
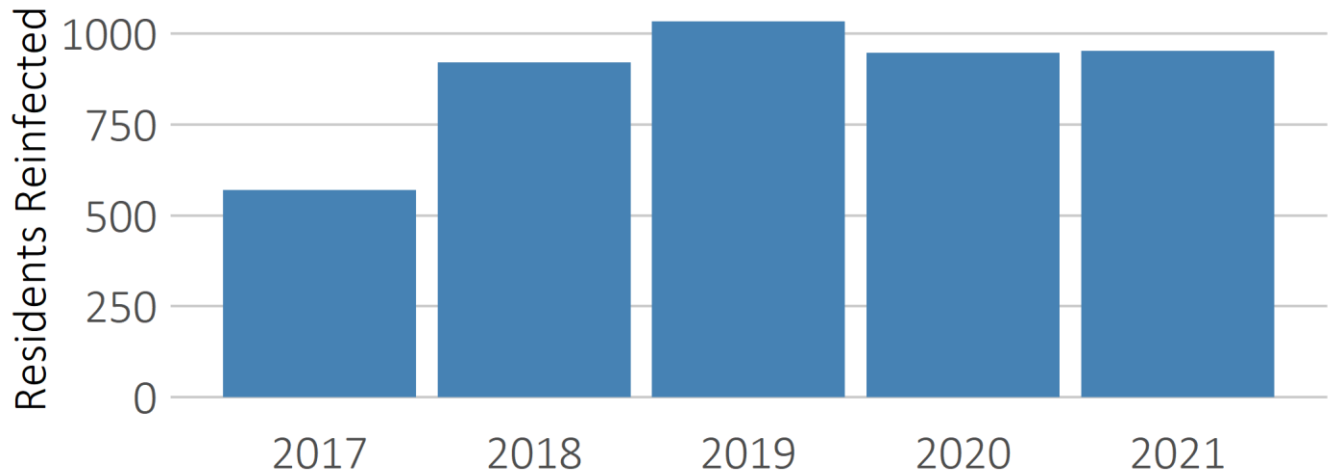


Figure 23. Chlamydia cases per year, Cleveland, 2017-2021. The light blue bar indicates the total number of cases that were diagnosed during the calendar year. The darker blue bar indicates the number of unique residents that were diagnosed.

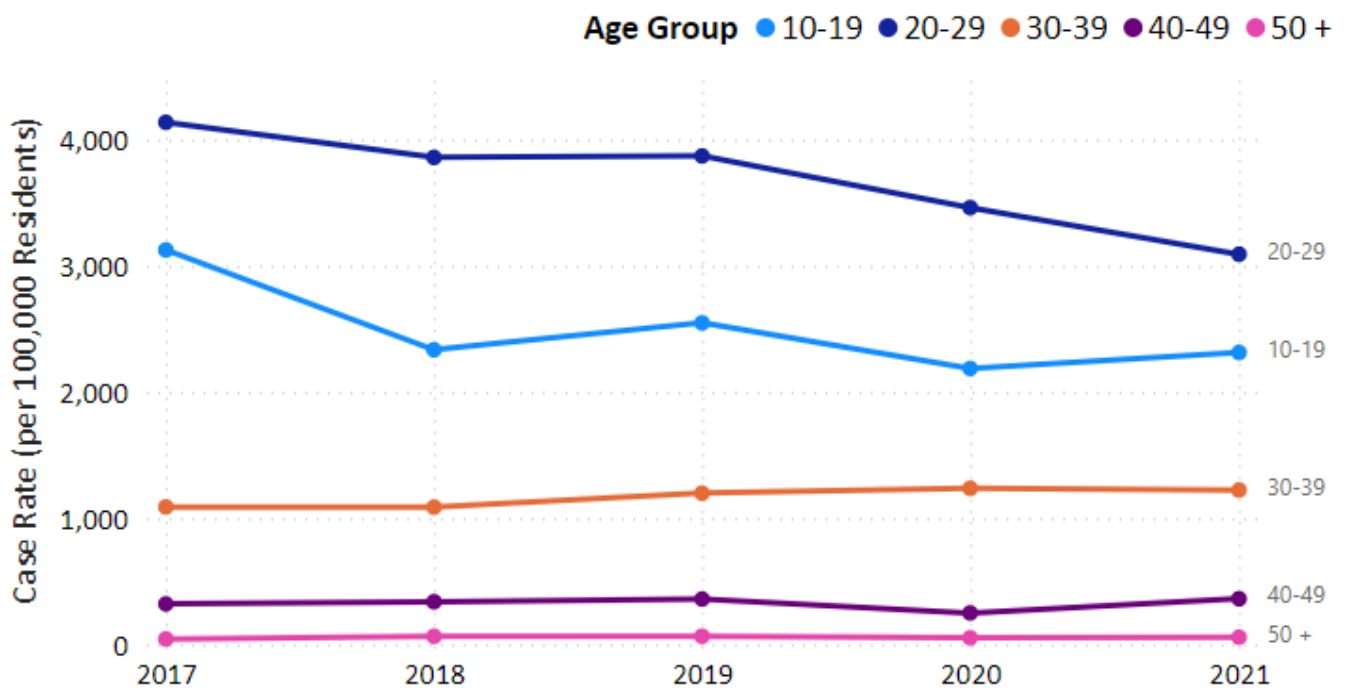
Cleveland had a spike in chlamydia cases in 2019, but cases have been decreasing overall between 2017-2021. The difference between the light and dark blue bars on Figure 23 show the number of cases that were repeat-infections during that calendar year.

Figure 24. Residents re-infected (having two or more cases) with chlamydia during the calendar year.



