Sexually Transmitted Infections (STI) and HIV Epidemiology Annual Report, 2022

County of Santa Clara

Public Health Department

Infectious Disease and Response Branch / Science Branch

December 2023

Table of Contents

Suggested Citation:

County of Santa Clara Public Health Department. Sexually Transmitted Infections (STI) and HIV Epidemiology Annual Report, 2022. County of Santa Clara Public Health Department, San Jose, California. December 2023.

Executive Summary

This report summarizes key findings from surveillance data for Human Immunodeficiency Virus (HIV) and other reportable infections that are primarily sexually transmitted. The report generally shows that rates of most sexually transmitted infections (STIs) continue to rebound from the COVID-19 pandemic-related decreases seen during early 2020, reaching pre-pandemic levels for HIV, but not quite returning to pre-pandemic levels for other STIs. The rates of STIs and HIV are particularly high for some populations, reminding us of the disparities that continue to persist. A new addition to this year's report is mpox, of which the world experienced an unprecedented global outbreak in 2022. This report shows that mpox case distribution in terms of demographic groups largely mirrored that of STIs and HIV in Santa Clara County. Lastly, this report begins to explore the relationship between community-level social determinants of health and STIs by comparing the geographic distribution of STIs to the California Healthy Places Index (HPI), a tool that enables the categorization of census tracts based on access to resources that allow people to lead healthy lives. This mapping shows that communities with the least access to resources have the highest burden of STIs and HIV, indicating that ongoing work in addressing these disparities in access to resources is important to address the high rates of STIs and HIV.

Chlamydia

The decrease in case rates seen in 2020 was most striking for chlamydia, with reduction in rates by almost 50%. Rates began to rise in 2021 and 2022 but have not yet rebounded to pre-pandemic levels. This perhaps suggests true pauses and reductions in transmission in some groups since 2020, creating an opportunity for further progress in the future. However, there continue to be disparities related to race and ethnicity in the distribution of chlamydia, with people identifying as Hispanic/Latinx having higher rates of chlamydia than people of other races.

Gonorrhea

Prior to the COVID-19 pandemic, local and statewide gonorrhea rates had begun to level off. Similar to other STIs, gonorrhea rates fell in 2020 and began to rise in 2021, but, in 2022, the case rate appears to have leveled off again. Despite this leveling off, disparities in gonorrhea distribution by race and ethnicity continue to persist and, in some cases, worsened. Rates of disseminated gonorrhea, a rare but serious complication of gonorrhea infection, also show stark disparities, with 53% of disseminated gonorrhea infections from 2020 to 2022 being among those of Hispanic/Latinx ethnicity.

Syphilis

Syphilis infections are classified as early or late depending on the timing of infection acquisition: early infections are those likely acquired in the past one year. Classification of early syphilis based on clinical features alone can be challenging and often depends on having prior syphilis test results in the past year to help guide whether a new result represents a recent infection or not. Given the decrease in STI testing in 2020, the classification of early syphilis cases in 2021 and 2022 was even more challenging. This challenge likely contributed to the trends in early syphilis that we see, where rates of early syphilis fell in 2020 and continue to fall in 2021 and 2022. However, rates of syphilis overall have been increasing in 2021 and 2022, suggesting that the apparent fall in early syphilis cases is more likely due to misclassification rather than a true decrease in syphilis rates. The trend

may also indicate that people sought care later than usual due to the pandemic. Case counts of syphilis in pregnancy continue to remain high since 2020, with nearly similar counts from 2020 to2022. However, rates of congenital syphilis in 2022 have decreased, which is an encouraging sign and suggestive of successful disease investigations and interventions for syphilis in pregnancy.

Mpox

The first mpox case in the U.S was reported in May 2022 and the first cases in Santa Clara County were in June 2022. Two hundred and thirteen confirmed or probable cases reported in 2022, peaking in July and August, with Hispanic/latinx males and people identifying as gay or bisexual being disproportionately affected. Thus far in 2023, Santa Clara County has recorded around a dozen new mpox cases, primarily concentrated in October, indicating a sustained improvement in control of new cases but with similar trends as in 2022 for which demographic groups are disproportionately impacted by this emerging disease.

HIV

Unlike other reportable STIs, rates of new HIV diagnoses had stabilized for nearly a decade prior to the pandemic, although concerningly with worsening disparities by race and ethnicity, with those identifying as African American/Black or Hispanic/Latinx having the highest rates of new HIV diagnoses. The rate in 2022 appeared to return to pre-pandemic levels, and data on late diagnoses suggest that delayed testing and diagnoses contributed considerably to the dip in 2020.

Conclusions

Overall, this year's data show perhaps a continued worsening trend of disparities. Extensive research[1,2] shows that these disparities are likely driven by racism, homophobia, transphobia, and social conditions including housing instability, incarceration, and substance use. The work of the Sexual Health and Harm Reduction Program (SHHRP) will continue to focus on understanding the persistent trends of record-high rates of STIs; countering the pervasive disparities in sexual health and related outcomes based on race, ethnicity, gender, sexual orientation, and other social determinants; and improving data quality especially around gender data collection. SHHRP's new strategic priorities align with these needs and inspired both the integration of HCV prevention and control as well as investigation of and response to mpox, which continues to spread via intimate partner contact. Future annual reports will aim to include key findings for HCV and describe the ways in which populations impacted by HCV intersect with those impacted by other STIs and HIV as described in this report.

[1] Hogben M and Leichliter JS. Social determinants and sexually transmitted disease disparities. *Sexually Transmitted Disease.* Dec. 2008. ;35(12 Suppl):S13-8. doi: 10.1097/OLQ.0b013e31818d3cad

[2] STD Health Equity. Published August 15, 2023. Accessed December 21, 2023. https://www.cdc.gov/std/health-disparities/default.htm

I. Chlamydia

General Trend Over Time

From 2013 – 2022, rates of chlamydia were lower in Santa Clara County, compared to California and the United States as a whole (Figure 1). Rates of chlamydia steadily increased over time from 308.1 cases per 100,000 people in 2013 to 415.6 in 2019. The number of cases and rates then decreased from 2019 to 2020 by 45%, and then increased from 2020 to 2022 by 34% (Figure 2). The decrease in 2020 and the increase in 2021 and 2022 is seen simultaneously among both males and females, as well as across most race/ethnicity and age groups. In 2021 and 2022, there was a rebound in case rates, although they did not reach the same highs as in previous years. (Figures 3-6).

Figure 1: Chlamydia case rates, County of Santa Clara, California, and United States, 2013 – 2022

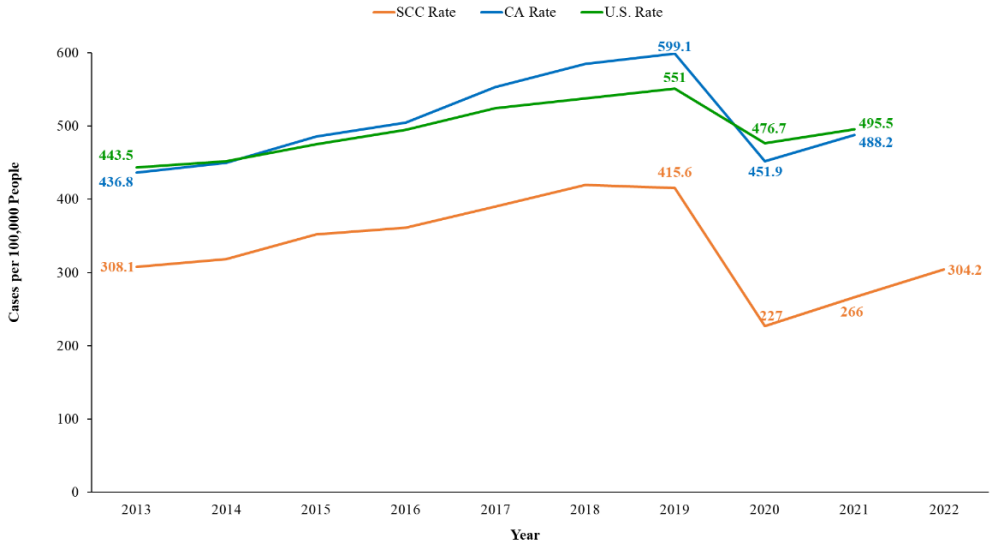
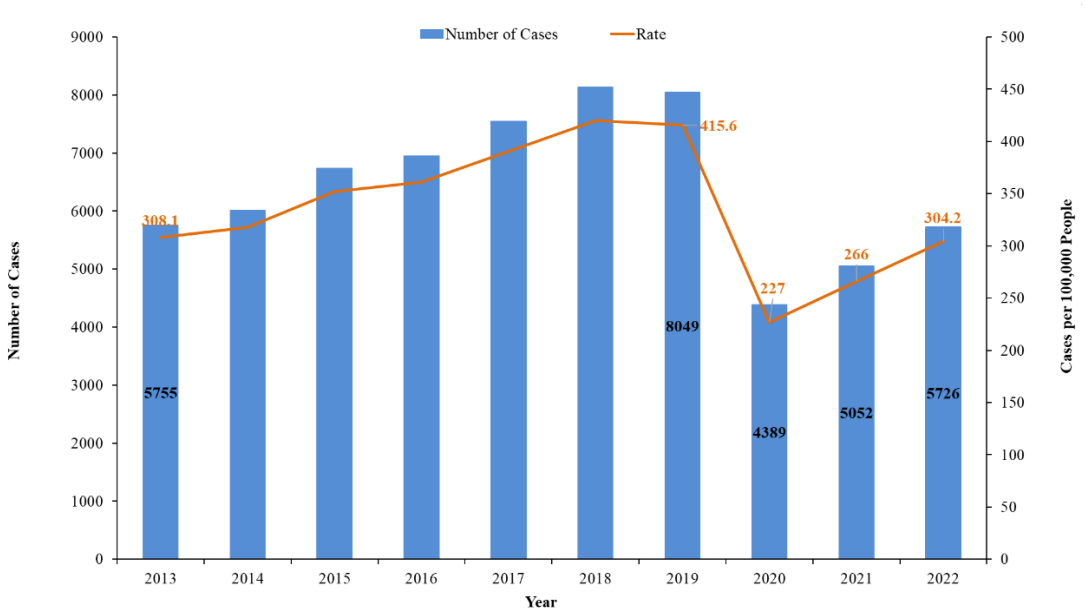


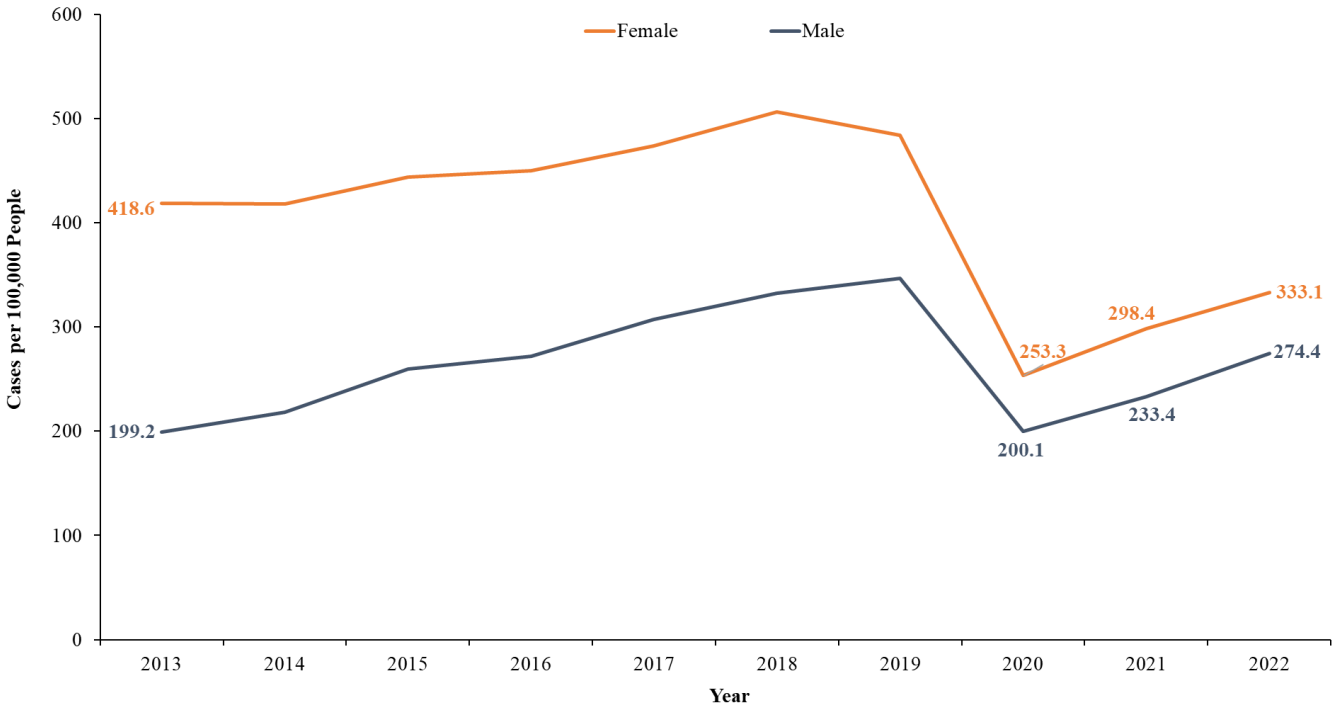
Figure 2: Chlamydia case counts and rates, County of Santa Clara, 2013 – 2022



Chlamydia and Gender

Overall, females had higher rates of chlamydia than males. In 2022, the rate among females was 333.1 cases per 100,000 people, which was 21% higher than the rate among males (274.4). From 2013 to 2019, chlamydia case rates increased among both females and males, with a more rapid increase among males than females, then dramatically decreased in 2020, followed by a slight increase in 2021 and 2022 (Figure 3).

Figure 3: Chlamydia case rates by gender*, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Chlamydia and Age

In 2022, young adults ages 20 to 24 had the highest rate of chlamydia among all age groups, with a rate of 1,434.5 cases per 100,000 people, which was nearly 5 times the average rate among the total population of the county (304.2) (Figure 4).

Age–specific rates among females reflected similar trends as the total population. Among females in 2022, the highest rate of chlamydia was among those ages 20 to 24 (Figure 5), which had a rate of 1,949.7 cases per 100,000 people, nearly 6 times the female average rate (333.1). Females ages 25 to 29 had the second highest rate of chlamydia, followed by females ages 30 to 34. From 2013-2019, females ages 25 to 29 had the most rapid increase in the rate of chlamydia among females younger than 30 years old, with a 43.4% increase in the rate, compared with slower increases among those ages 24 and under.

Figure 6 shows the trends of rates of chlamydia among males in selected age groups from 2013 to 2022. Similar to females, the highest chlamydia case rate among males was also in the age group 20 to 24 years in 2022 (953.4 cases per 100,000 people), over 3 times the average rate among overall males in the same year (274.4). In 2022, males ages 25 to 29 had the second highest rate of chlamydia and the most significant increase among males younger than 30 years old, with a rate that increased by 122% between 2013 and 2019.

Figure 4: Chlamydia case rates by selected age group, County of Santa Clara, 2013 – 2022