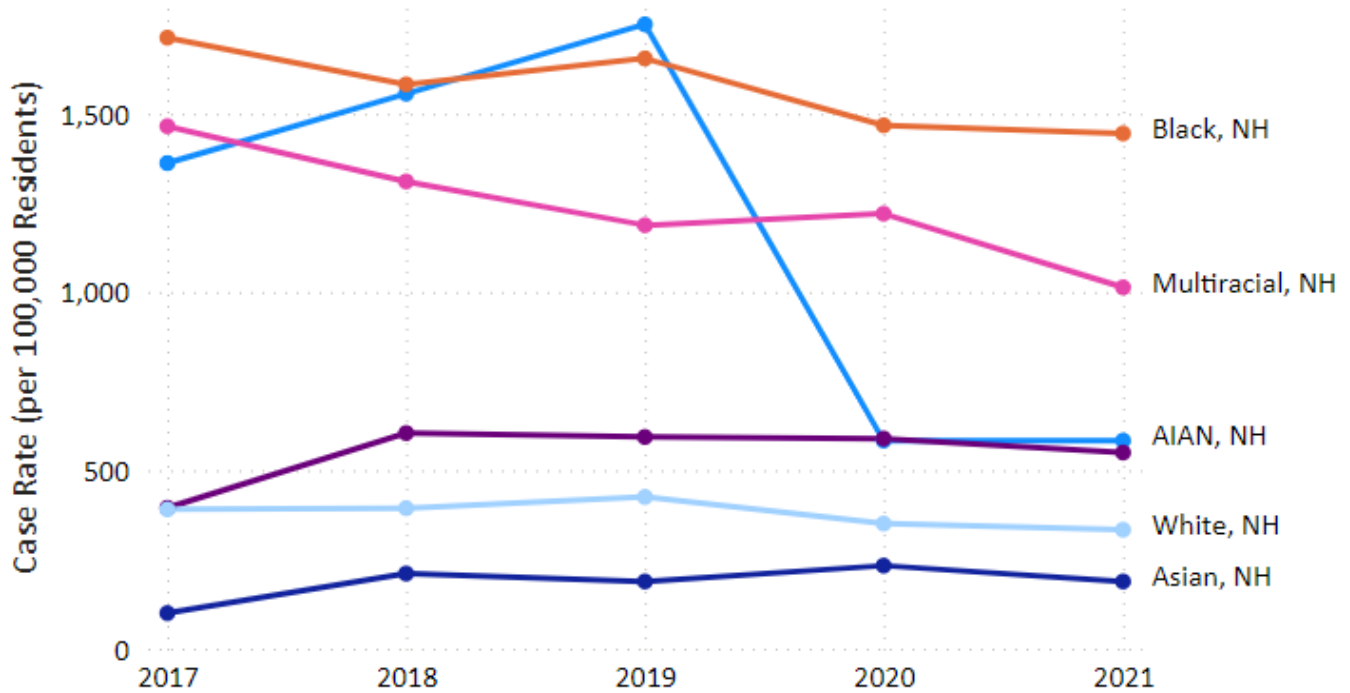
Along with the spike in chlamydia cases, 2019 also had a spike in the number of Cleveland residents re-infected with chlamydia within one year. This could indicate a return of residents to unsafe intercourse conditions and practices following chlamydia treatment.

Figure 25. Chlamydia case rates by age group, Cleveland, 2017-2021



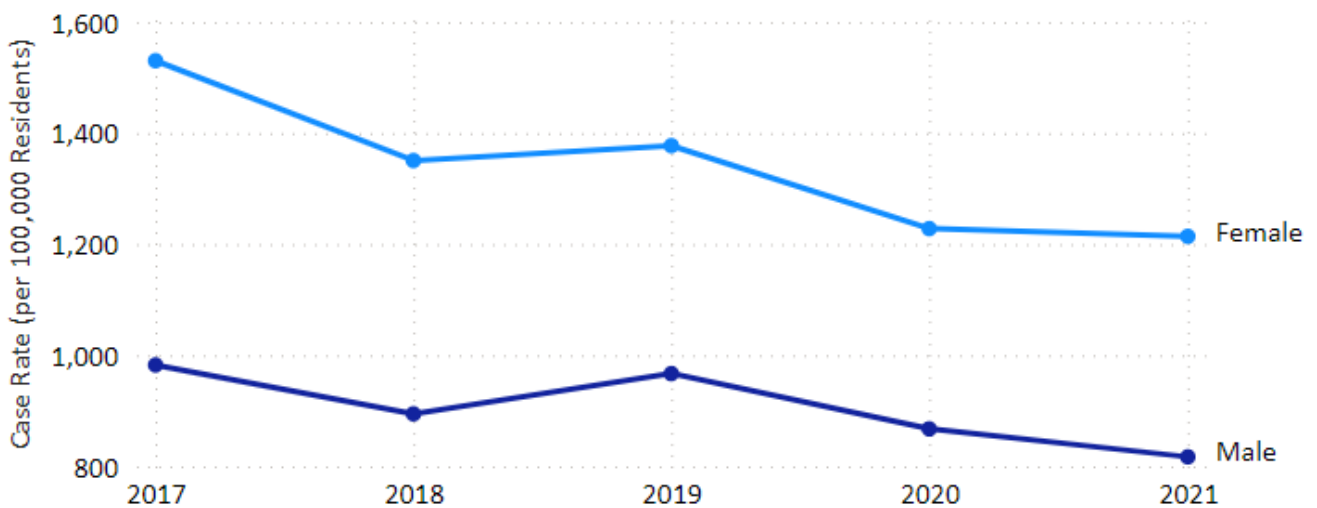
The 15-19 age group (average 4,647 per 100,000 population) started to overtake the 20-24 age group (average 5,031 per 100,000 population) in chlamydia incidence in 2019, showing that Cleveland incidence of chlamydia tends to impact younger populations more.

Figure 26. Chlamydia case rates by race and ethnicity, Cleveland, 2017-2021



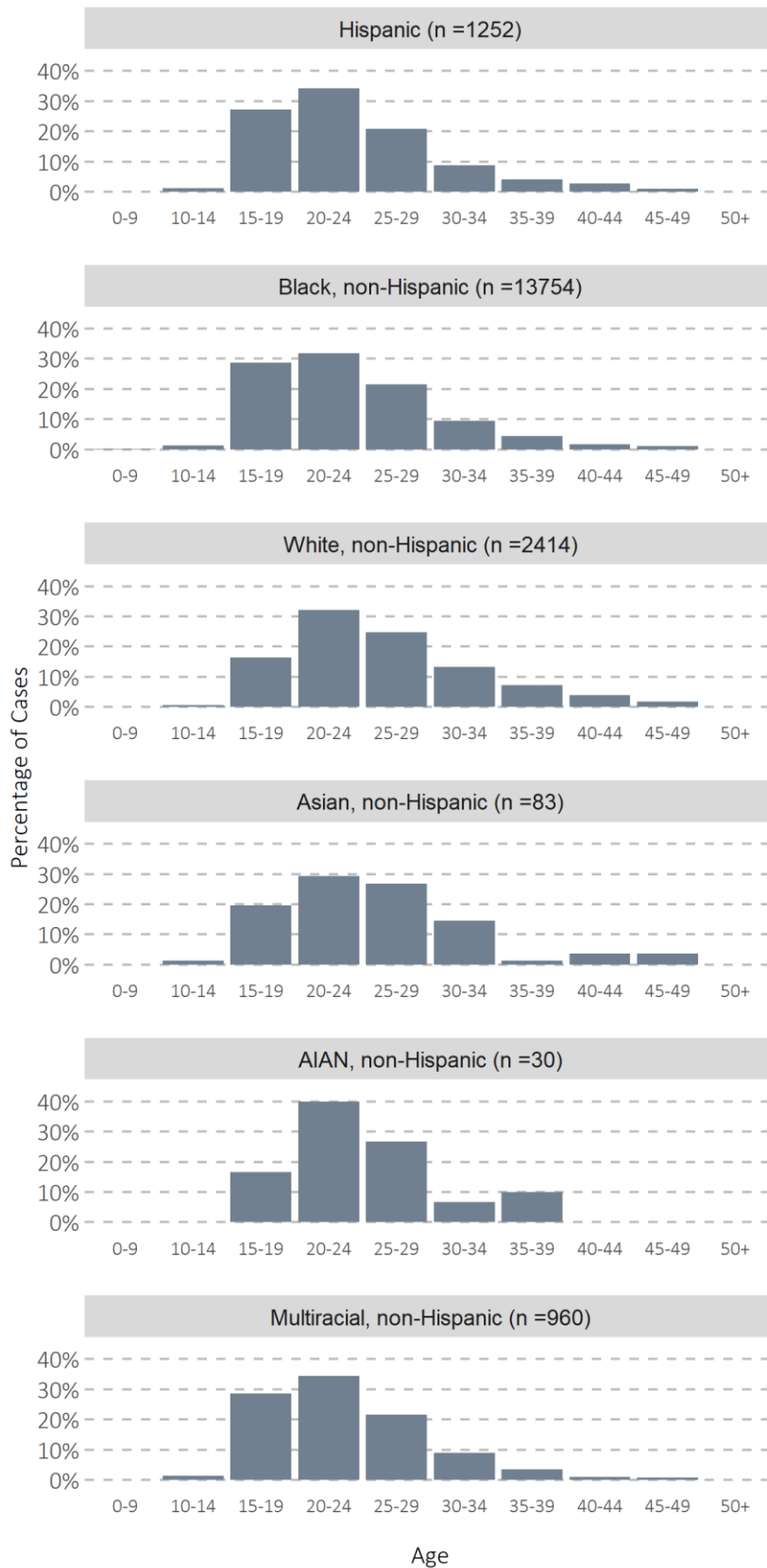
There was a spike in incidence among AIAN, non-Hispanic residents (average 1,161 per 100,000 population) in 2019. The incidence of chlamydia is highest among Black and African American residents and multiracial residents but has decreased over time. Incidence rates have increased among Asian residents since 2017.

Figure 27. Chlamydia case rates by birth sex, Cleveland, 2017-2021



Both female residents' (average 1,340 per 100,000 population) and male residents' (average 906 per 100,000 population) incidence trends are decreasing over time.

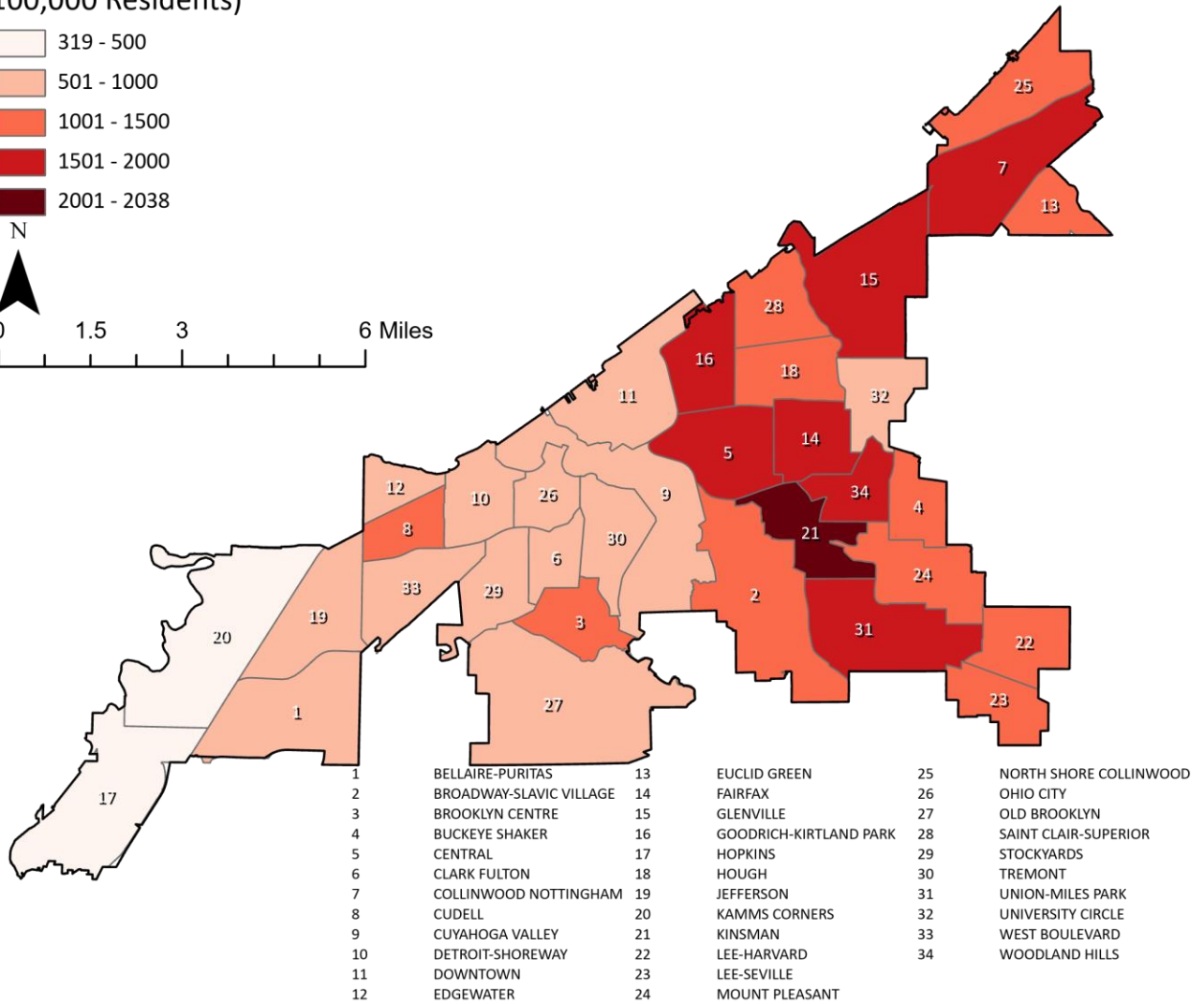
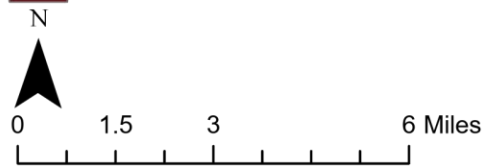
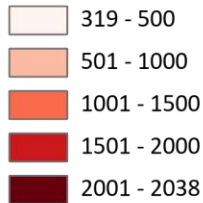
Figure 28. Age distribution of chlamydia cases by race and ethnicity, Cleveland, 2017-2021



Age distributions slightly differ between racial/ethnic groups. Among Hispanic residents, most cases occurred among people 15-19 years and 20-24 years. Non-Hispanic Black and African American residents also had most cases occurring among residents 15-19 and 20-24. Non-Hispanic white, Asian, and American Indian or Alaskan (AIAN) native residents tended to be older with most cases occurring in residents 20-24 and 25-29 years.