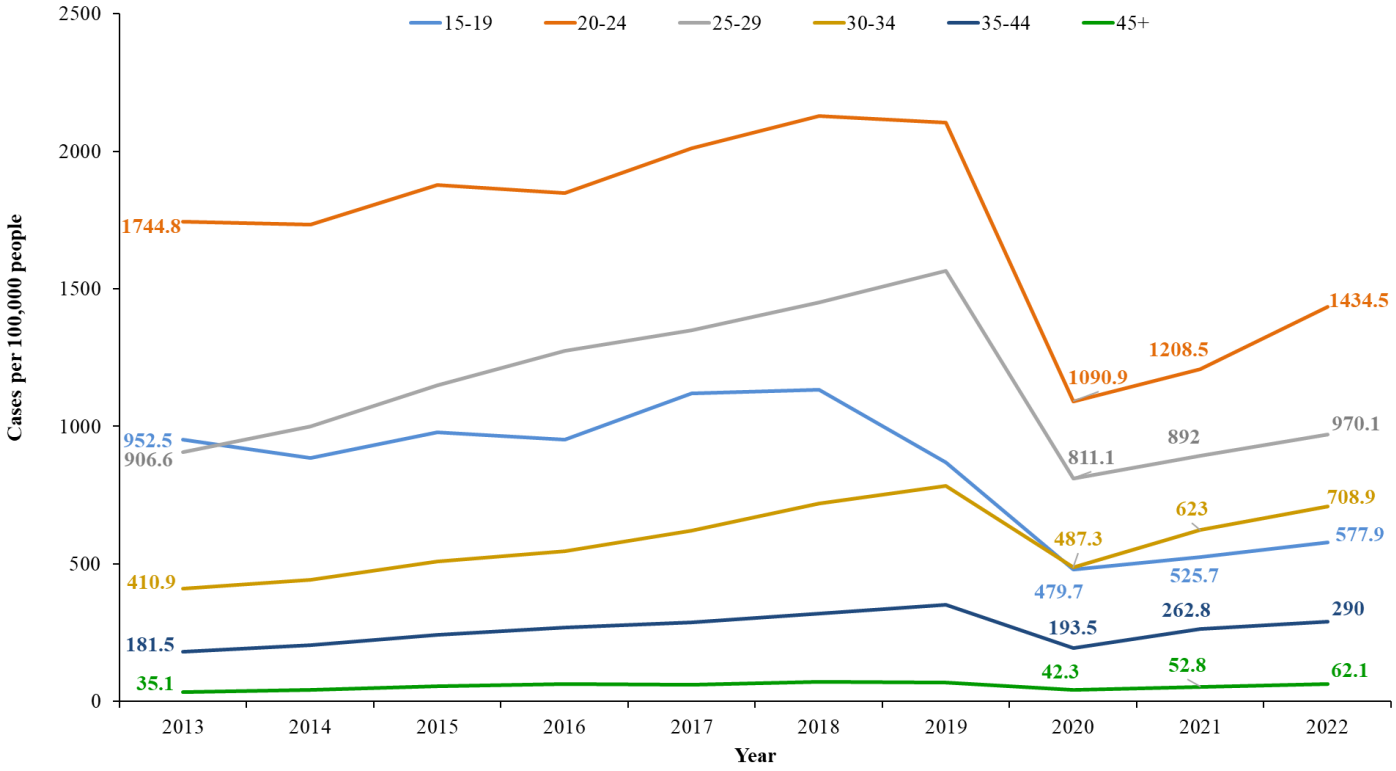
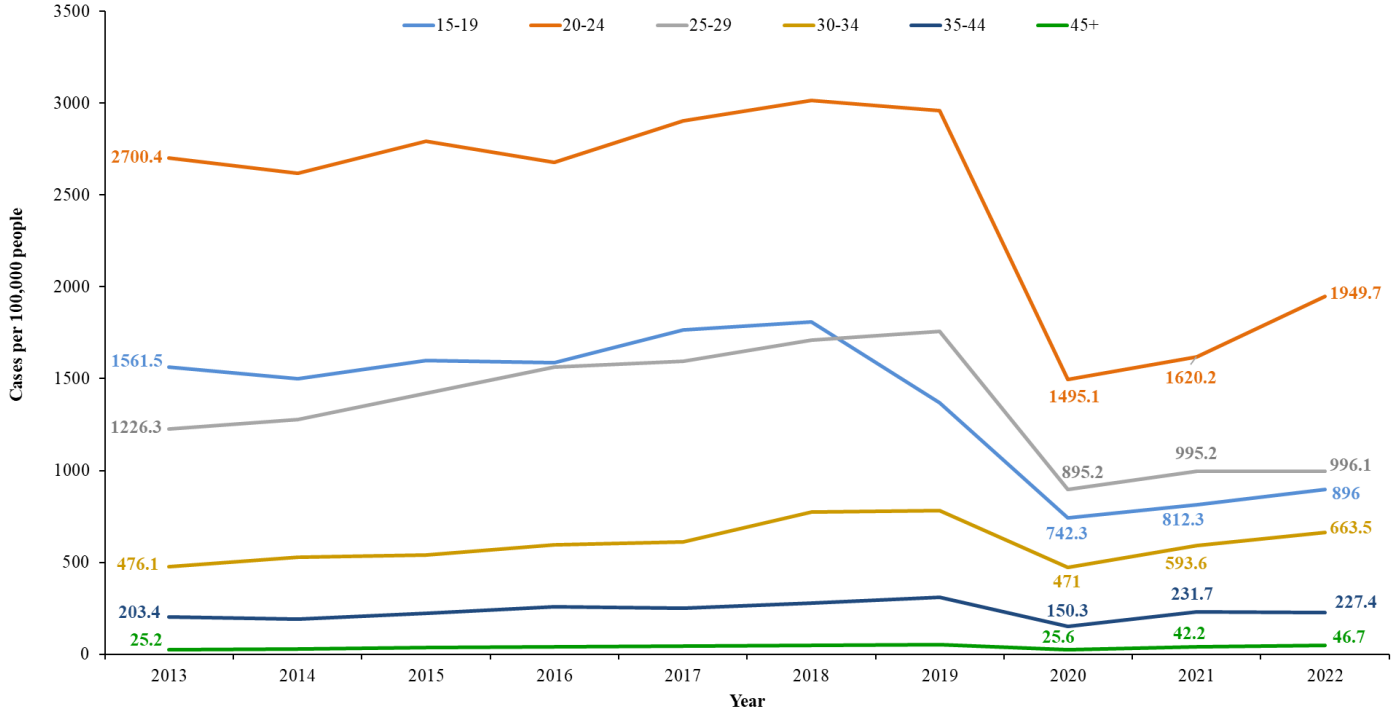
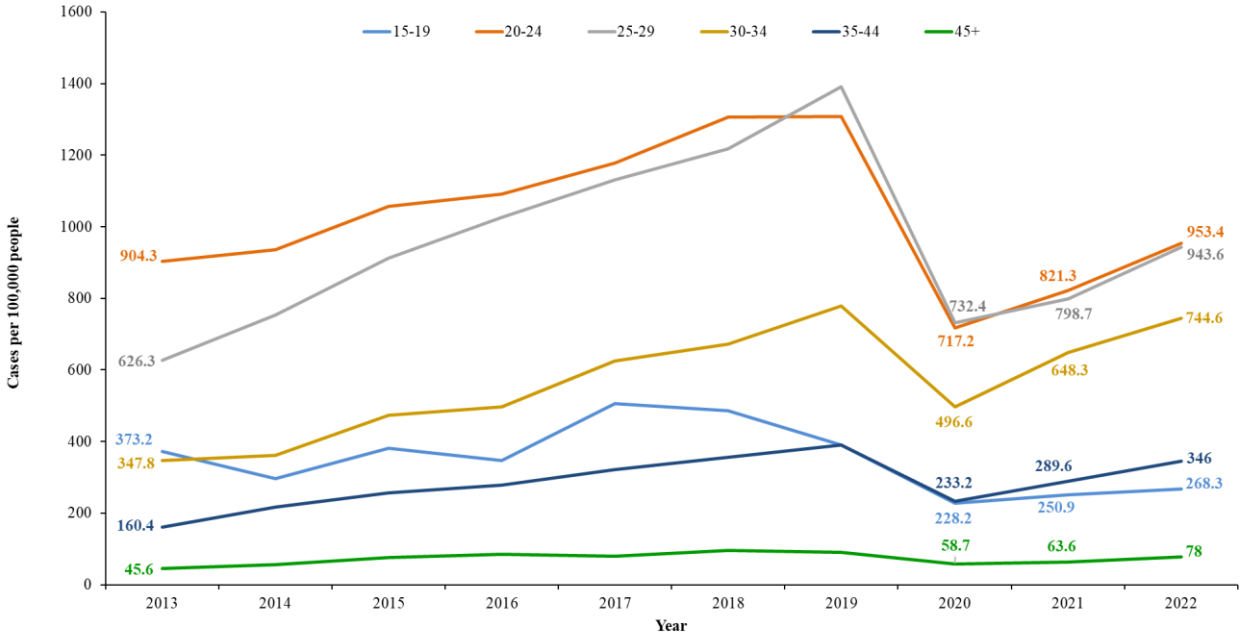


Figure 5: Chlamydia case rates among females* by selected age group, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Figure 6: Chlamydia case rates among males* by selected age group, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

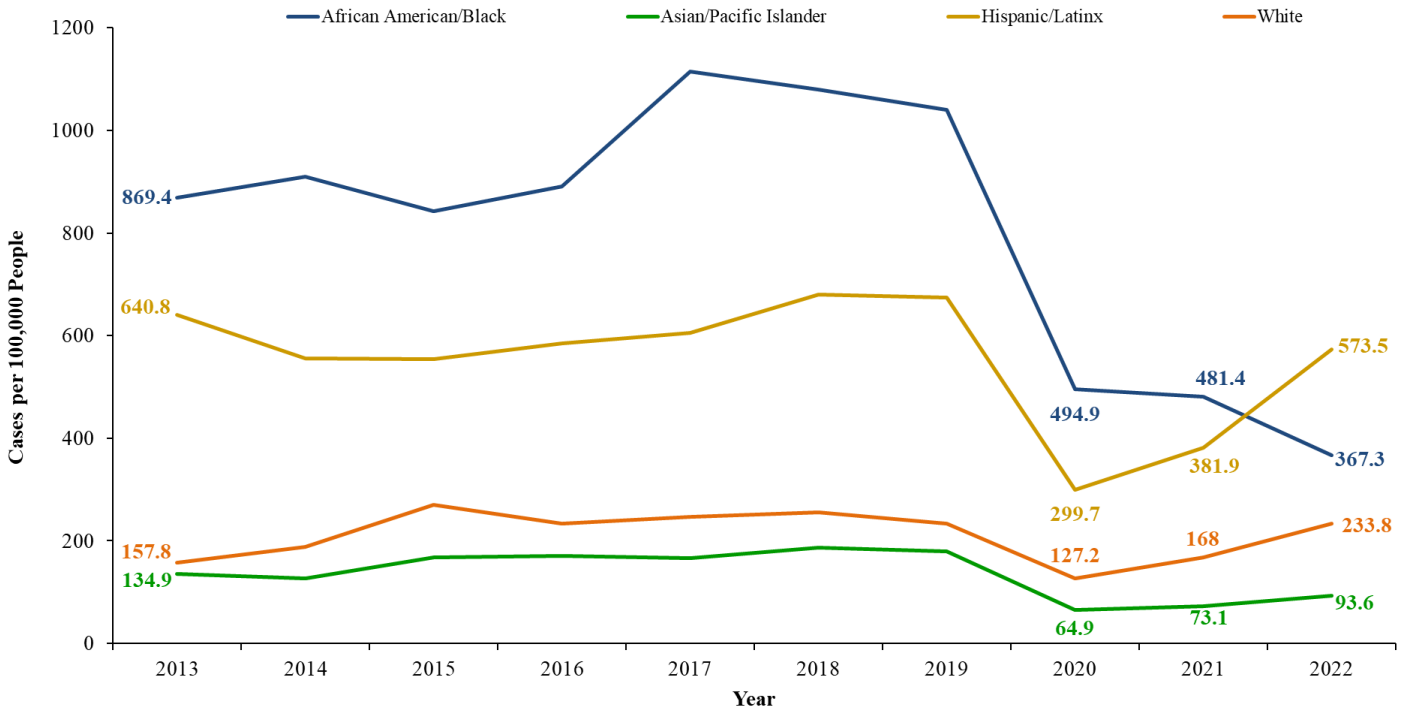
Chlamydia and Race/Ethnicity

The disease burden of chlamydia varied dramatically by race/ethnicity, but temporal trends were similar. Between 2013 and 2019, the rate of chlamydia increased among all racial/ethnic groups, then decreased in 2020. In 2021 and 2022, rates increased among all races/ethnicities, except among African Americans/Black residents. From 2013 to 2021, African Americans/Black residents consistently had the highest rate of chlamydia among all racial/ethnic groups, and Hispanic/Latinx had the second highest rate. However, Hispanic/Latinx residents surpassed African American/Black residents in 2022. In 2022, the rate of chlamydia among Hispanic/Latinx was 573.5 cases per 100,000 people, 52% higher than the rate among African Americans/Black residents (376.3) (Figure 7). Substantially, compared to other racial/ethnic groups, higher rates of chlamydia among African Americans/Black residents reflect the disproportionate impact of the disease on the relatively small African American/Black population of the county. In 2022, Hispanic/Latinx and African American/Black females and males had the highest rates of chlamydia compared to their white and Asian/Pacific islander counterparts. In 2022, rates of chlamydia among Hispanic/Latinx females in the county were over 3 times higher than the rates among white females (Figure 8) and Hispanic/Latinx males were nearly 2 times higher than the rates among white males (Figure 9).

Figure 10 shows age–specific rates of chlamydia by race/ethnicity from 2013 to 2022. Generally, young adults ages 20 to 24 were more likely to have chlamydia than other age groups, and this feature was consistently observed across all racial/ethnic groups. The rate of chlamydia was the highest among African American/Black and Hispanic/Latinx residents ages 20 to 24.

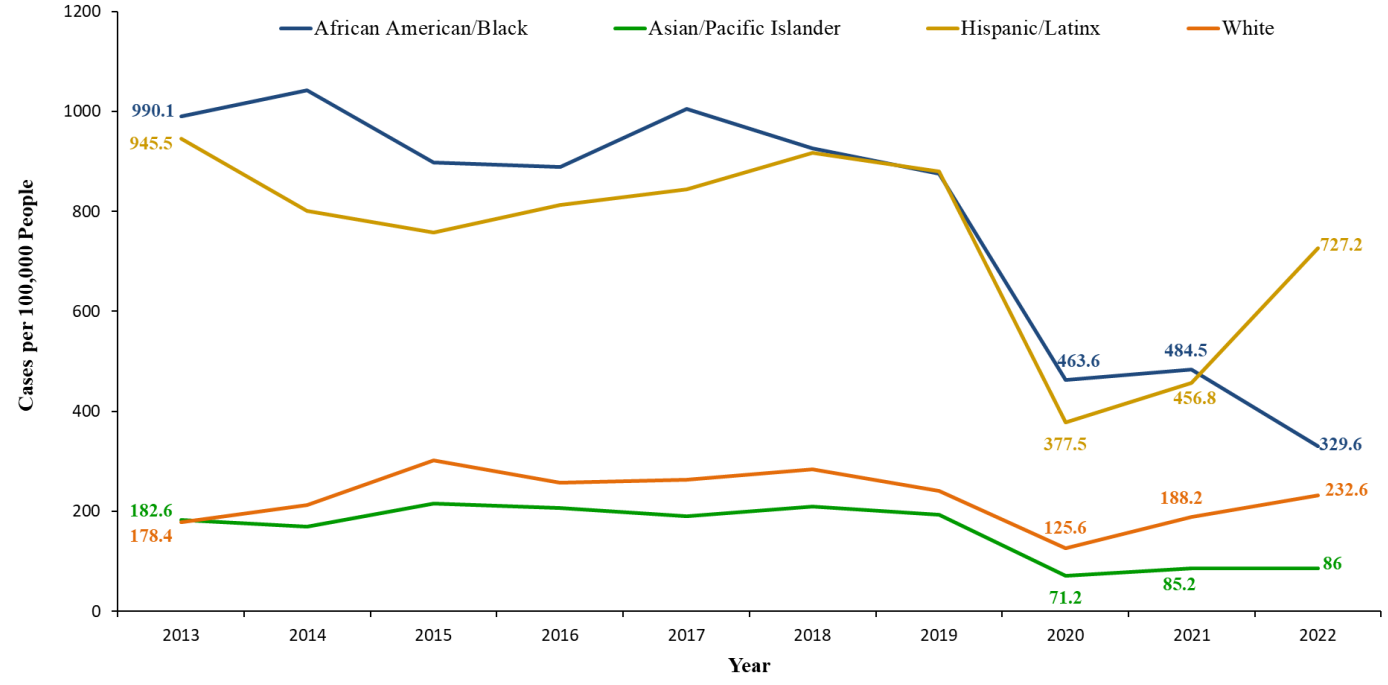
To address a high percentage of chlamydia cases with unknown race/ethnicity, race/ethnicity information were imputed (see Technical Notes) to estimate chlamydia numbers and rates for each group. These estimates are relative, offering insights into the epidemic's scale across different racial/ethnic subgroups and the county average.

Figure 7: Chlamydia case rates by imputed race/ethnicity*, County of Santa Clara, 2013 – 2022



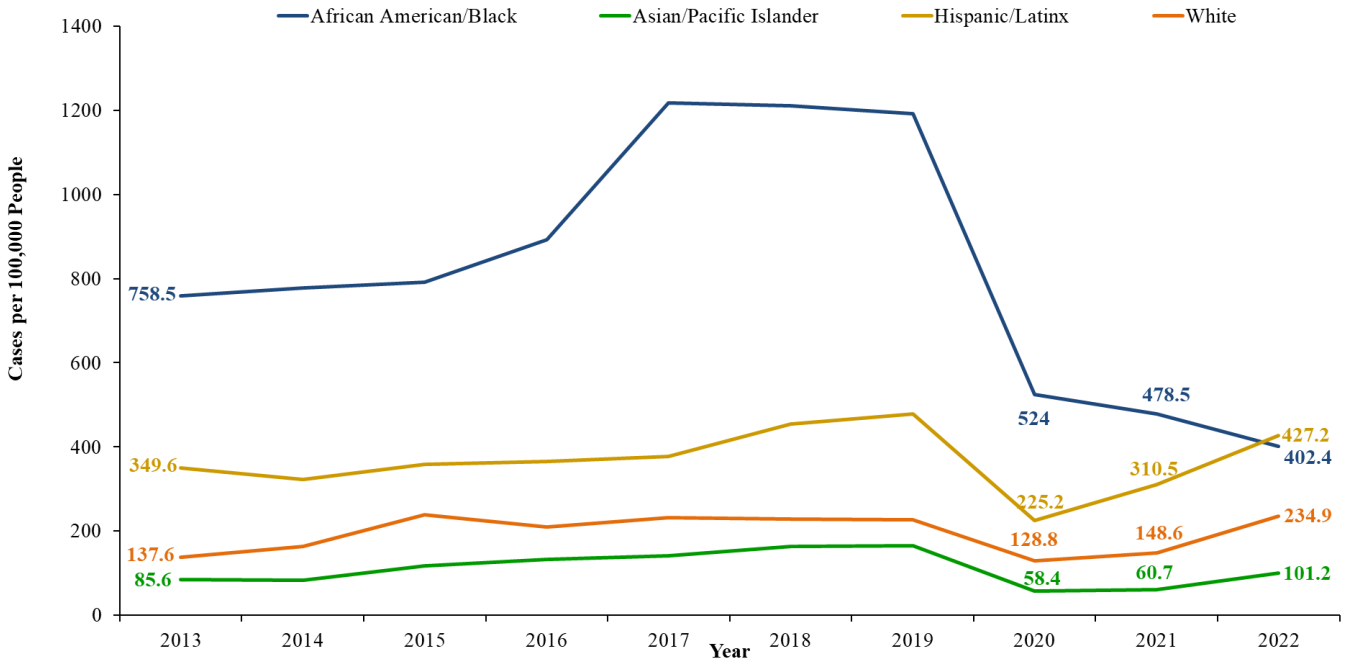
*Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 8: Chlamydia case rates among females* by imputed race/ethnicity**, County of Santa Clara, 2013 – 2022