Figure 29. Average annual chlamydia case rates by neighborhood, Cleveland, 2017-2021

Average Case Rate (per 100,000 Residents)



The eastern neighborhoods of Cleveland had higher case rates of chlamydia in Cleveland in 2017-2021. Old Brooklyn had one of the highest case counts of chlamydia, but due to a higher population, had a lower case rate.

Gonorrhea

<p>17,617</p> <p>Cleveland Individual Cases in 2017-2021</p>	<p>13,162</p> <p>Cleveland Residents Infected in 2017-2021</p>	<p>4,450</p> <p>Cleveland Re-Infections in 2017-2021</p>
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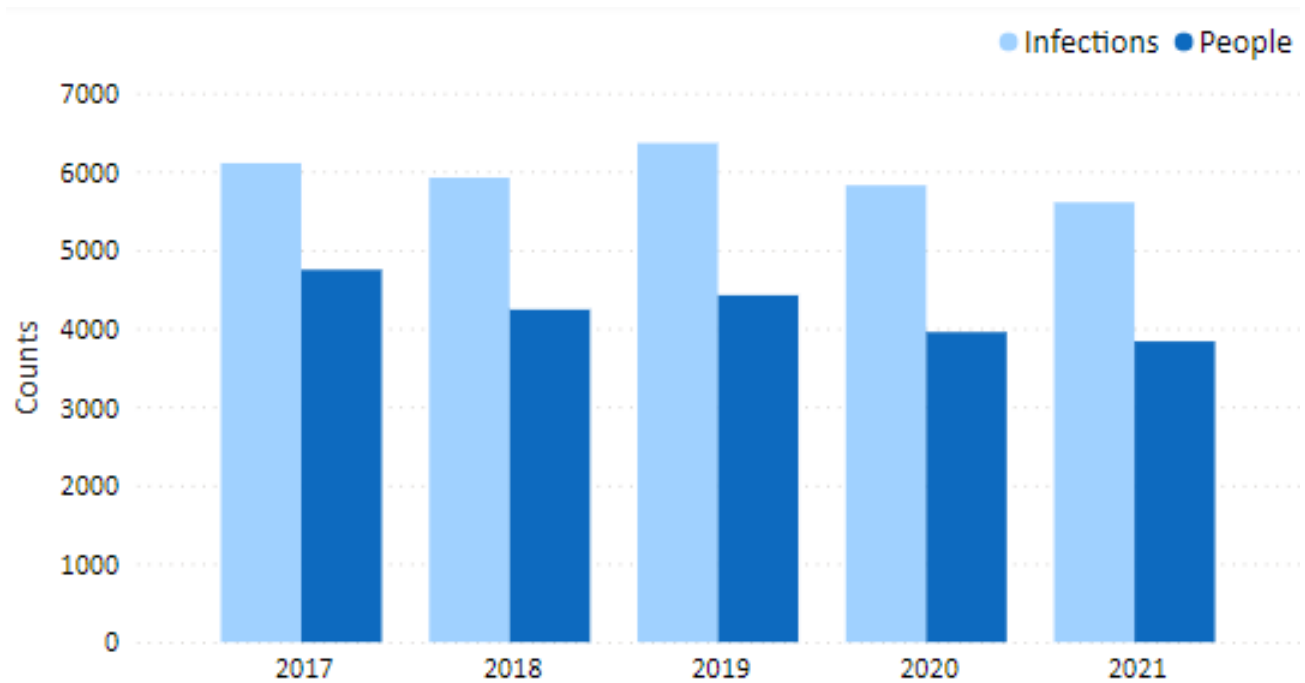
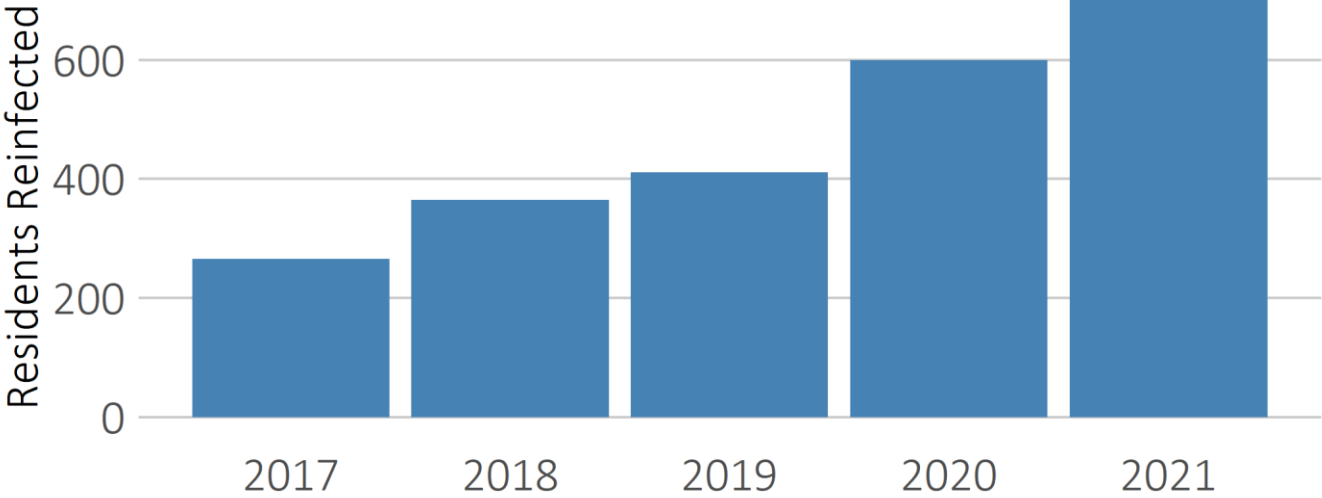


Figure 30. Gonorrhea cases per year, Cleveland, 2017-2021. The light blue bar indicates the total number of cases that were diagnosed during the calendar year. The darker blue bar indicates the number of unique residents that were diagnosed.

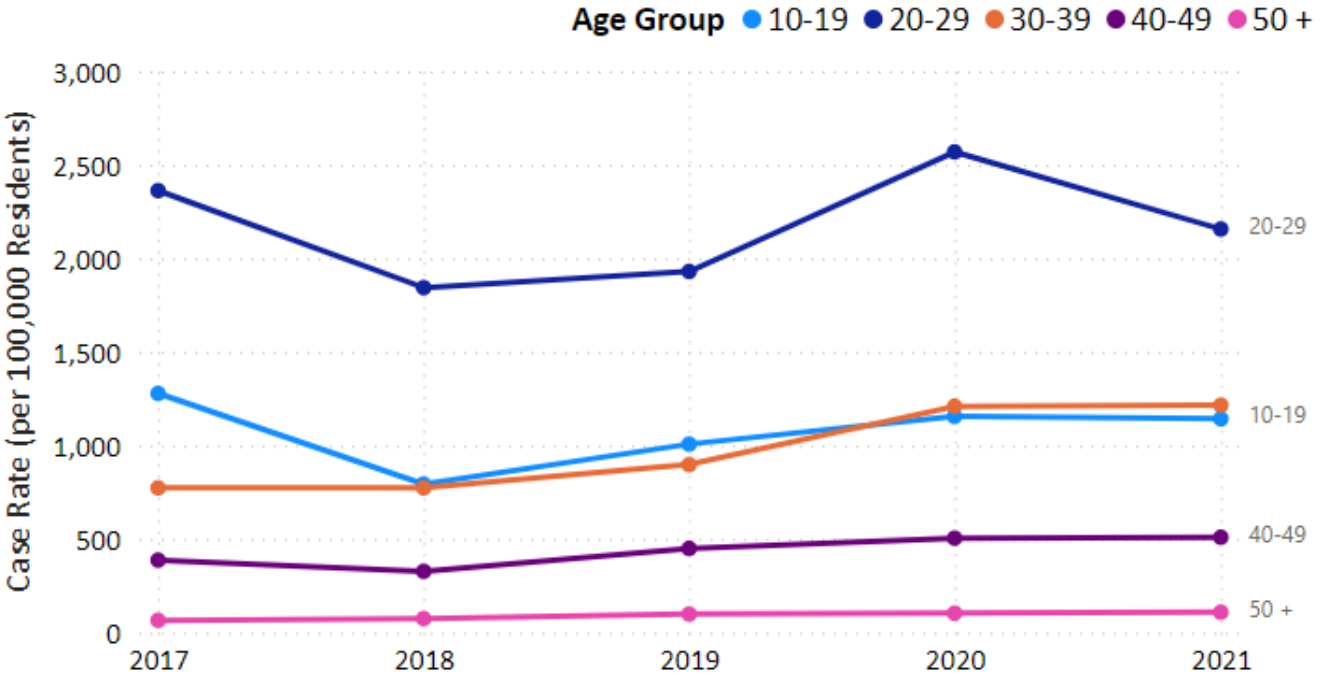
Cleveland saw a rise in gonorrhea cases from 2018 to 2020. The trend began to reverse in 2021.

Figure 31. Individual re-infected with gonorrhea per year, Cleveland, 2017-2021.



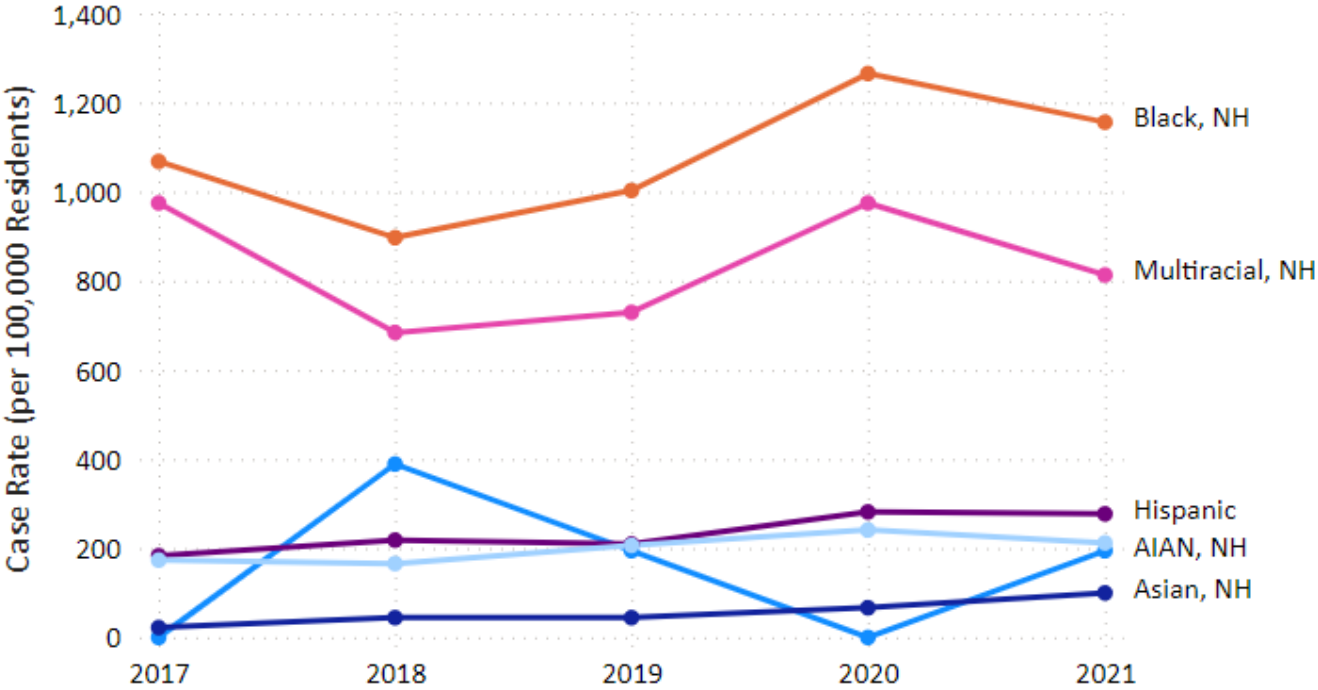
The number of residents who are reinfected with gonorrhea in the same calendar year increased every year since 2017.

Figure 32. Gonorrhea case rates by age, Cleveland, 2017-2021.