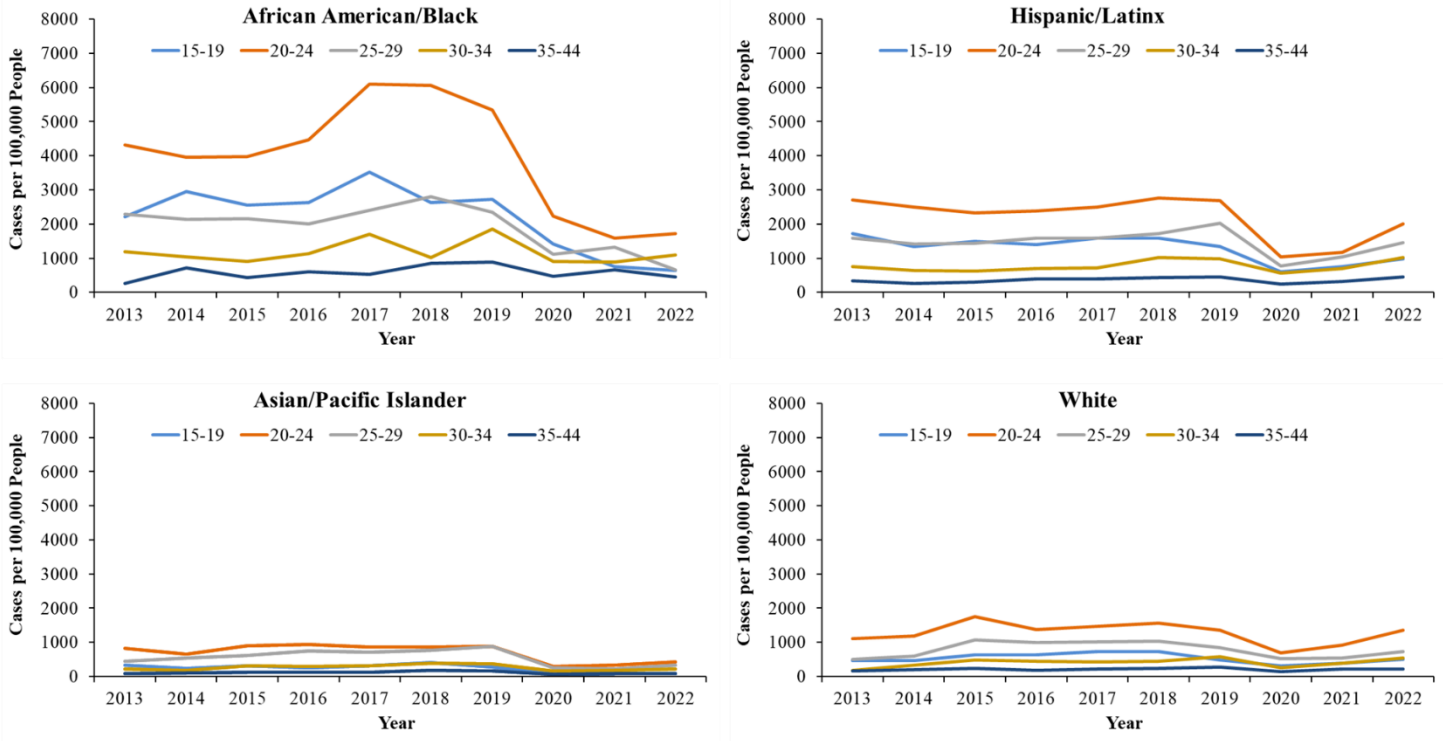
*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data.
**Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 9: Chlamydia case rates among males* by imputed race/ethnicity**, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data.
**Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 10: Chlamydia case rates by imputed race/ethnicity* in selected age groups, County of Santa Clara, 2013 – 2022



*Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Chlamydia and Rectal/Pharyngeal Infections

In the County of Santa Clara, rectal and pharyngeal screening for chlamydia and gonorrhea began in 2011 and has since expanded widely, especially among men who have sex with men (MSM) for whom this screening is recommended by the US Centers for Disease Control and Prevention (CDC). Reports of pharyngeal and rectal chlamydia continued to increase between 2013 and 2019, then decreased in 2020, followed by rebounds in 2021 and 2022 (Figure 11). Male chlamydia cases were more frequently diagnosed with rectal chlamydia than female cases. Figure 12 shows rectal infection was associated with increasing age among male chlamydia cases. Older cases had a higher percentage of rectal infection than younger cases, and males ages 35 and older had the highest percentage of reported rectal infection (15%). Although pharyngeal chlamydia cases were fewer than rectal chlamydia cases, the percentage of pharyngeal infection among male chlamydia cases also increased from 0.3% in 2013 to 2.7% in 2022 (Figure 11). Males ages 30 to 34 had the highest percentage of reported pharyngeal infection (6%), while males ages 15 to 19 had the lowest percentage (2%) (Figure 12).

Figure 11: Number and percentage of rectal/pharyngeal chlamydia, County of Santa Clara, 2013 – 2022

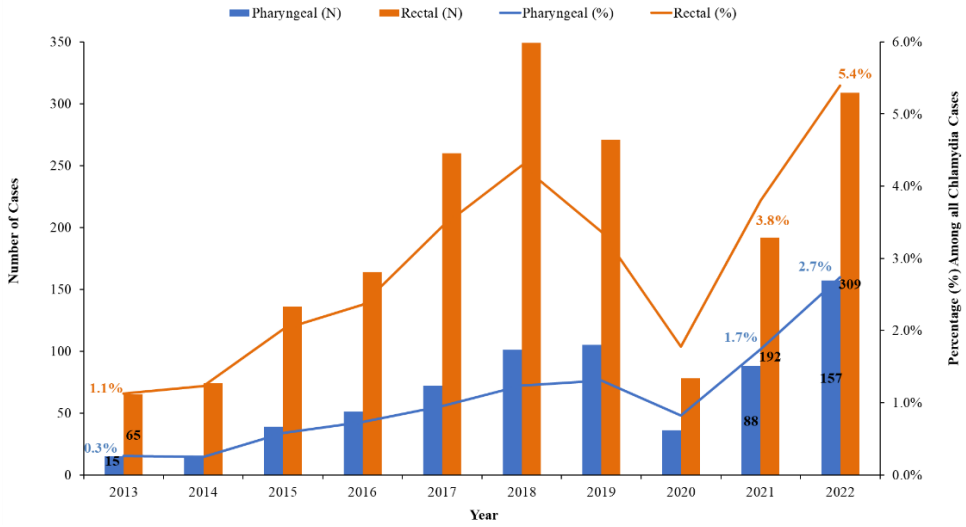
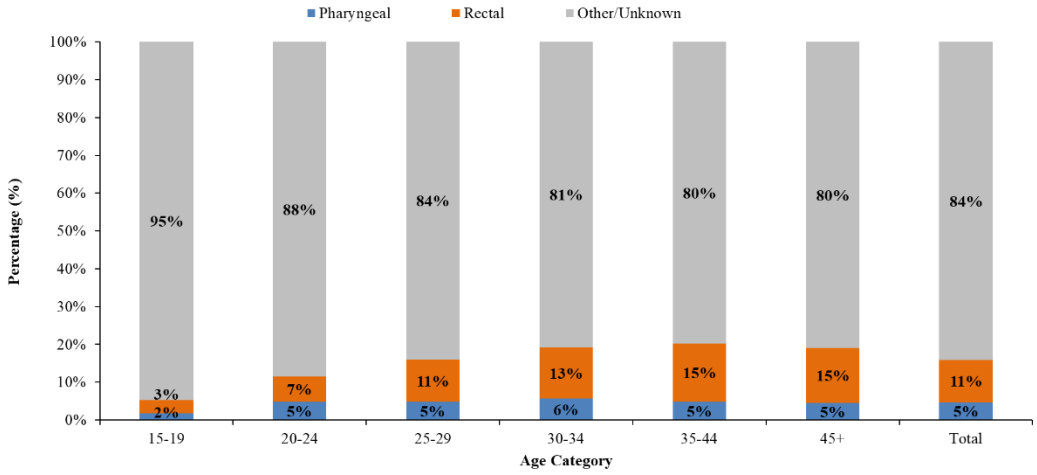


Figure 12: Percentage of rectal and pharyngeal chlamydia among males* in selected age groups, County of Santa Clara, 2022

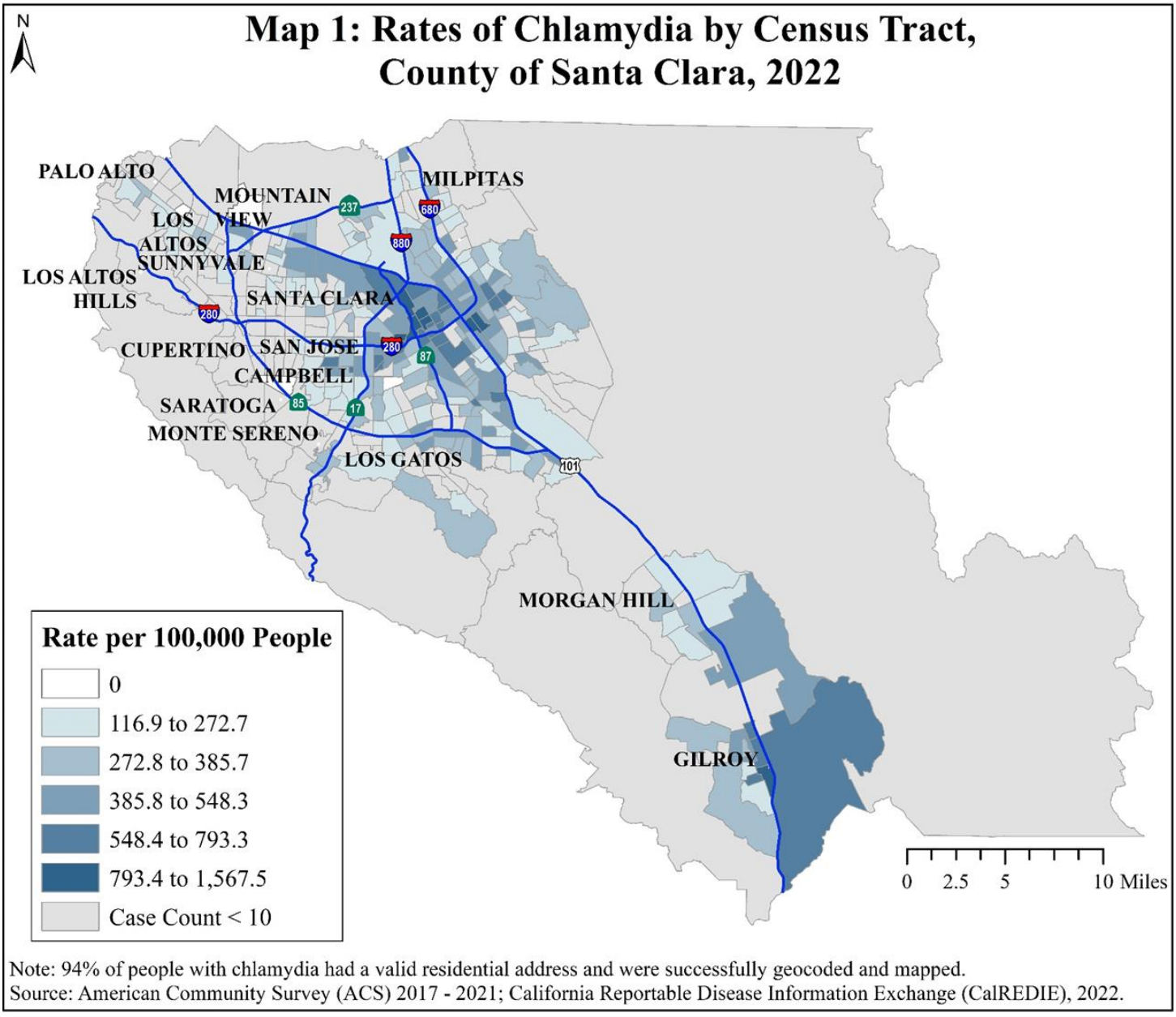


*Due to large numbers of missing rectal and pharyngeal testing data among females, analyses are only available among males. This may be in part due to the US Centers for Disease Control and Prevention (CDC) recommendation for regular rectal and pharyngeal screening for chlamydia and gonorrhea among men who have sex with men (MSM). For context, overall rectal and pharyngeal chlamydia rates are 0.9% and 5.7% among females respectively, and 14.6% and 19.3% among males respectively.

Chlamydia and Geographic Distribution

Geographic areas of the County of Santa Clara with the highest rates of chlamydia by census tract were close to the Downtown San Jose area in the City of San Jose (793.4 - 1,567.5 cases per 100,000 people). The residents living around the downtown area are characterized with relatively lower incomes than neighboring areas, a factor that often correlates with limited access to diagnosis, treatment, and preventative resources[3]. Higher rates were also observed in most census tracts within Gilroy boundary (Map 1).

Map 1: Rates of Chlamydia by Census Tract, County of Santa Clara, 2022



Note: 94% of people with chlamydia had a valid residential address and were successfully geocoded and mapped.
Source: American Community Survey (ACS) 2017 - 2021; California Reportable Disease Information Exchange (CalREDIE), 2022.

[3] Santa Clara County Public Health Department. Santa Clara County City and Small Area/Neighborhood Profiles: San Jose Downtown Profile 2016. 2016. https://www.sccgov.org/sites/phd/hi/hd/Pages/san-jose.aspx

II. Gonorrhea

General Trend Over Time

Gonorrhea was the second most frequently reported STI in the County of Santa Clara. From 2013 – 2022, rates of gonorrhea were lower in Santa Clara County, compared to California and the United States as a whole (Figure 13). Rates of gonorrhea steadily increased over time from 60.1 cases per 100,000 people in 2013 to 125.5 in 2022. Gonorrhea cases and rates among all county residents more than doubled from 2013 to 2022 (Figure 14).

Figure 13: Gonorrhea case rates, County of Santa Clara, California, and United States 2013 – 2022

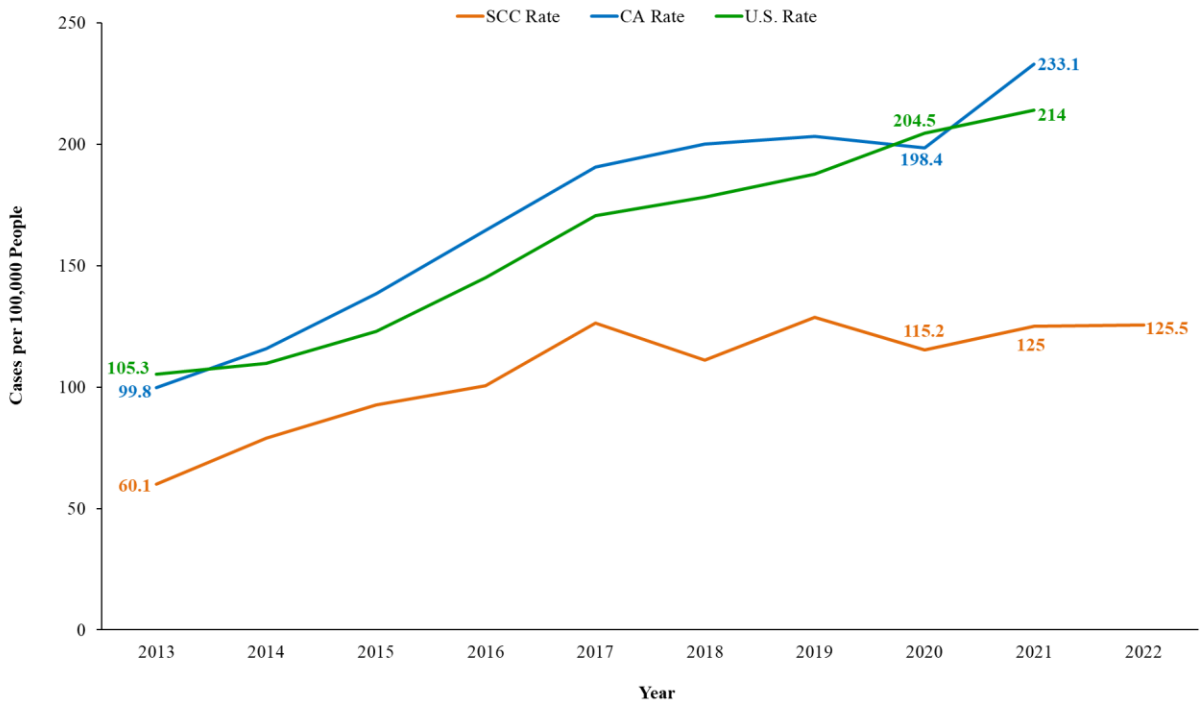
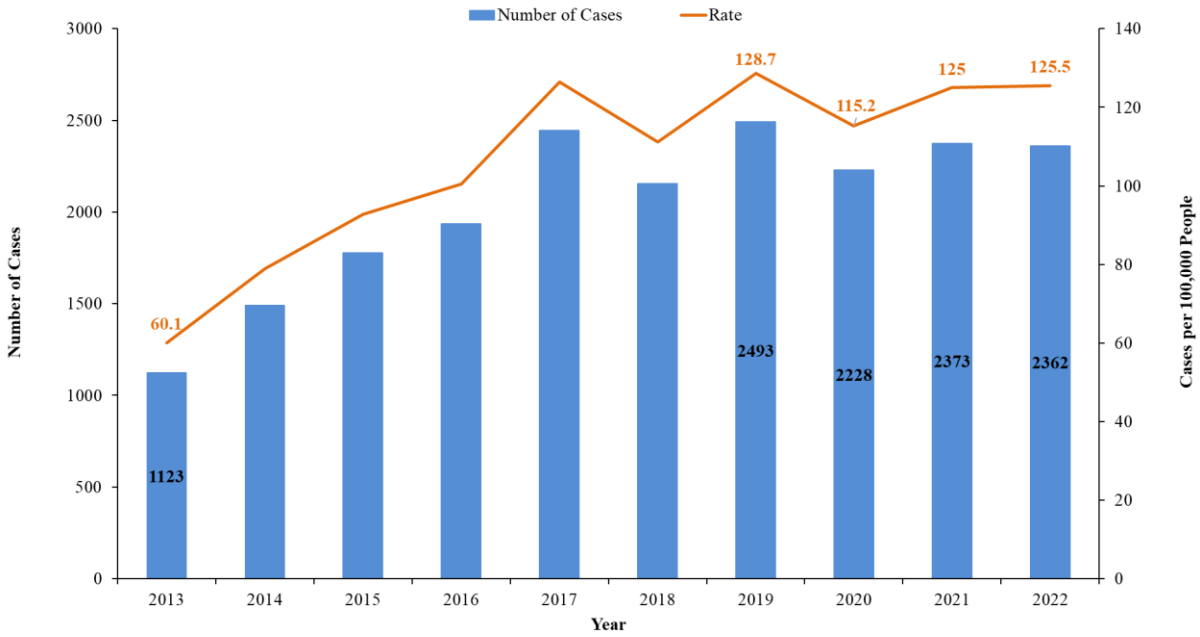


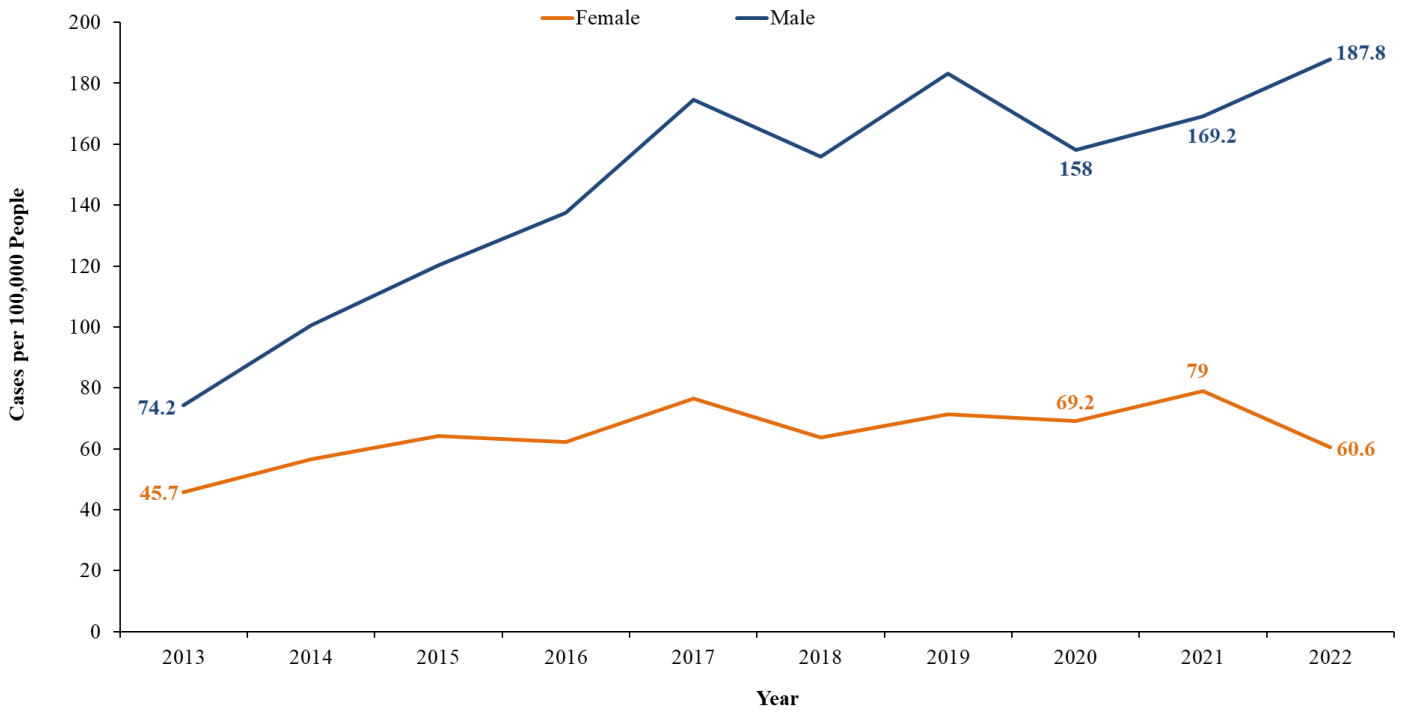
Figure 14: Gonorrhea case counts and rates, County of Santa Clara, 2013 – 2022



Gonorrhea and Gender

Between 2013 and 2022, rates of gonorrhea increased among both females and males, with a more rapid rise among males. From 2020 to 2022, rate of gonorrhea cases among males increased, while the rate decreased among females. From 2013 to 2022, rates of gonorrhea increased by 153% among males and 33% among females (Figure 15).

Figure 15: Gonorrhea case rates by gender*, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Gonorrhea and Age

Between 2013 and 2019, rates of gonorrhea rose across all age groups. In 2020, there was a decline, followed by an increase in all age groups except for those ages 25 to 29 in 2021. Subsequently, in 2022, there was another rise except among those ages 35 and older. In 2022, the rate of gonorrhea in the age groups 25 to 29 and 30 to 34 were the highest (399.5 cases and 392.9 per 100,000 people), more than 3 times the county average rate (125.5). From 2013 to 2022, rates among those ages 30 to 34 nearly tripled from 134 cases per 100,000 people to 392.9 cases per 100,000 (Figure 16).

When stratified by gender, rates of gonorrhea over time increased from 2013 to 2022 among all age groups for both females and males (Figure 17 – 18). Since 2013, females ages 20 to 24 years and males ages 25 to 29 years are the groups that most frequently had the highest rate of gonorrhea comparing to other age groups of same gender. From 2013 to 2022, a substantial uptick of rates of gonorrhea was seen among males ages 30 to 34, with a nearly four-fold increase from 164.5 cases per 100,000 people to 595.4 cases. The increase of infections and/or a possible increase in screening for oral and rectal infections, especially among young MSM population, could be the potential factors that relate to the uptick.

Figure 16: Gonorrhea case rates by selected age groups, County of Santa Clara, 2013 – 2022

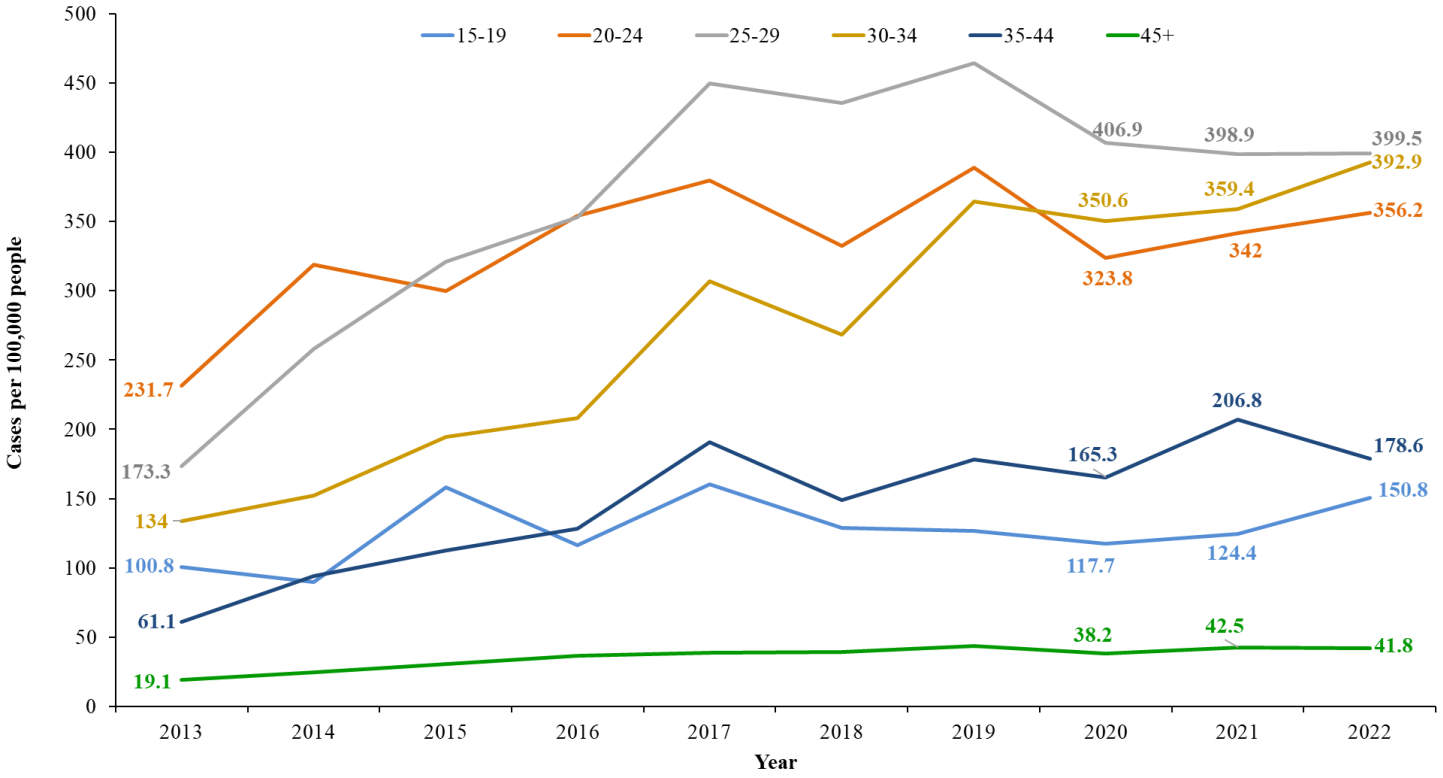
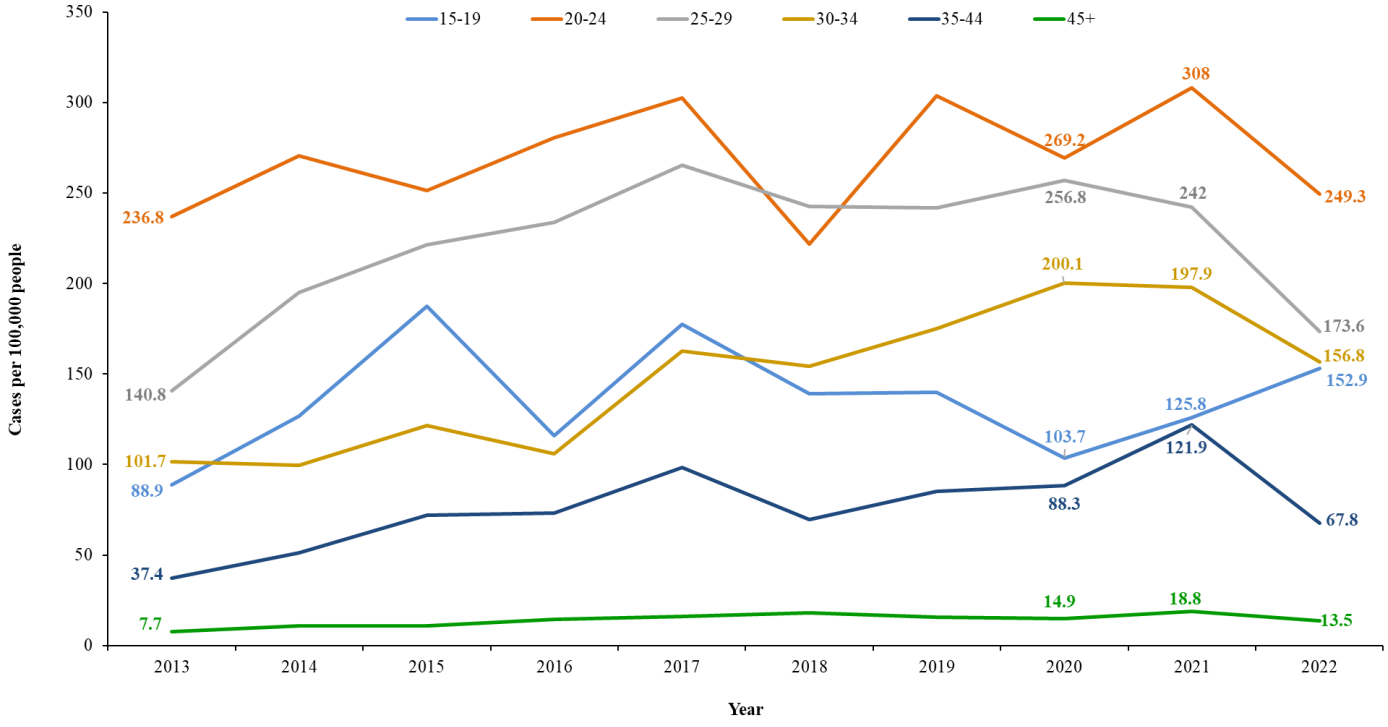
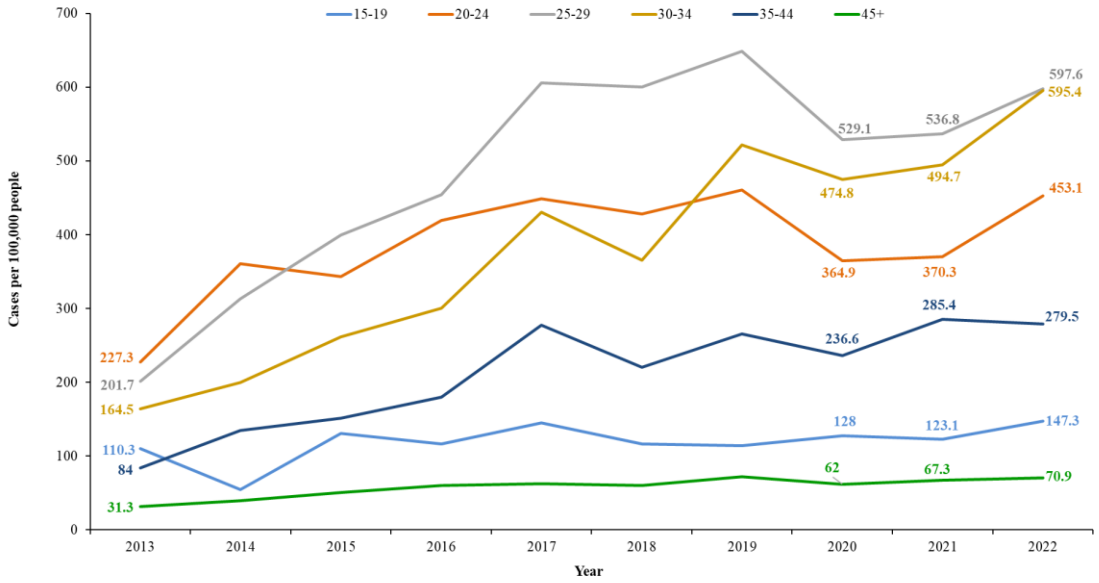


Figure 17: Gonorrhea case rates among females* by selected age groups, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data

Figure 18: Gonorrhea case rates among males* by selected age groups, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data

Gonorrhea and Race/Ethnicity

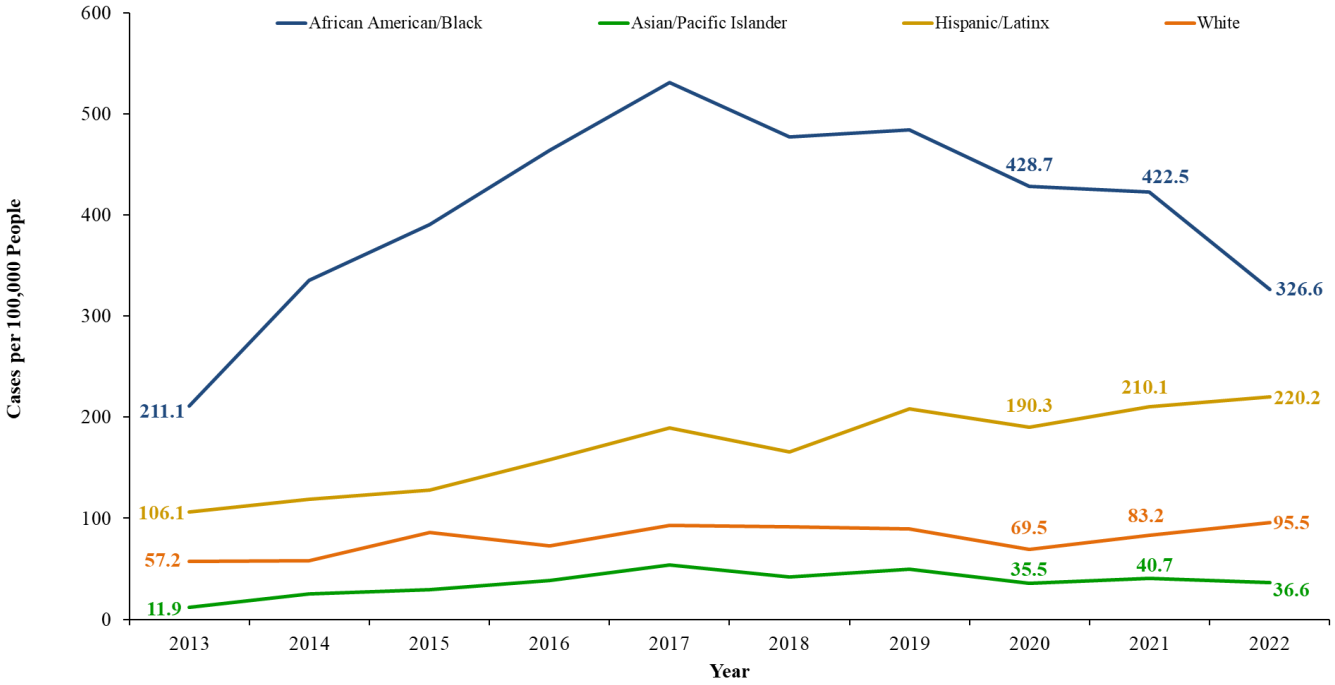
Between 2013 and 2019, rates of gonorrhea increased across all racial and ethnic groups. The increase was nearly twofold for African American/Black residents, more than two-fold for white and Hispanic/Latinx residents, and almost fourfold for Asian/Pacific Islander residents. Subsequently, rates dropped slightly across all groups in 2020 and then the increase continued since 2021, except for African American/Black residents. Between 2021 and 2022, rates only increased among Hispanic/Latinx and white residents. African American/Black residents had the highest gonorrhea rate among all groups (Figure 19). In 2022, gonorrhea rate among African American/Black residents (326.6 cases per 100,000 people) was 1.5 times that of Hispanic/Latinx (220.2), over 3 times that of white residents (95.5), and nearly 9 times that of Asian/Pacific Islander residents (36.6).