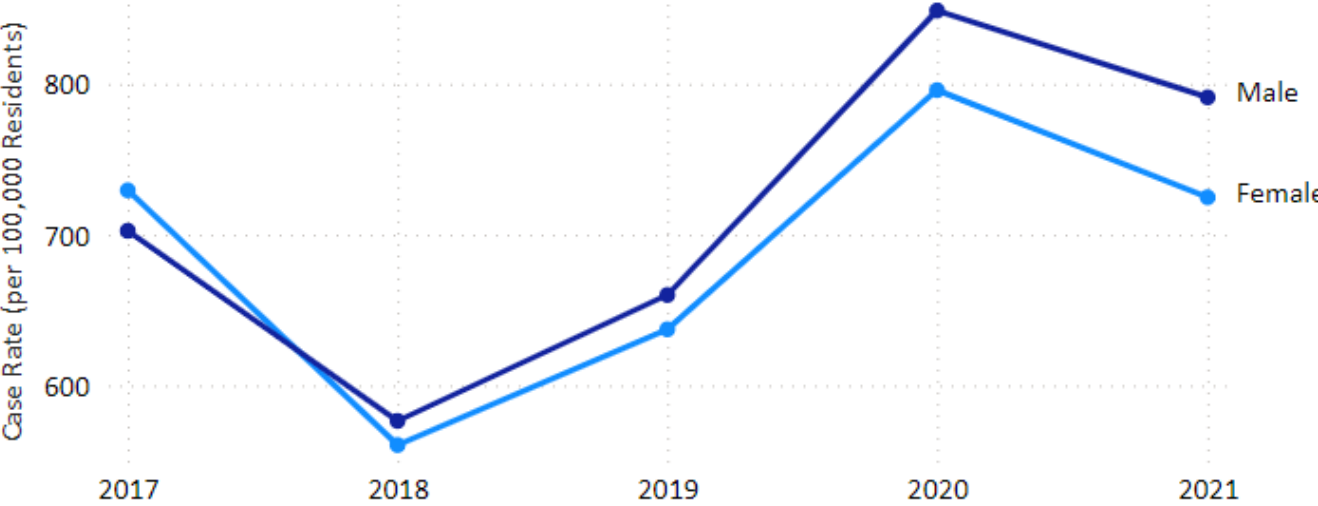
Young Clevelanders are most affected, with the 20-24 (average 2,720 per 100,000 population) and 15-19 (average 2,004 per 100,000 population) age group having the highest incidence.

Figure 33. Gonorrhea case rates by race and ethnicity, Cleveland, 2017-2021.



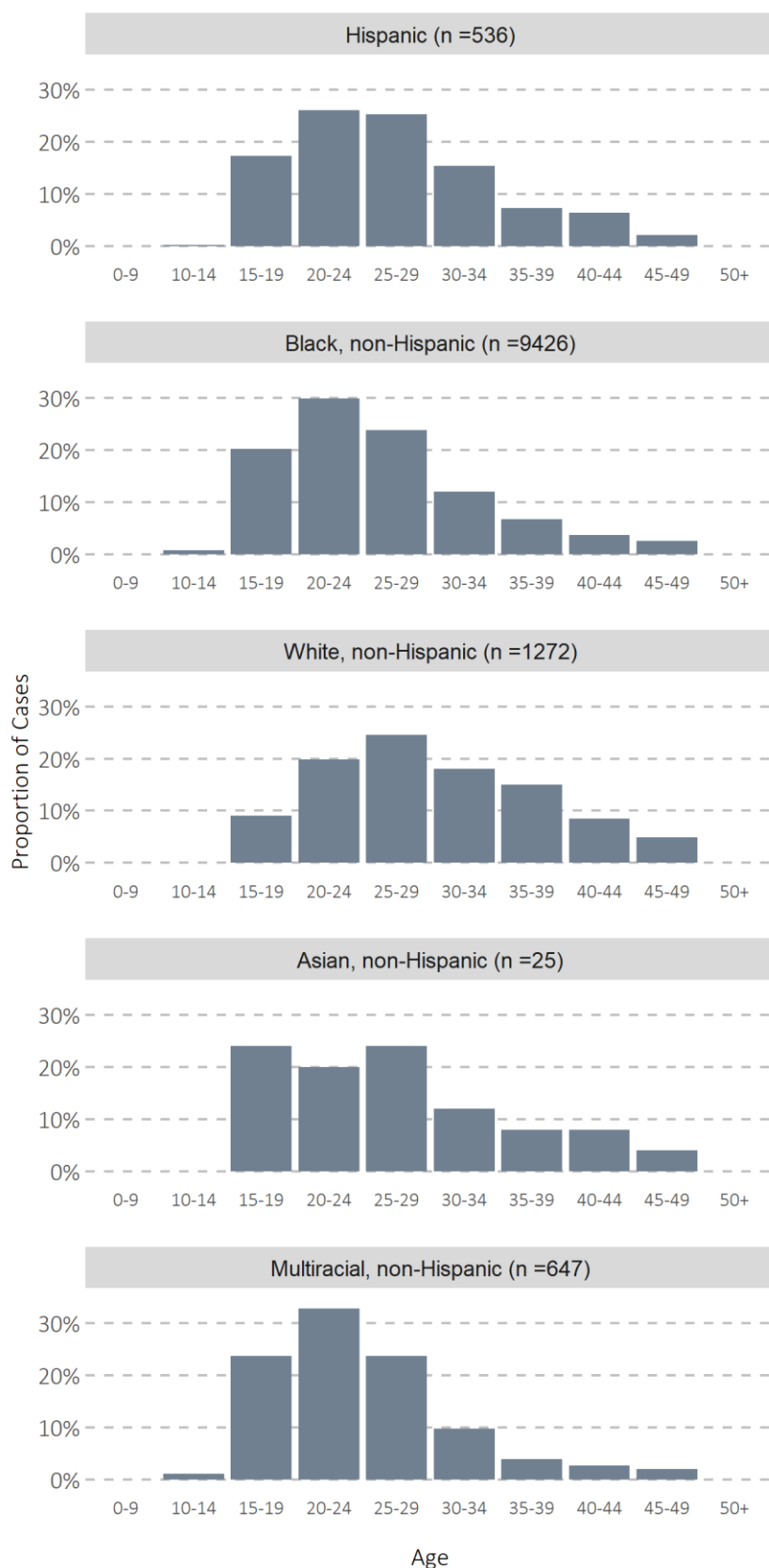
Black residents (average 1,078 per 100,000 population) had the highest gonorrhea incidence. AIAN residents (average 155 per 100,000 population) had spikes in gonorrhea incidence in 2018 and 2021.

Figure 34. Gonorrhea case rates by sex, Cleveland, 2017-2021.