African American/Black females experienced the highest rates of gonorrhea among females across all different racial/ethnic groups, followed by Hispanic/Latinx females (Figure 20). In 2022, the gonorrhea rate for African American/Black females was more than double that of white females and over 11 times that of Asian/Pacific Islander females. Similarly, African American/Black males had a higher rate than males from other racial/ethnic groups. In 2022, the gonorrhea rate among African American/Black males was nearly 4 times that of white males and over 8 times that of Asian/Pacific Islander males (Figure 21).

Figure 22 shows age-specific rates of gonorrhea by race/ethnicity from 2013 to 2022. In 2022, young adults ages 20 to 34 had the highest rate of gonorrhea than any other age group, and this feature was consistently observed across all racial/ethnic groups. Compared to all other racial/ethnic groups, African American/Black residents consistently reported the highest rates of gonorrhea across all age groups in the county.

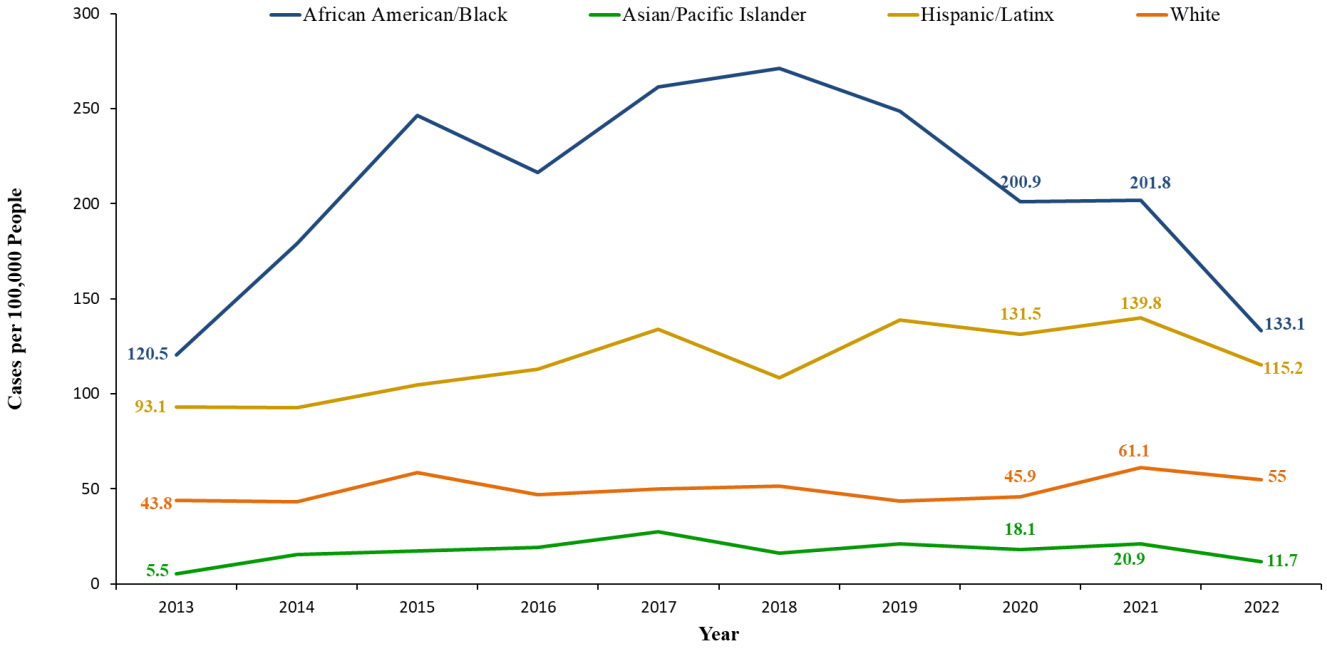
To address a high percentage of gonorrhea cases with unknown race/ethnicity, race/ethnicity information were imputed (see technical notes for more information) to estimate gonorrhea numbers and rates for each group. These estimates are relative, offering insights into the epidemic's scale within each subgroup compared to each other and to the county average.

Figure 19: Gonorrhea case rates by imputed race/ethnicity*, County of Santa Clara, 2013 – 2022



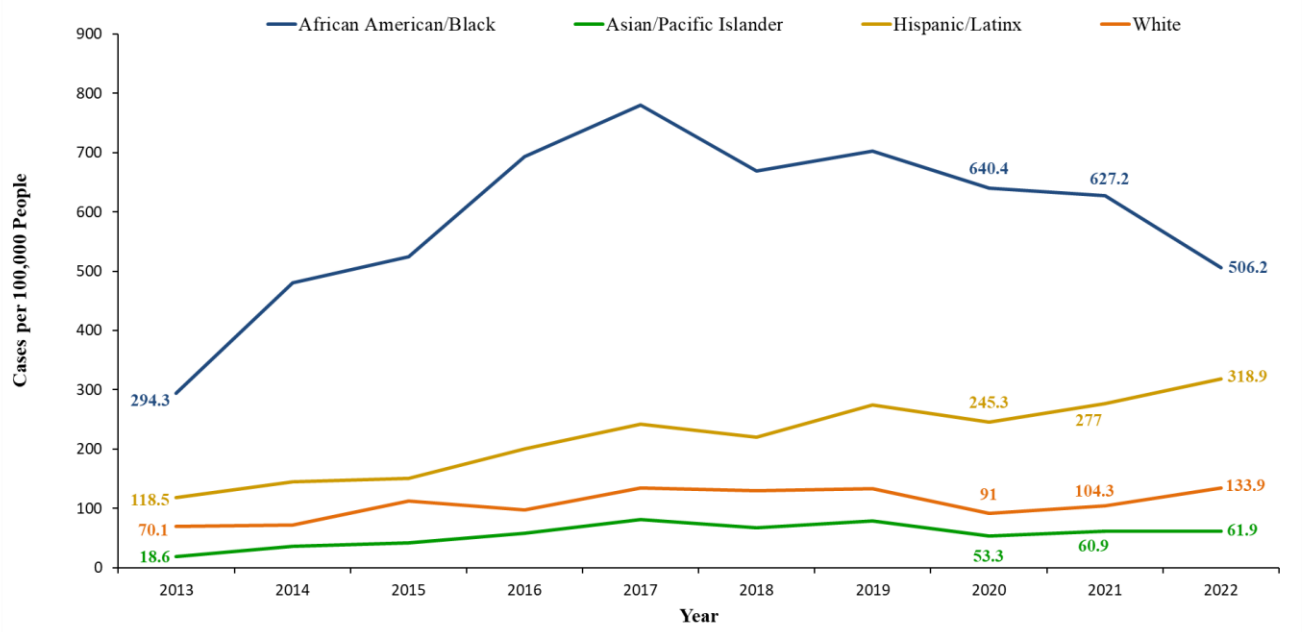
*Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 20: Gonorrhea case rates among females* by imputed race/ethnicity**, County of Santa Clara, 2013 – 2022



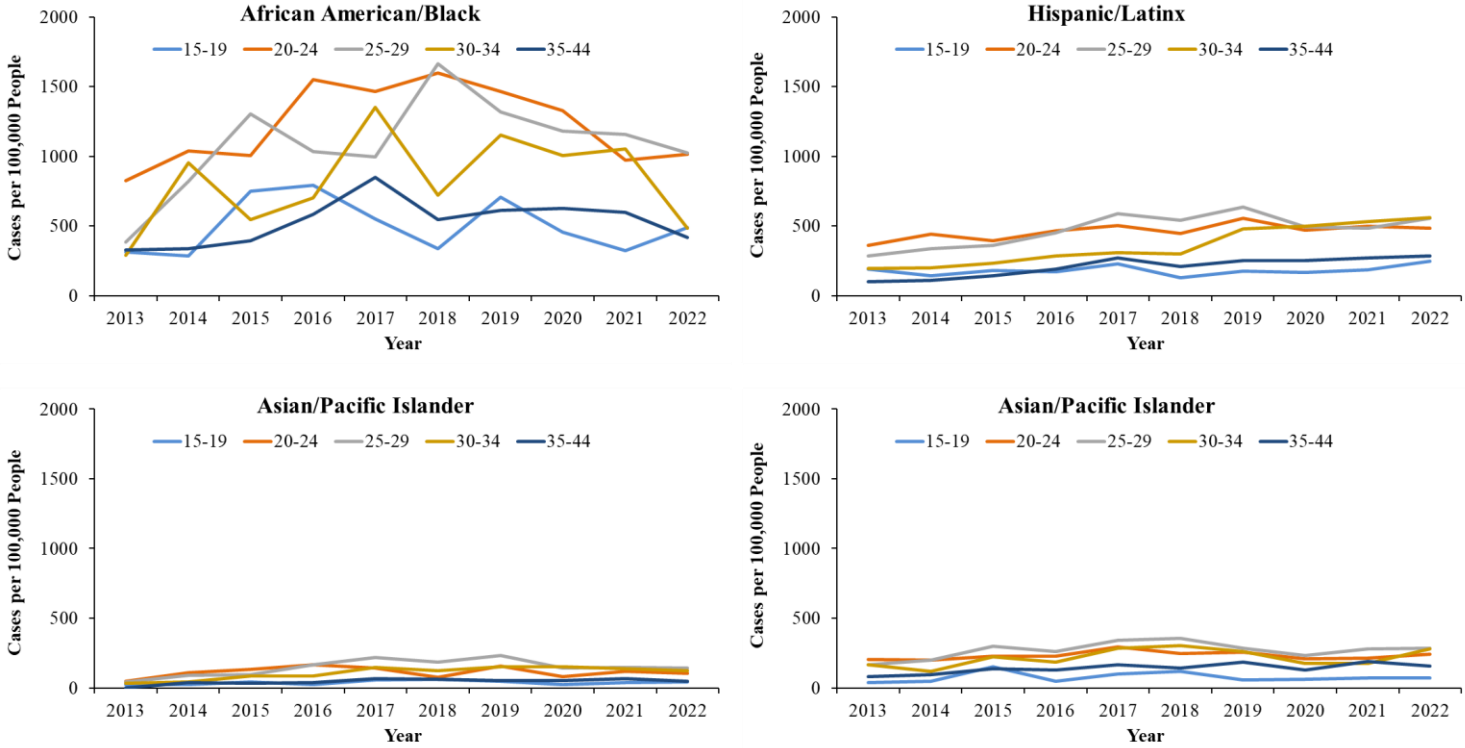
*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data
**Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 21: Gonorrhea case rates among males* by imputed race/ethnicity**, County of Santa Clara, 2013 – 2022



*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data
**Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Figure 22: Gonorrhea case rates by imputed race/ethnicity* and selected age group, County of Santa Clara, 2013 – 2022



*Due to large proportions of missing data on race/ethnicity, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity distribution by age groups. Rates and counts based on imputed race/ethnicity should be interpreted with caution.

Gonorrhea and Rectal/Pharyngeal Infections

In 2022, 268 rectal and 378 pharyngeal gonorrhea cases were reported, primarily among males. The percentage of pharyngeal and rectal infections among gonorrhea cases increased from 2013 to 2019, then decreased in 2020, rose in 2021, and dropped again in 2022. Between 2013 and 2022, pharyngeal infections increased nine-fold (from 42 to 378), and rectal infections increased eight-fold (from 31 to 268) among gonorrhea cases (Figure 23). In 2022, 19% of male gonorrhea cases were pharyngeal infections, and 15% were rectal infections (Figure 24). The highest percentage of pharyngeal infections (24%) occurred among males ages 25 to 29, while rectal infections (18%) were highest among males ages 30 to 34.

Figure 23: Number and percentage of rectal/pharyngeal gonorrhea, County of Santa Clara, 2013 – 2022

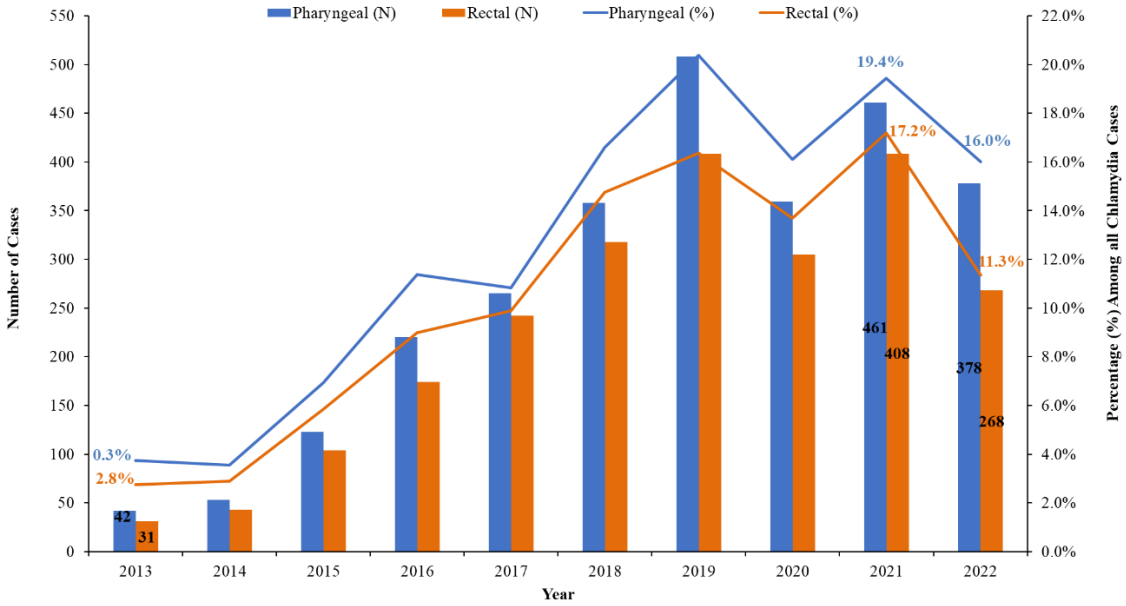
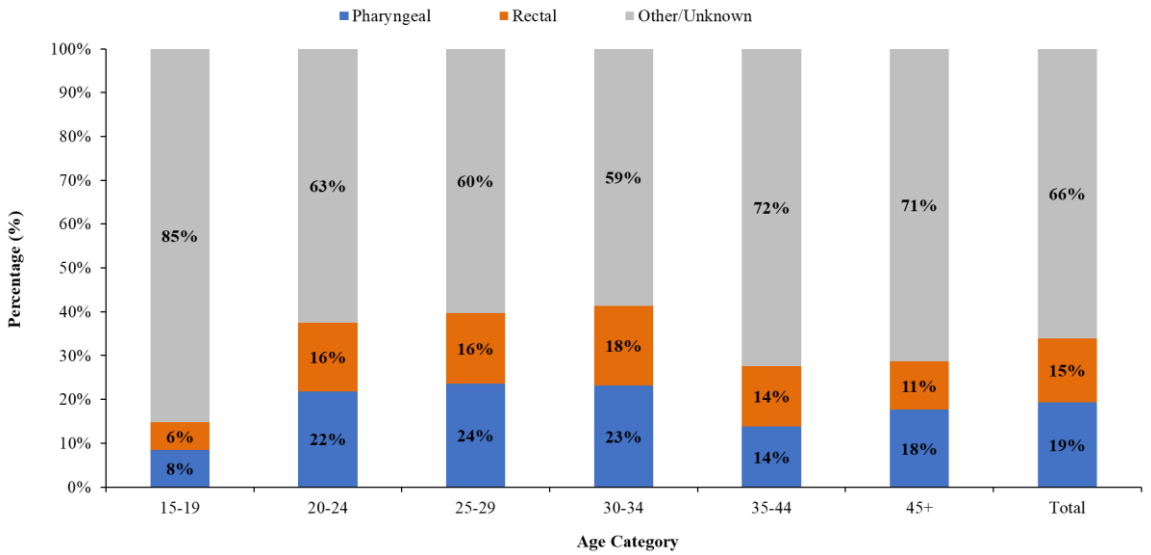


Figure 24: Percentage of rectal and pharyngeal gonorrhea among males* by selected age group, County of Santa Clara, 2022

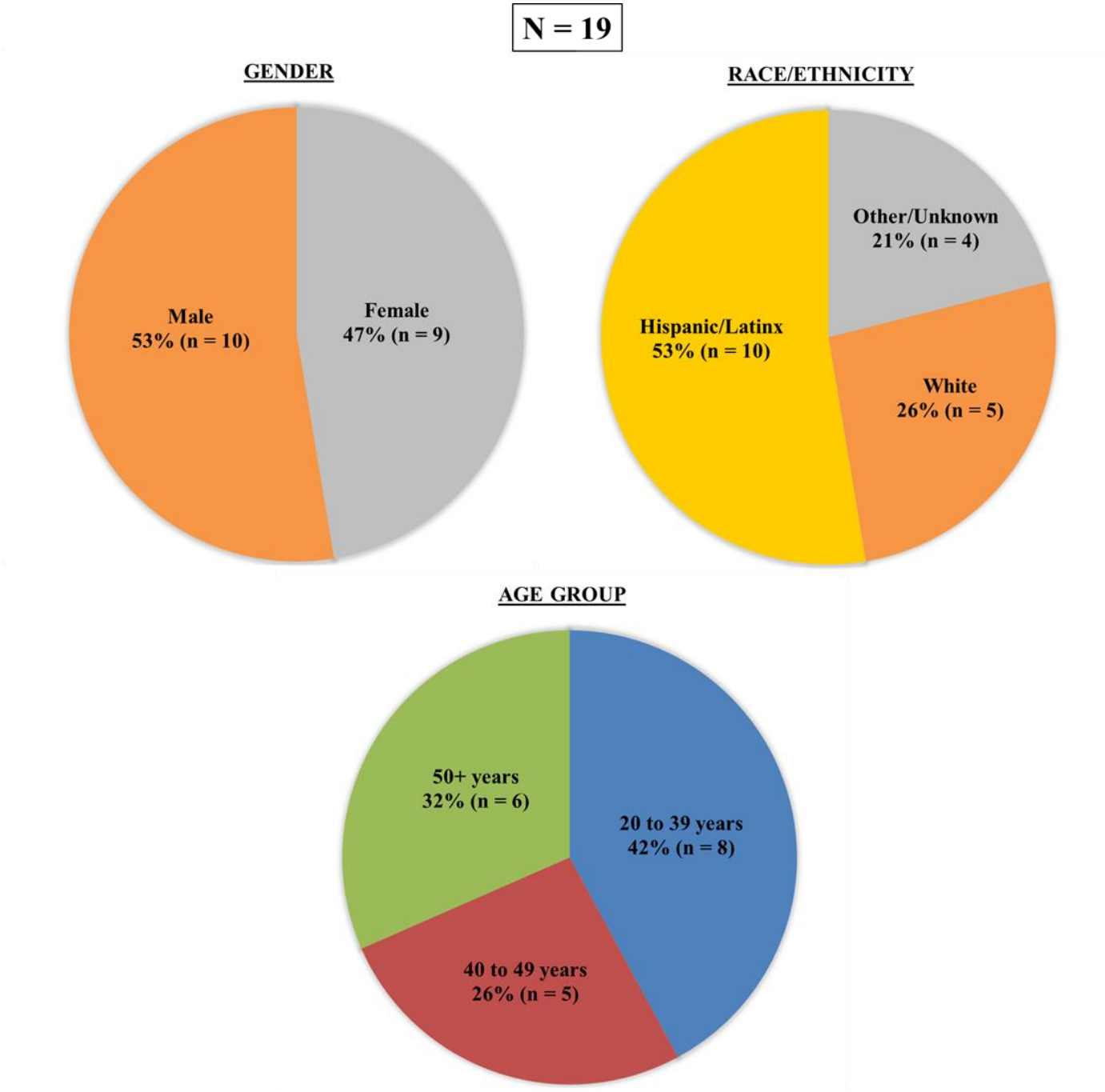


*Due to large numbers of missing rectal and pharyngeal testing data among females, analyses are only available among males. This may be in part due to the US Centers for Disease Control and Prevention (CDC) recommendation for regular rectal and pharyngeal screening for chlamydia and gonorrhea among men who have sex with men (MSM). For context, overall rectal and pharyngeal gonorrhea rates are 0.5% and 1.07% among females respectively, and 11.2% and 4.70% among males respectively.

Disseminated Gonococcal Infection (DGI)

Disseminated gonococcal infection (DGI) is a rare yet serious consequence of untreated gonorrhea. DGI takes place when the sexually transmitted bacteria Neisseria gonorrhoeae infiltrates the bloodstream and disseminates to different areas within the body, resulting in various clinical symptoms. Between 2020 and 2022, there were nineteen documented cases of disseminated gonococcal infection. Among the DGI cases recorded from 2020 to 2022, roughly an equal number were reported for both males and females, with approximately 53% of cases being among individuals of Hispanic/Latinx ethnicity. (Figure 25)

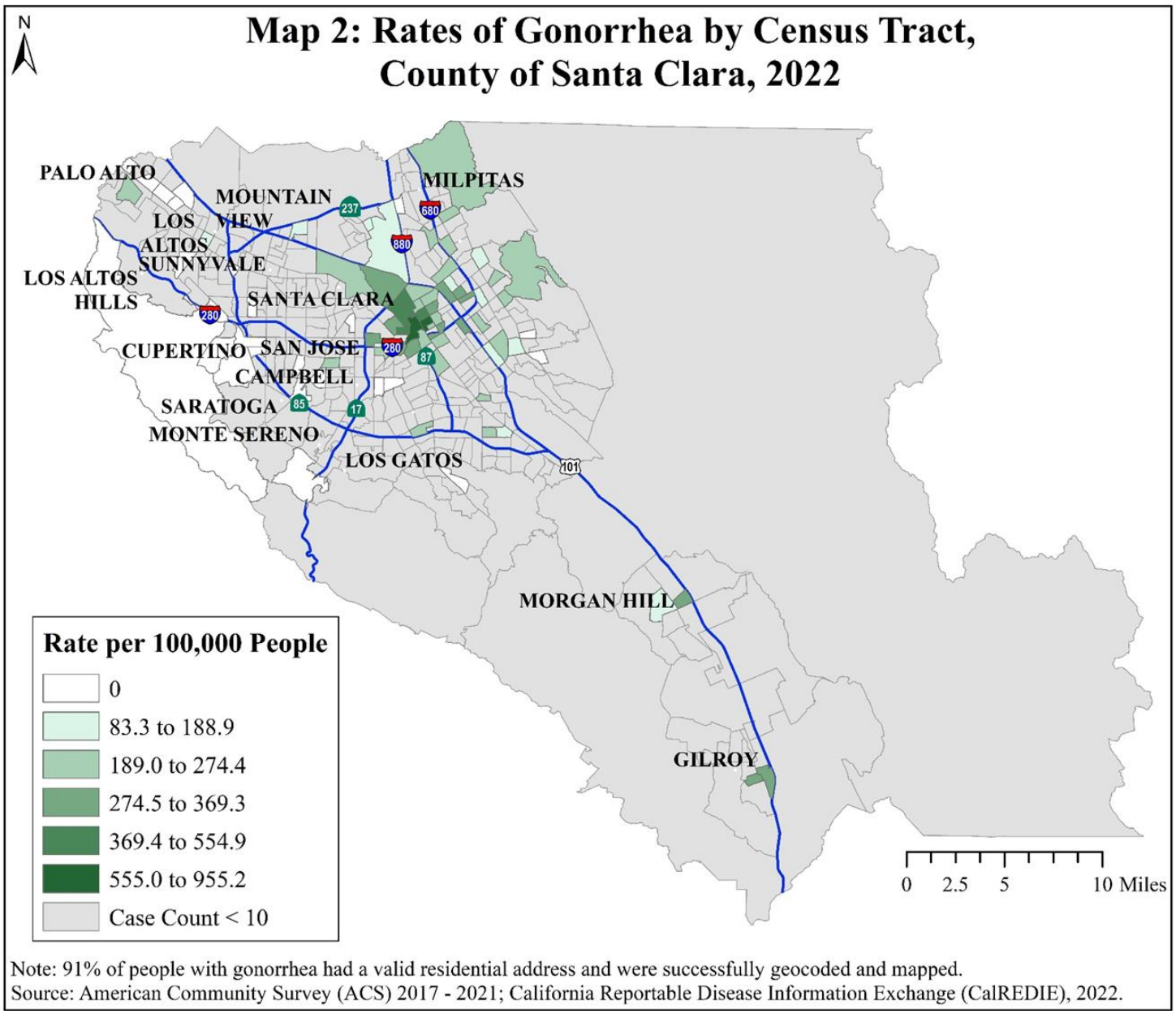
Figure 25: Disseminated gonococcal infections (DGI) by demographics, County of Santa Clara, 2020 – 2022



Gonorrhea and Geographic Distribution

The census tracts within the County of Santa Clara that exhibiting the highest rates of gonorrhea were in proximity to Downtown San Jose within the City of San Jose, with rates ranging from 555.0 to 955.2 cases per 100,000 individuals. This heightened prevalence in the downtown area could be linked to the relatively lower incomes compared to neighboring regions, a factor that correlates often associated with limited access to diagnosis, treatment, and preventative resources[4]. Additionally, increased rates were noticeable in Gilroy and Milpitas as well (Map 2).

Map 2: Rates of Gonorrhea by Census Tract, County of Santa Clara, 2022



[4] Santa Clara County Public Health Department. Santa Clara County City and Small Area/Neighborhood Profiles: San Jose Downtown Profile 2016. 2016. https://www.sccgov.org/sites/phd/hi/hd/Pages/san-jose.aspx

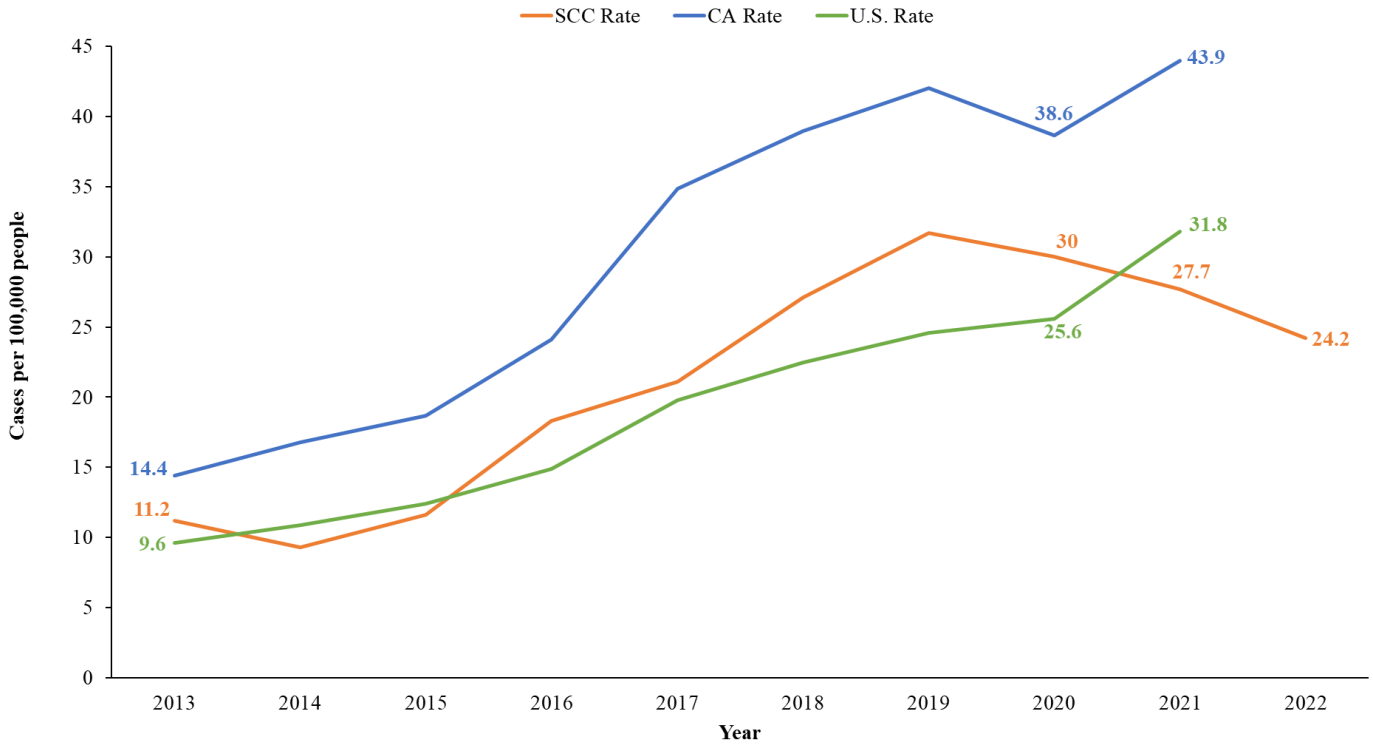
III. Early Syphilis

General Trend Over Time

Early syphilis in this report includes primary, secondary, and early non-primary, non-secondary syphilis. From 2013 to 2021, rates of early syphilis in Santa Clara County fluctuated above and below the U.S. average but remained lower than California's rates (Figure 26). Despite being less frequently reported than chlamydia and gonorrhea, there has been a consistent upward trend in early syphilis cases over time. In 2022, Santa Clara County reported 456 early syphilis cases at a rate of 24.2 cases per 100,000 people. Between 2013 and 2019, both the number and rate of early syphilis cases nearly tripled, with significant annual increases since 2014. However, from 2019 to 2022, both the number of cases and rates steadily decreased (Figure 27).

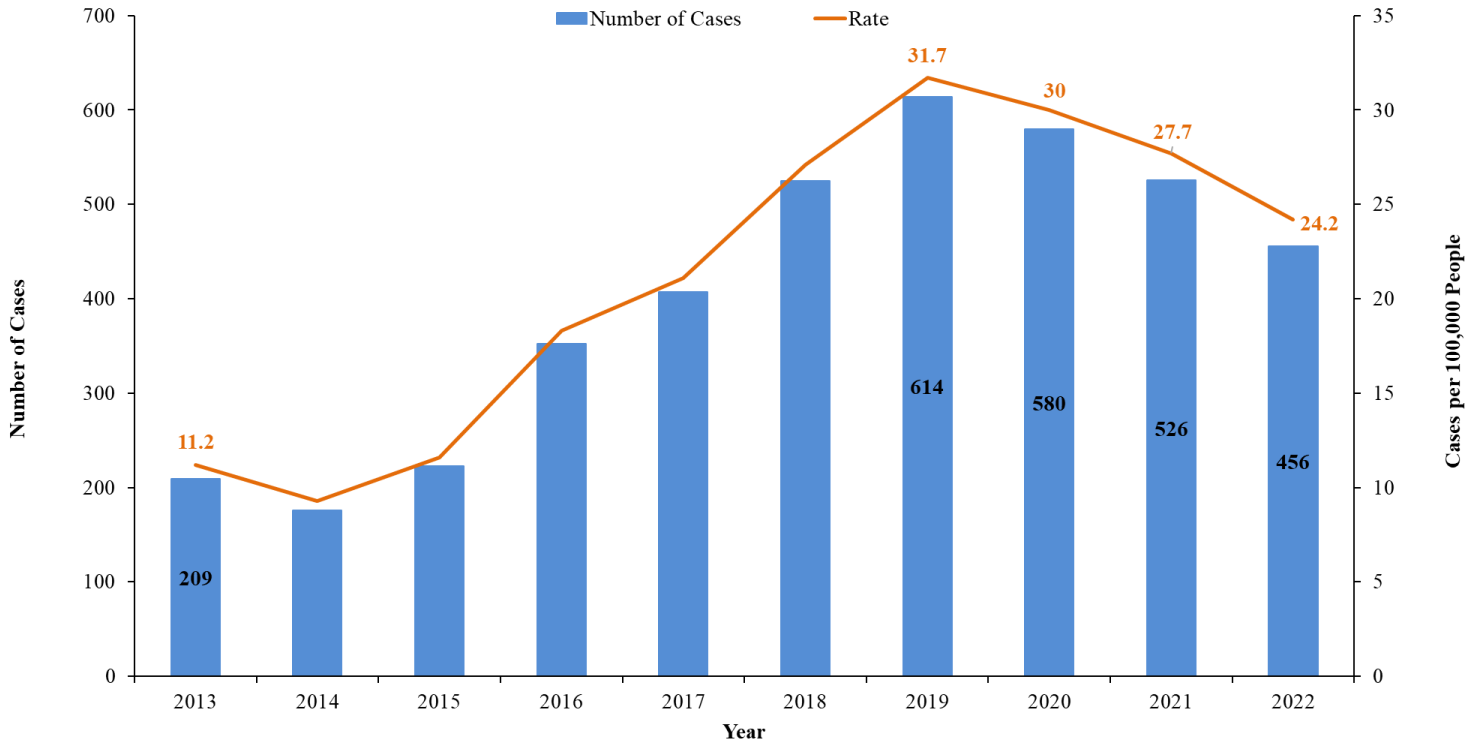
Although early syphilis cases and rates have shown a consistent decrease from 2019 to 2022, the overall syphilis counts and rates have been increasing in 2021 and 2022 after a pandemic-related decline in 2020. This shift might stem from potential undercounting of early syphilis cases. Classification of early syphilis based on clinical features alone can be challenging and often depends on having prior syphilis test results in the past year to help guide whether a new result represents a recent infection or not. Given the decrease in STI testing in 2020, the classification of early syphilis cases in 2021 and 2022 was all the more challenging. The trend may also indicate that people sought care later than usual due to the pandemic. (Figure 28).

Figure 26: Early syphilis* rates, County of Santa Clara, California, and United States 2013 – 2022



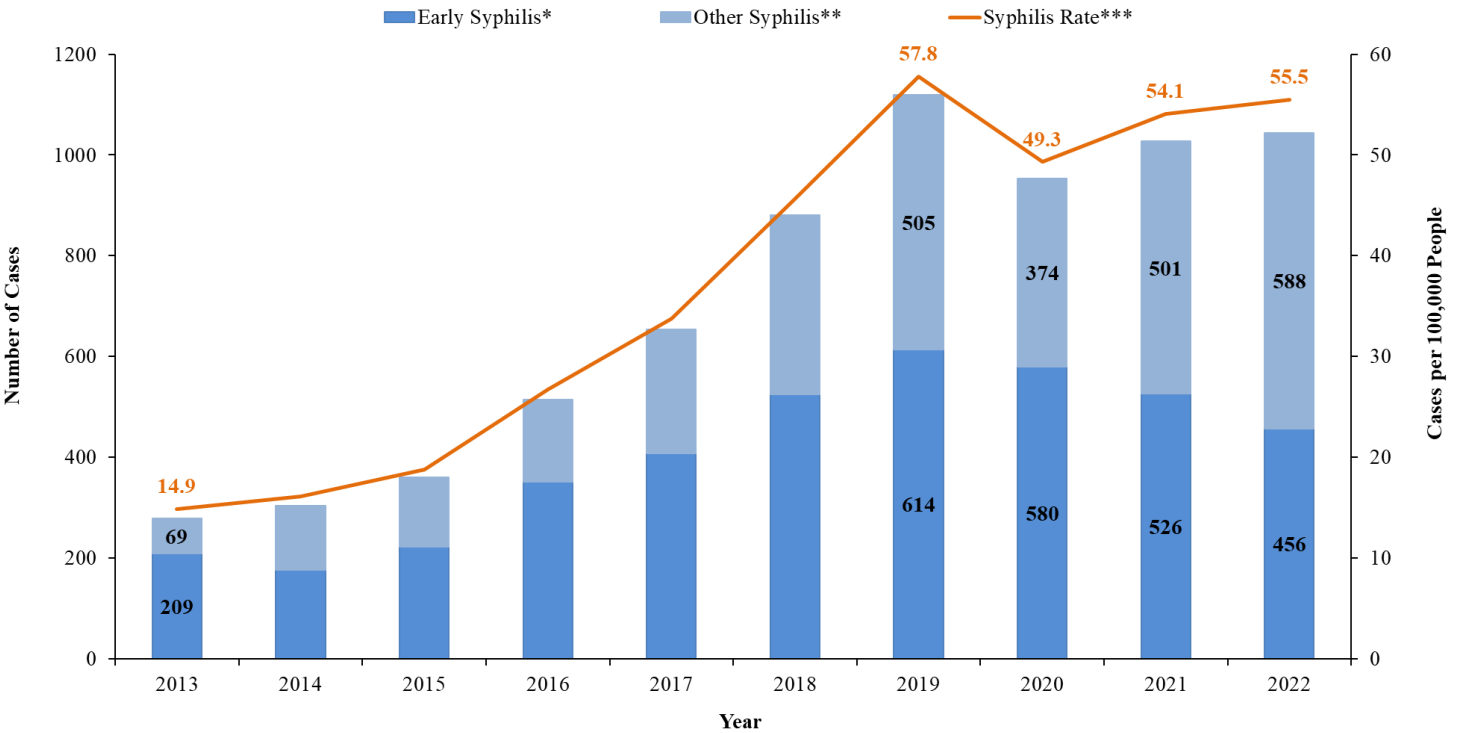
*Early syphilis cases include primary, secondary, and early latent syphilis.