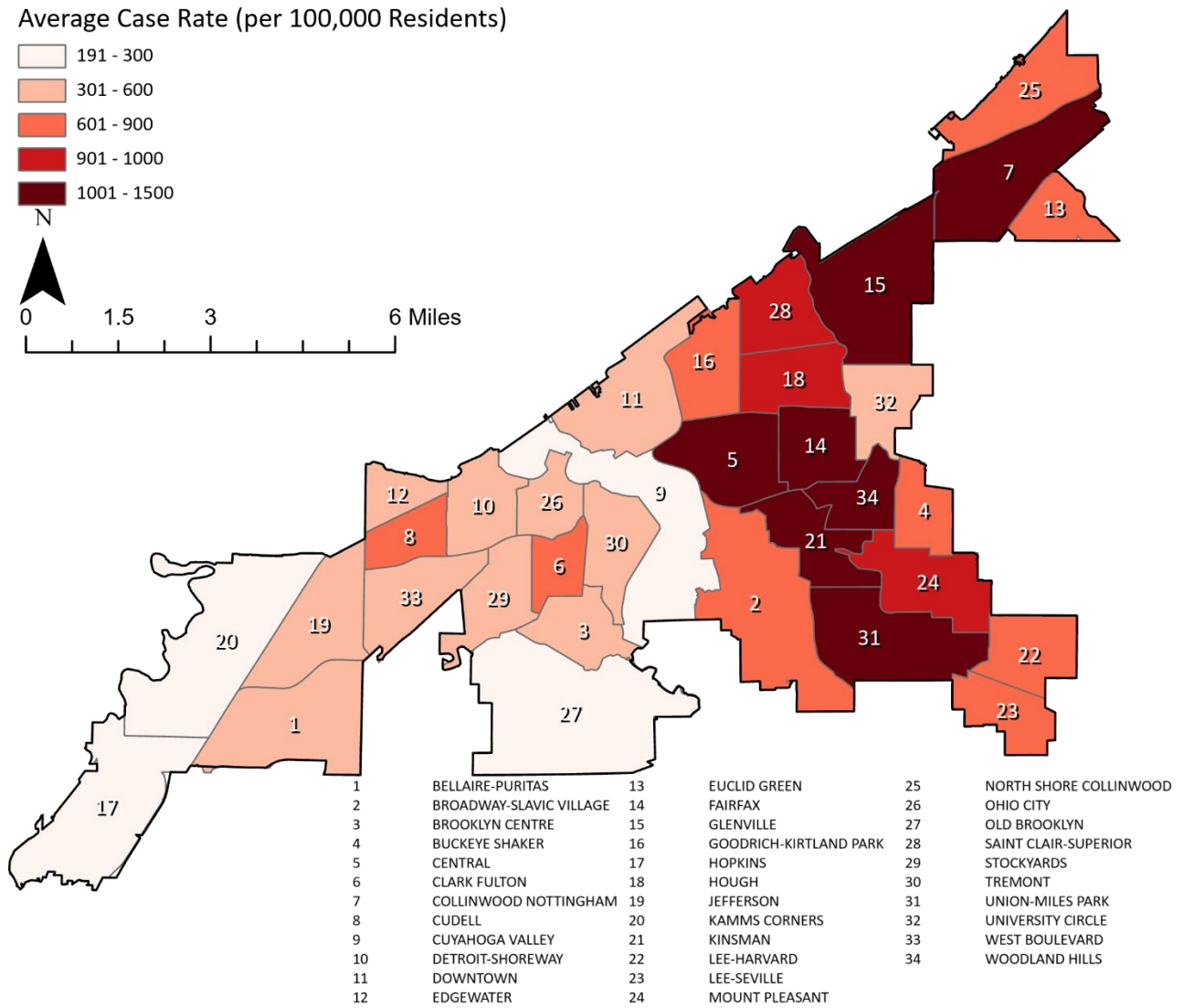
Male residents (average 716 per 100,000 residents) overtook female residents (average 690 per 100,000 residents) for higher gonorrhea incidence in 2018.

Figure 35. Age distribution of gonorrhea cases by race and ethnicity, Cleveland, 2017-2021.



Non-Hispanic white residents with gonorrhea tended to be older than residents of other race and ethnicity groups. The distribution of the ages of non-Hispanic Asian residents diagnosed with gonorrhea had two larger peaks at the 15-19 and 25-29 age groups, compared to one peak for the other race and ethnicity groups. This may be due to a much lower case count for non-Hispanic Asian residents compared to other groups.

Figure 36. Average annual chlamydia case rates by neighborhood, Cleveland, 2017-2021.



Consistent with the map of chlamydia cases (Figure 29, page 35), gonorrhea had a higher case rate in the eastern neighborhoods of Cleveland.

Table 3. STI case rates by select demographics, Cleveland, 5-year averages, 2017-2021.

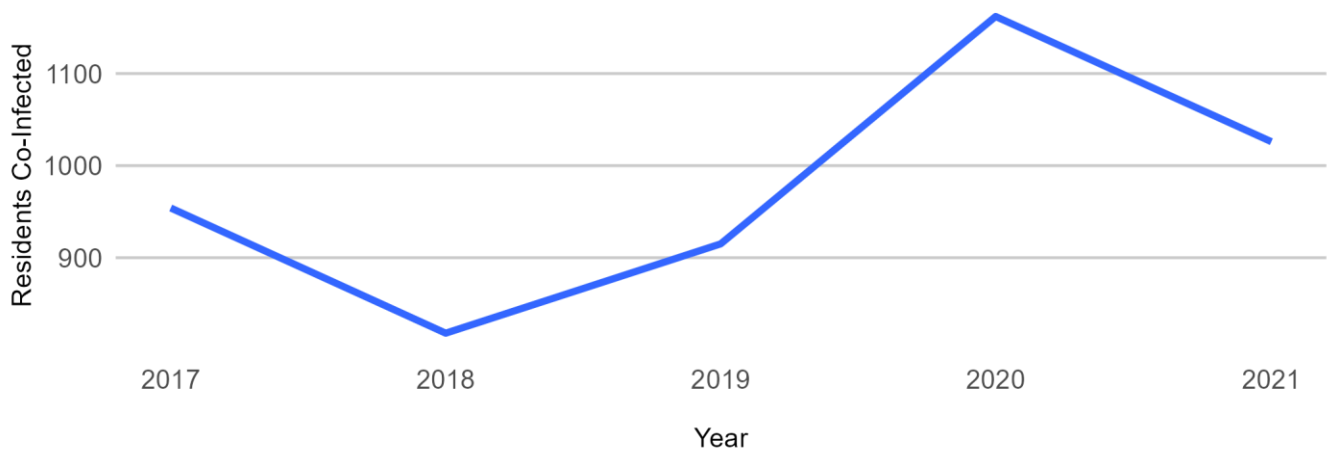
	Chlamydia		Gonorrhea		Syphilis*	
	Count	Rate	Count	Rate	Count	Rate
Sex						
Female	13,008	1,340	6,693	690	232	24
Male	8,186	906	6,469	716	957	106
Age Group						
0-9	18	8	<5	1	0	0
10-19	5,920	2,503	2,546	1,077	71	30
20-29	11,127	3,685	6,562	2,173	458	152
30-39	3,058	1,170	2,549	975	348	133
40-49	685	328	911	437	183	88
50-59	292	117	438	175	96	38
60-69	83	37	132	59	23	10
70 +	6	4	20	12	10	6
Combined Race and Ethnicity						
Hispanic	1,252	547	536	234	96	42
Black, non-Hispanic	13,754	1,573	9,426	1,078	781	89
White, non-Hispanic	2,414	379	1,272	200	197	31
Asian, non-Hispanic	83	184	25	55	<5	7
AIAN, non-Hispanic	30	1161	<5	155	<5	39
Multiracial, non-Hispanic	960	1,239	647	835	84	108
Other, non-Hispanic	569	6,368	225	2,518	11	123

Note: Rates per 100,000 population

*Congenital syphilis is not included in rates.

Co-Infections of Chlamydia and Gonorrhea

Figure 37. Counts of chlamydia and gonorrhea co-infections, Cleveland, 2017-2021.



Co-infections of chlamydia and gonorrhea are defined as having a diagnosis date for both STIs within 14 days of each other. 4,380 Cleveland residents were diagnosed with both chlamydia and gonorrhea at once. While both of these two STIs are both the most common STIs, research shows that co-infection of both happens more often than expected or by chance.¹⁴ That research suggests that there are interactions between the bacteria that cause each of them.¹⁴

The yearly trends of co-infections follow the trends for gonorrhea more than chlamydia, with an increase from 2018-2020 followed by a decrease (see Figure 37). These co-infections tended to affect younger residents more, with 2,739 cases occurring among 15-24 year-olds. Female residents and non-Hispanic Black or African American residents were the also among the most affected by chlamydia and gonorrhea co-infections (Figures 38-39).

Figure 38. Percentage of chlamydia and gonorrhea co-infections by age, Cleveland, 2017-2021.

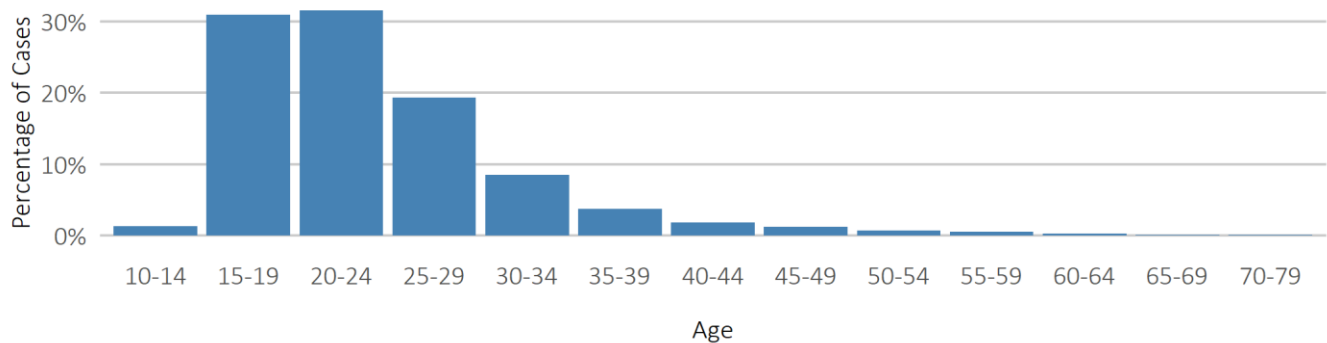
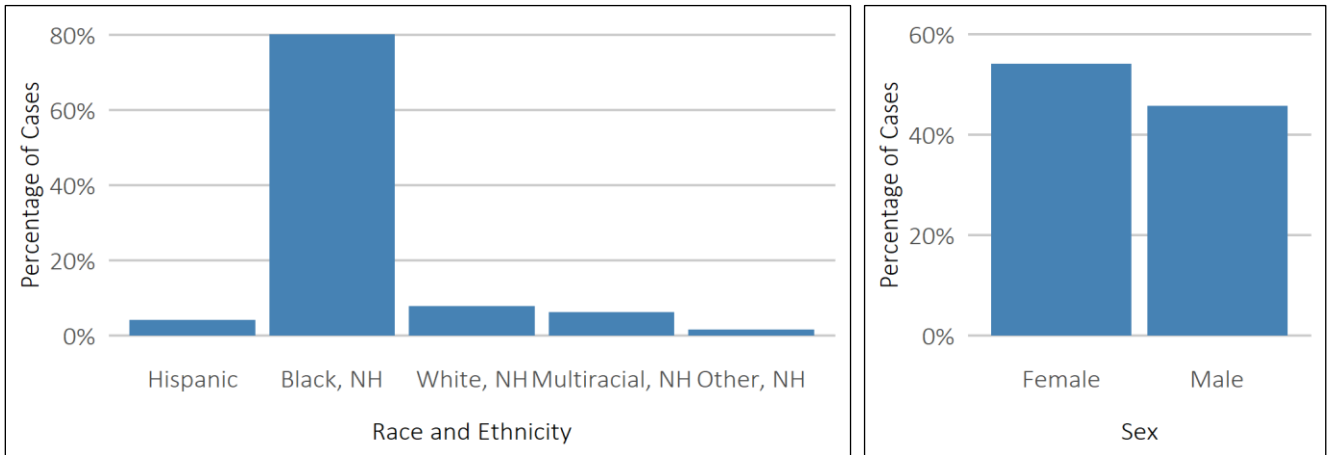


Figure 39. Distribution of (left) race and ethnicity and [right] birth-sex among people co-infected with chlamydia and gonorrhea, Cleveland, 2017-2021.



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Technical Notes

Data Source

The Office of Epidemiology and Population Health (OEPH) based in Cleveland Department of Public Health (CDPH) received data on HIV diagnoses in Cuyahoga County through a partnership with Cuyahoga County Board of Health. The data are de-identified and used solely for disease surveillance with Cleveland city's jurisdiction and to inform policies and strategies of grants distributed by CDPH.

Analysis

Statistical and spatial analyses were conducted in R and ArcGIS Pro. Rates of new diagnoses per population were calculated using available American Community Survey data. For populations where census data are not available, proportions of the risk or demographic categories are assessed. Both rates and proportions, instead of counts, are used to compare regions, demographic groups, and changes over time.

HIV Choropleth Map Notes

Total HIV diagnoses among Cleveland residents was estimated based available residential zip code data. Estimates were required to because zip code boundaries intersect Cleveland city boundaries. To estimate, we classified zip codes that intersect Cleveland City boundary whose land areas were mostly (>50%) within Cleveland or completely within Cleveland. A high estimate of cases within Cleveland was calculated based on inclusion of zip codes that had any land area intersecting the Cleveland city boundary, while a low estimate was based on excluding those zip codes whose land areas were greater 50% outside of Cleveland. Sensitivity analyses to compare these estimates determined that demographic distributions did not differ significantly.

Sex at Birth and Gender Identity

Data for sex at birth and gender are collected in case interviews for HIV and syphilis only. This allows for quantifying the number of transgender individuals diagnosed with a given infection. However, estimates of the total number of transgender individuals in Cleveland are not available, precluding rate calculations. Therefore, the data are shown in proportion to the total number of diagnoses in order to observe changes over time.