Figure 27: Early syphilis* case counts and rates, County of Santa Clara, 2013 – 2022



*Early syphilis cases include primary, secondary, and early latent syphilis.

Figure 28: Syphilis case counts and rates, County of Santa Clara, 2013 – 2022

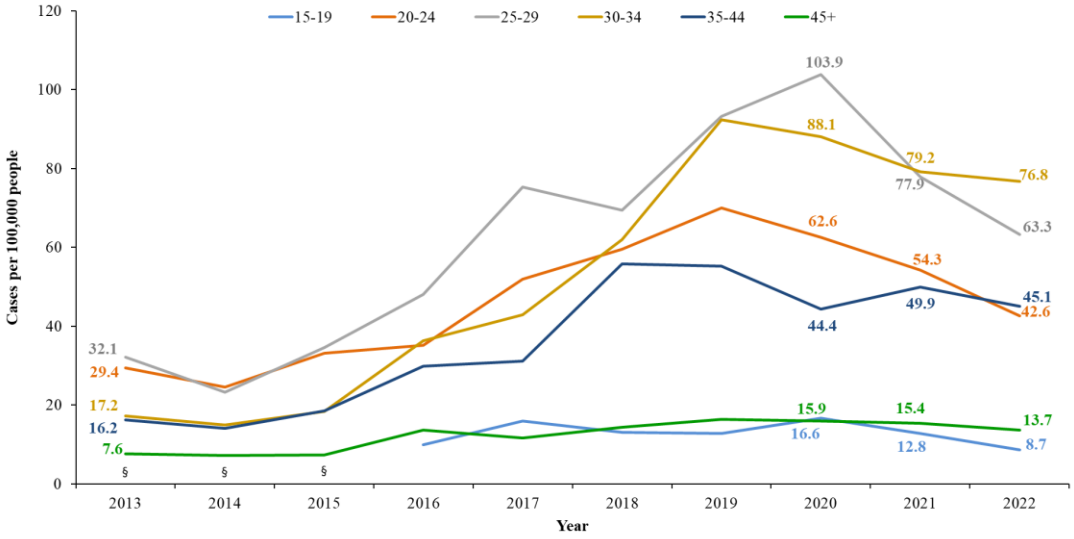


*Early syphilis cases include primary, secondary, and early latent syphilis.
**Other syphilis includes late syphilis and syphilis of unknown duration.
***Syphilis includes both early syphilis (primary, secondary, and early non-primary non-secondary syphilis), late syphilis, and syphilis of unknown duration.

Early Syphilis and Age

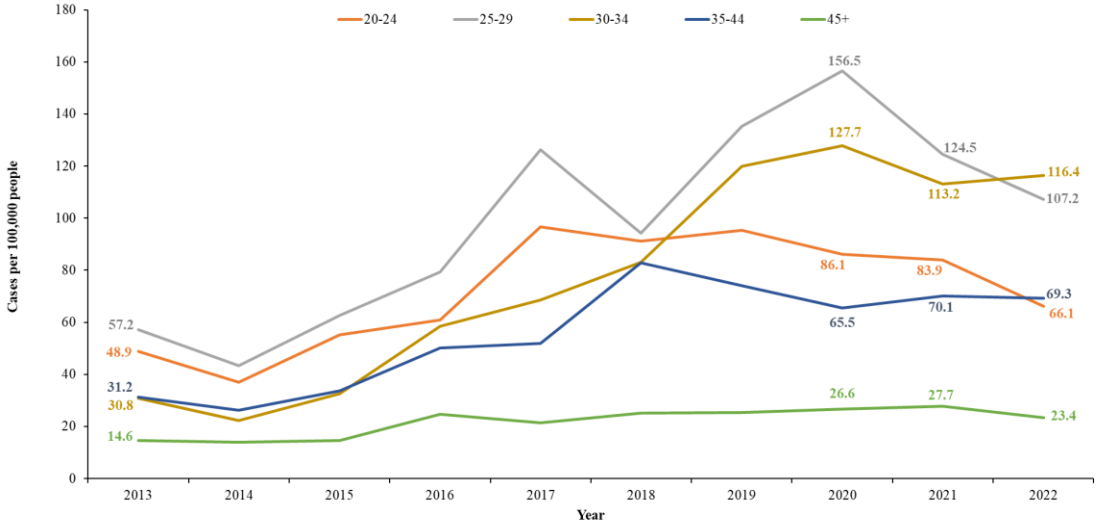
Between 2013 to 2019, rates of early syphilis increased consistently across all age groups. However, rates began to decline starting in 2020. Throughout this period, adults ages 20 to 34 had the highest rate of early syphilis. In 2022, those ages 30 to 34 had the highest rates (76.8), surpassing the previous lead in the 25 to 29 age group (Figure 29). Conversely, the youngest (15 to 19 years) and the oldest (45 years and above) age groups had rates lower than the county average. Male early syphilis cases exhibited a similar age distribution to the county. In 2022, males ages 25 to 29 and 30 to 34 had the highest rates at 107.2 and 116.4, respectively. Males ages 45 and older and males ages 15 to 19 were less likely to be diagnosed with early syphilis compared to other age groups (Figure 30).

Figure 29: Early syphilis* case rates by selected age group, County of Santa Clara, 2013 – 2022



*Early syphilis cases include primary, secondary, and early latent syphilis.
§Rate for ages 15 to 19 were suppressed for multiple years due to small counts and potentially unstable rates. See technical notes for more information.

Figure 30: Early syphilis* rates among males by selected age group§, County of Santa Clara, 2013 – 2022**



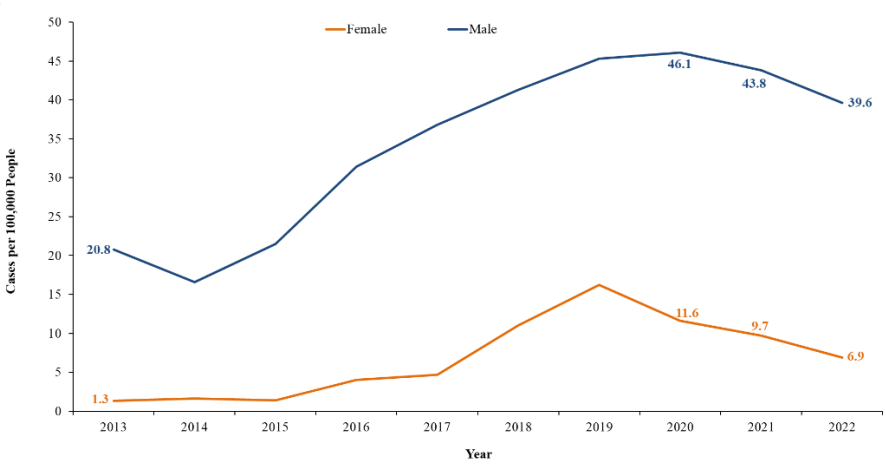
*Early syphilis cases include primary, secondary, and early latent syphilis.
**Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.
§Rates of early syphilis among other age groups were suppressed due to small counts and potentially unstable rates. See Technical Notes.

Early Syphilis by Gender and Sexual Behavior

From 2013 to 2022, males were more frequently diagnosed with early syphilis than females, with the 2022 male rate (39.6 cases per 100,000 people) almost six times higher than the female rate (6.9 cases per 100,000 people). Both genders saw increases in rates of early syphilis during this period, with rates nearly doubling among males and increasing over five-fold among females (Figure 31).

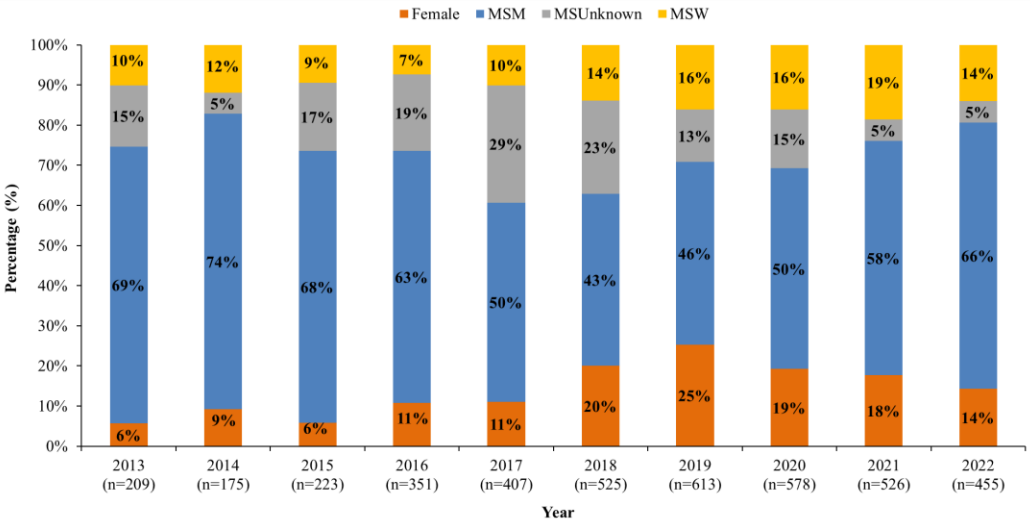
Early syphilis cases in Santa Clara County were most reported among MSM. The percentage of cases among females more than doubled, from 6% in 2013 to 14% in 2022. Among men who have sex exclusively with women (MSW), the share of early syphilis cases also increased, rising from 10% in 2013 to 14% in 2022. Notably, the decrease in the number and percentage of male early syphilis cases with missing or unknown information on sexual behavior (MSUnknown) from 15% in 2013 to 5% in 2022 reflects changes in the distribution of cases by gender and sexual behavior over time, potentially indicating an increased willingness among men to openly disclose their sexual orientation (Figure 32).

Figure 31: Early syphilis* case rates by gender, County of Santa Clara, 2013 – 2022**



*Early syphilis cases include primary, secondary, and early latent syphilis.
**Gender variable name and categories are limited to how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Figure 32: Percentage of early syphilis* cases by gender and sexual behavior, County of Santa Clara, 2013 – 2022**



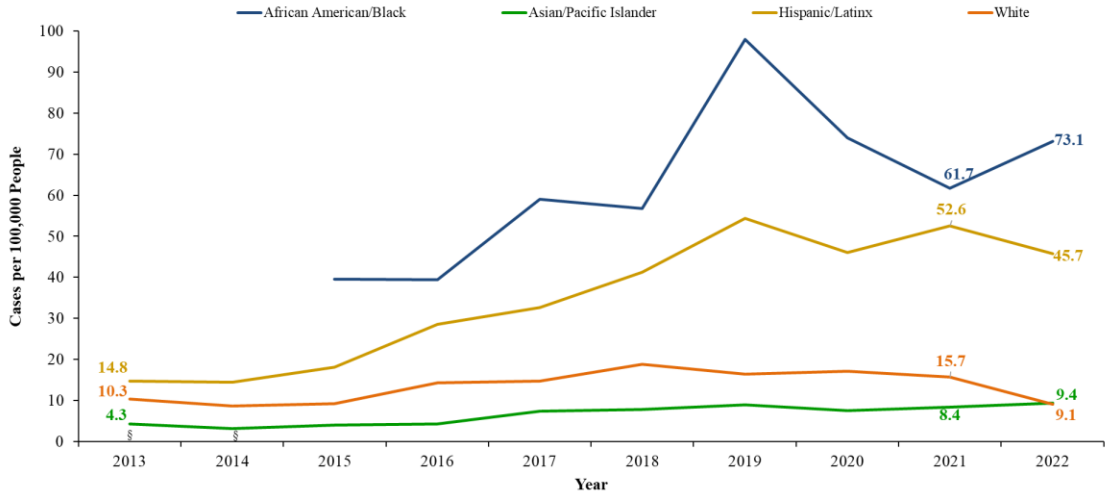
*Early syphilis cases include primary, secondary, and early latent syphilis.
**Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Early Syphilis and Race/Ethnicity

Rates of early syphilis varied by race/ethnicity, with African American/Black residents most diagnosed, followed by Hispanic/Latinx residents. From 2013 to 2022, African American/Black residents saw a four-fold increase, and a three-fold increase among Hispanic/Latinx. In 2022, the rate among African American/Black residents (73.1 cases per 100,000 people) was three times the county average (24.2) and eight times higher than the rate among white residents (9.1). Similarly, rates of early syphilis among Hispanic/Latinx residents (45.7) were nearly double the county average rate and over five times the rate among white residents (Figure 33).

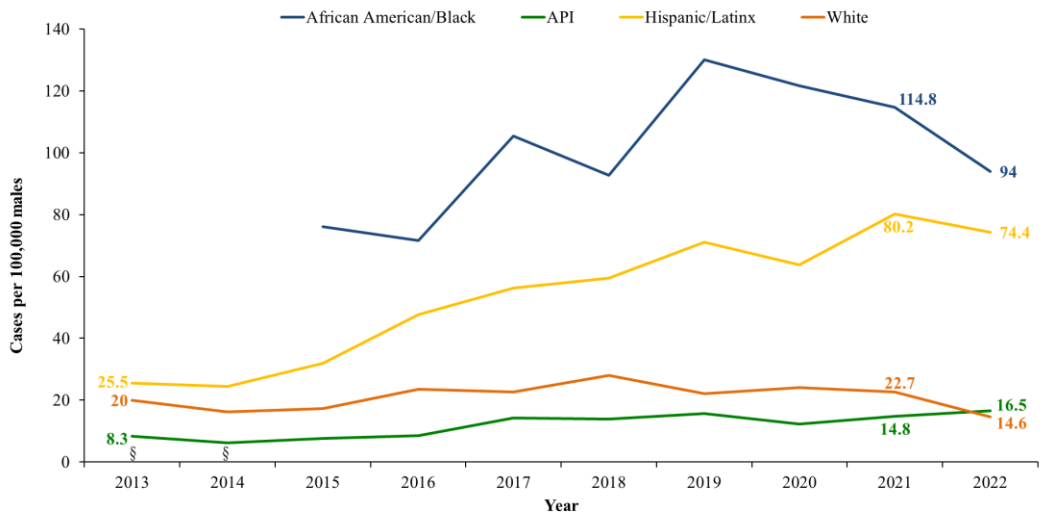
In the county, African American/Black males had the highest early syphilis rate compared to males of all other racial/ethnic groups. In 2022, the rate among African American/Black males (94) was over double the male average rate (39.6). Rates among females are not displayed due to small case counts from most subgroups (Figure 34).

Figure 33: Early syphilis* case rates by race/ethnicity, County of Santa Clara, 2013 – 2022



*Early syphilis cases include primary, secondary, and early latent syphilis.
§Rate for African American/Black residents were suppressed for multiple years due to small counts and potentially unstable rates. See technical notes for more information.

Figure 34: Early syphilis* rates among males by race/ethnicity, County of Santa Clara, 2013 – 2023**

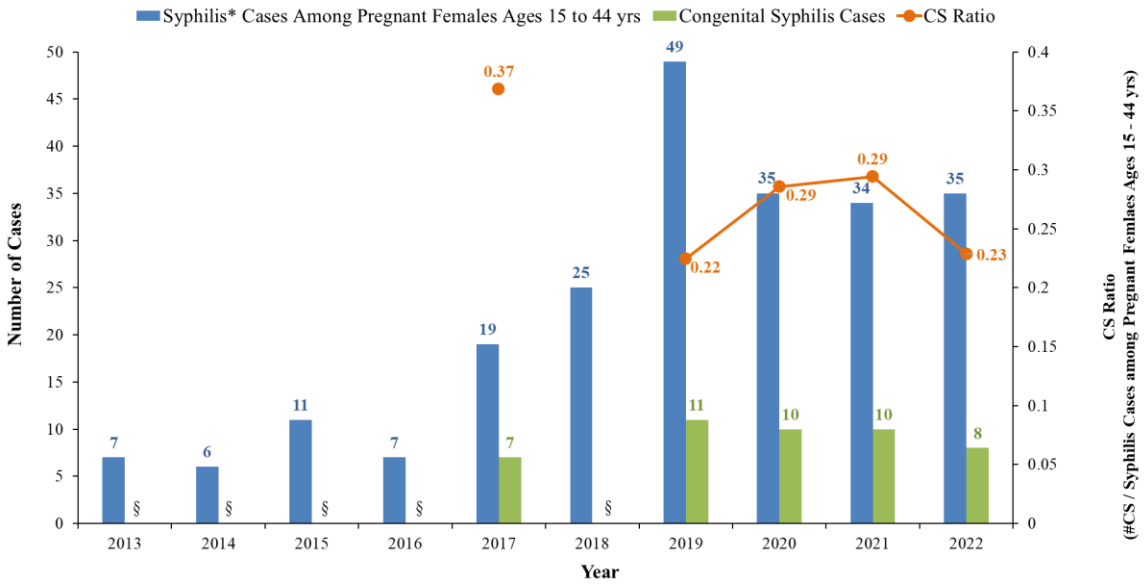


*Early syphilis cases include primary, secondary, and early latent syphilis.
**Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.
§Rate for African American/Black residents were suppressed for multiple years due to small counts and potentially unstable rates. See technical notes for more information.

Congenital and Pregnant Early Syphilis Cases

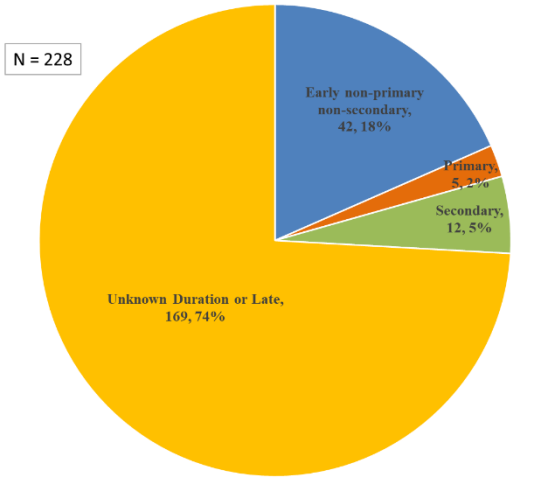
From 2019 to 2022, both congenital syphilis case counts, and syphilis cases counts among pregnant females ages 15 to 44 have slowly declined, though they remain significantly higher than the years from 2013 to 2016 when fewer than 5 congenital syphilis cases were reported annually. The congenital syphilis (CS) ratio peaked at .37 in 2017 and remained above 0.20 from 2019 to 2022 (Figure 35). The CS ratio is calculated by dividing the number of congenital syphilis cases in infants by the number of syphilis cases in pregnant females. A higher CS ratio suggests a greater likelihood of transmission of syphilis from an infected pregnant individual to their baby, indicating potential gaps in screening a treatment. Conversely, a lower CS ratio indicates better prevention efforts, with fewer infants affected relative to diagnoses cases in pregnant women. Between 2013 and 2022, 228 pregnant female syphilis cases of reproductive age were identified, with 74% in the late stage or of unknown duration (Figure 36).

Figure 35: Number of syphilis* cases among women of reproductive age (15 – 44 years) and congenital syphilis cases, and the congenital syphilis ratio, County of Santa Clara, 2013 – 2022



*Syphilis includes both early syphilis (primary, secondary, and early non-primary non-secondary syphilis), late syphilis, and syphilis of unknown duration.
§Congenital syphilis case counts were suppressed due to small counts. See technical notes for more information.

Figure 36: Pregnant syphilis* cases by disease stages, County of Santa Clara, 2013 – 2022

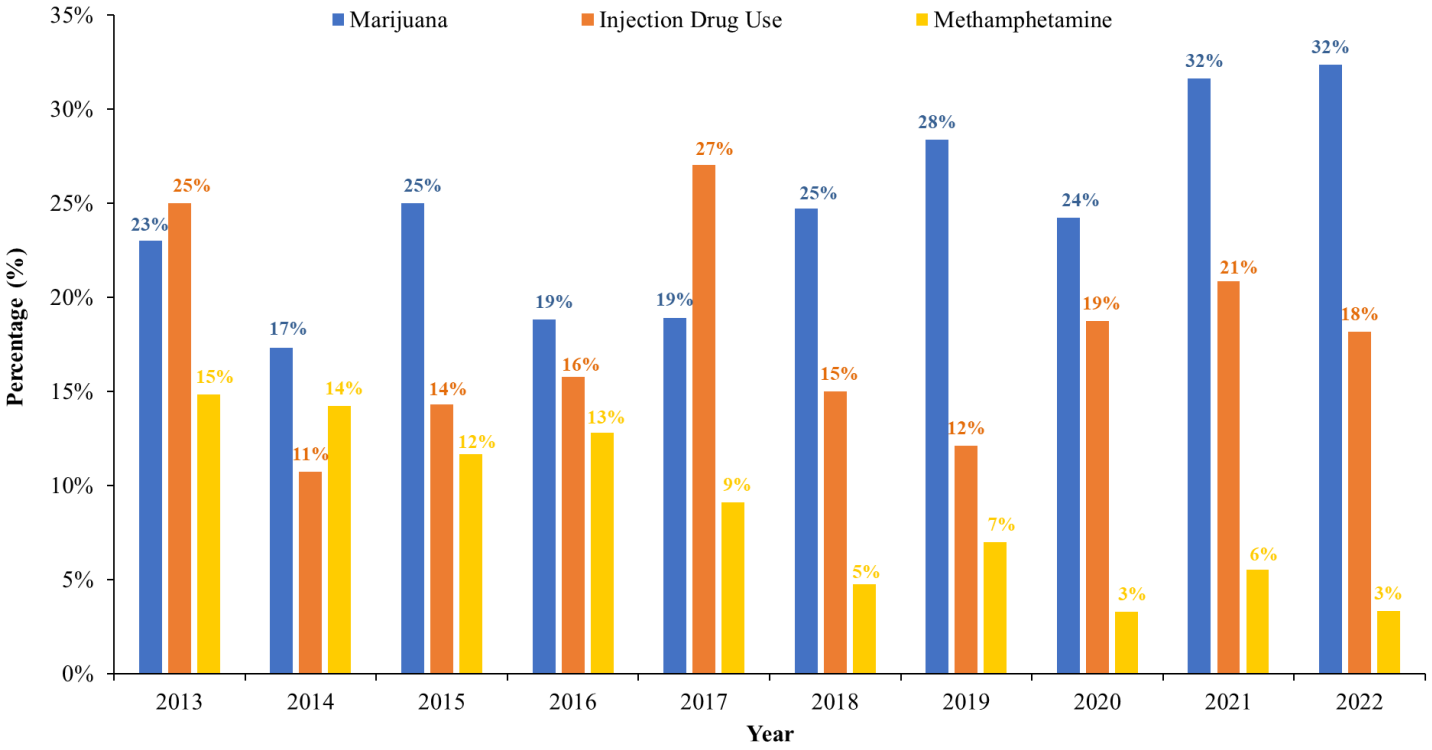


*Syphilis includes both early syphilis (primary, secondary, and early non-primary non-secondary syphilis), late syphilis, and syphilis of unknown duration.

Syphilis and Substance Use

Substance use is associated with sexual behaviors that may raise the risk of syphilis infections[5,6,7]. In the County of Santa Clara, follow–up interviews are conducted among priority syphilis cases to collect additional information on relevant risk factors, including substance use. Inclusion criteria for follow-up interviews were determined based on program priorities including factors such as case volume and staff availability. Until recently, primary and secondary syphilis cases were prioritized for follow-up interviews. Since late 2018, syphilis cases (all stages) among women of reproductive age (15 to 44 years) are the primary group that are prioritized for follow-up interviews. Methamphetamines, marijuana, and injection drugs were the most reported substances used by patients who completed the follow-up interviews. Interestingly, the trend shows a rising use of marijuana from year to year, contrasted with a declining usage of methamphetamines. In 2022, 3% of interviewed early syphilis cases reported methamphetamine use, a risk factor associated with syphilis including congenital syphilis[5] (Figure 37). In this dataset, a significant limitation arises from our inability to interview all cases, with a primary focus on conducting interviews with female cases. Additionally, there exists a challenge related to some individuals being hesitant to disclose illicit substance use during pregnancy.

Figure 37: Percentage* of early syphilis cases who reported substance use, County of Santa Clara, 2013 – 2022



*Denominators of all percentages were number of early syphilis cases who completed the follow up interview and provided valid information regarding their substance use status; data may be under–representative due to changes in inclusion criteria for follow–up interview over time.

[5] Feaster DJ, Parish CL, Gooden L, et al. Substance use and STI acquisition: Secondary analysis from the AWARE study. Drug Alcohol Depend. 2016;169:171–179. doi:10.1016/j.drugalcdep.2016.10.027.

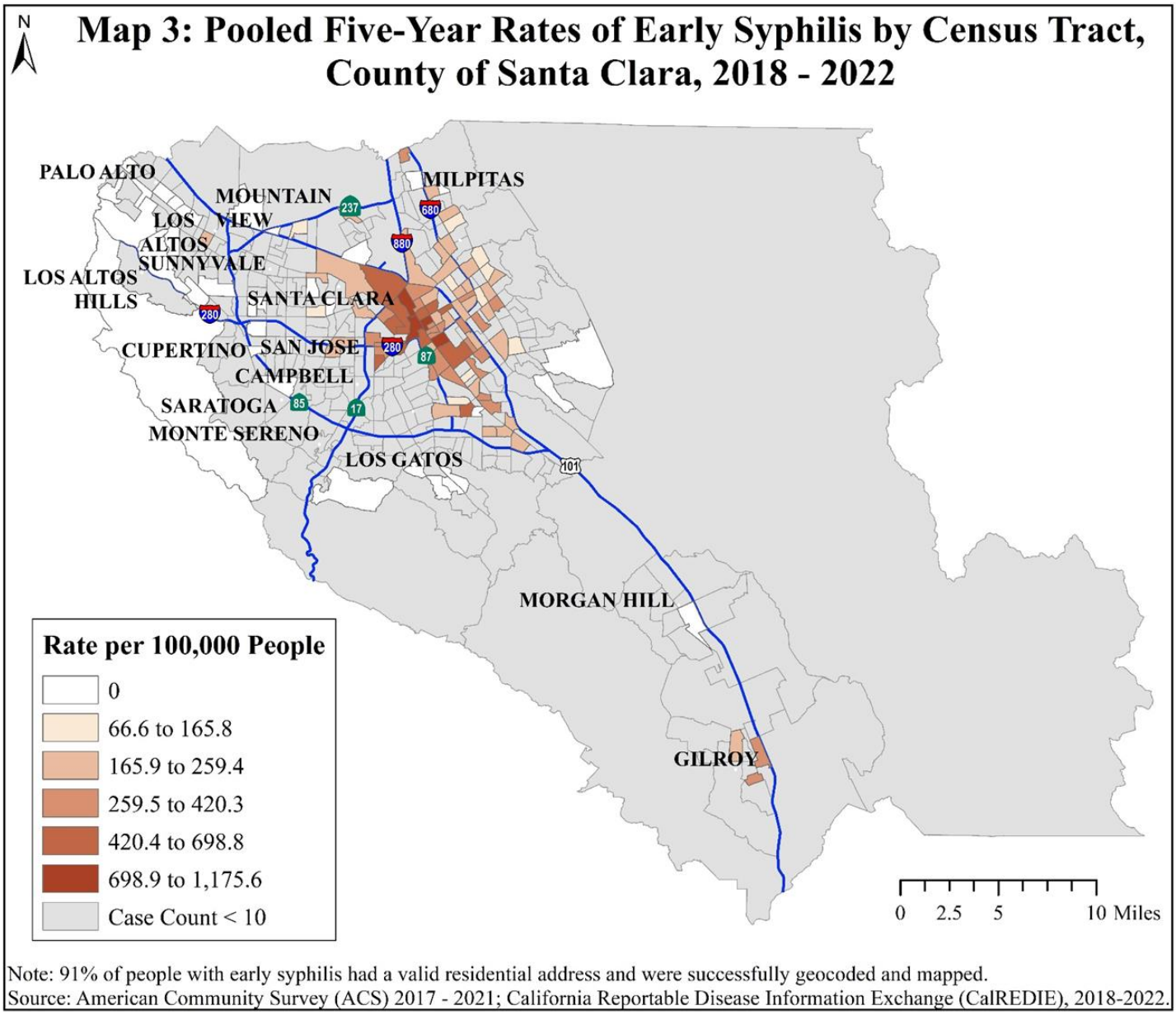
[6] Wu LT, Ringwalt CL, Patkar AA, Hubbard RL, Blazer DG. Association of MDMA/ecstasy and other substance use with self-reported sexually transmitted diseases among college-aged adults: a national study. Public Health. 2009;123(8):557–564. doi:10.1016/j.puhe.2009.06.012.

[7] Kidd SE, Grey JA, Torrone EA, Weinstock HS. Increased Methamphetamine, Injection Drug, and Heroin Use Among Women and Heterosexual Men with Primary and Secondary Syphilis — United States, 2013–2017. MMWR Morb Mortal Wkly Rep 2019;68:144–148. DOI: http://dx.doi.org/10.15585/mmwr.mm6806a4.

Early Syphilis and Geographic Distribution

Geographic areas of the County of Santa Clara with the highest five-year average rates of early syphilis by census tract were closest to the Downtown San Jose area in the City of San Jose (698.9 - 1,175.6 cases per 100,000 people). Higher rates in the downtown area may be due to a younger population and higher percentages of African American/Black and Hispanic/Latinx residents residing in these areas compared to the county as a whole[8]. Higher rates were also observed in Gilroy (Map 3).

Map 3: Pooled Five-Year Rates of Early Syphilis by Census Tract, County of Santa Clara, 2018-2022



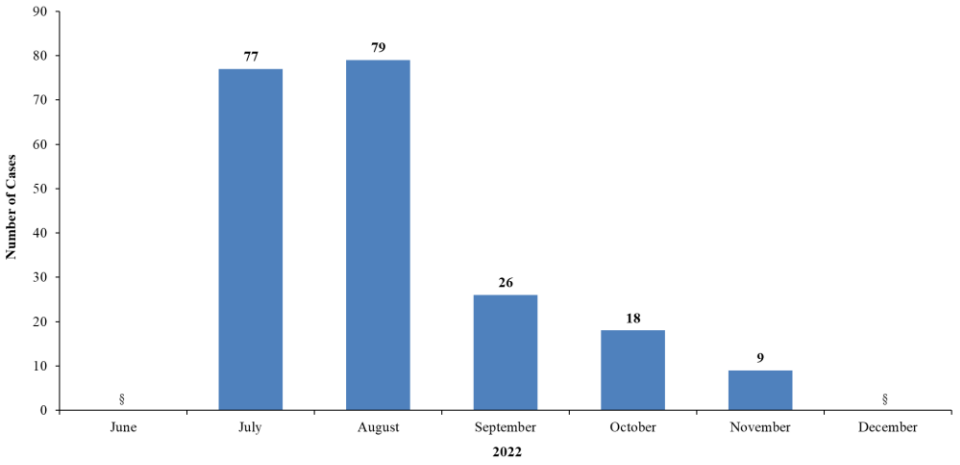
[8] Santa Clara County Public Health Department. Santa Clara County City and Small Area/Neighborhood Profiles: San Jose Downtown Profile 2016. 2016. https://www.sccgov.org/sites/phd/hi/hd/Pages/san-jose.aspx

IV. Mpox

General Trend Over Time

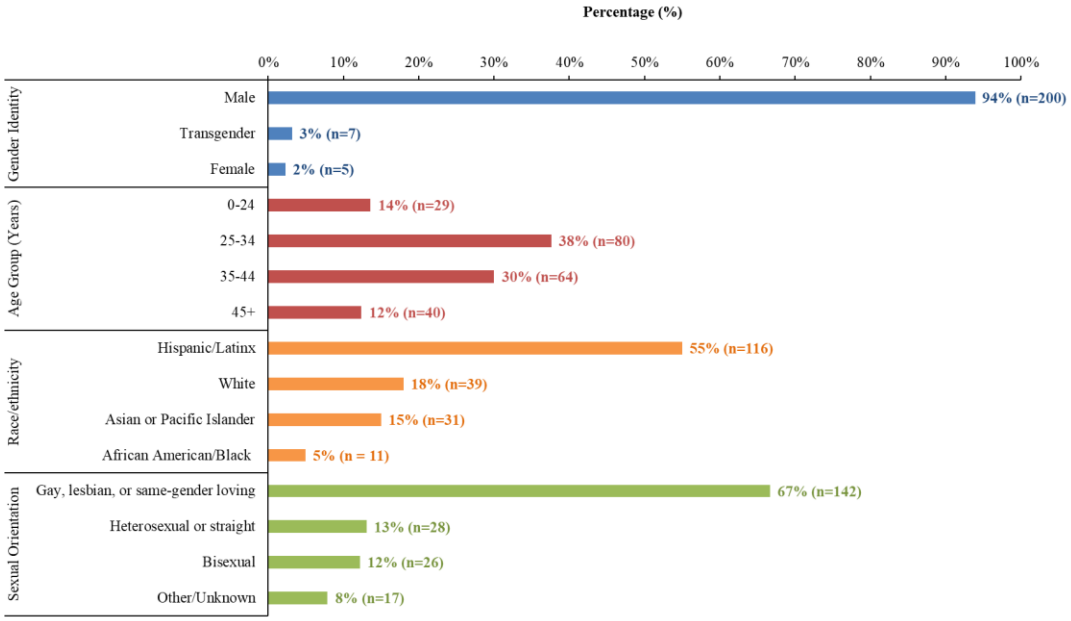
The mpox virus (a species of the genus Orthopoxvirus) is part of the same family of viruses as variola virus, the virus that causes smallpox. In the global outbreak of mpox starting in May 2022, mpox cases increased significantly in the United States with transmission due to human-to-human contact primarily through skin-on-skin contact, notably during sexual interactions. The unprecedented global outbreak was initially identified in Santa Clara County in June 2022, with risk factors mirroring those of STIs and HIV, including multiple or new sexual partners, skin-on-skin contact, and sexual activities linked to drug use. In 2022, there were 213 confirmed or probable mpox cases in Santa Clara County, with case counts peaking in July and August 2022 (Figure 38). The majority of cases identified as male (n=200, 94%), ages 25 to 34 (n=80, 34%), Hispanic/Latinx (n=116, 55%), and gay/lesbian/same-gender loving (n=142, 67%) (Figure 39).

Figure 38: Mpox Case Counts by Episode Month*, Santa Clara County, 2022



*Episode date is auto-calculated as the earliest of the following (if available): Date received, date of diagnosis, date of onset, date of death, and specimen collection date
§Case counts were suppressed due to small counts. See technical notes for more information.

Figure 39: Demographic Characteristics of Mpox Cases, Santa Clara County, 2022

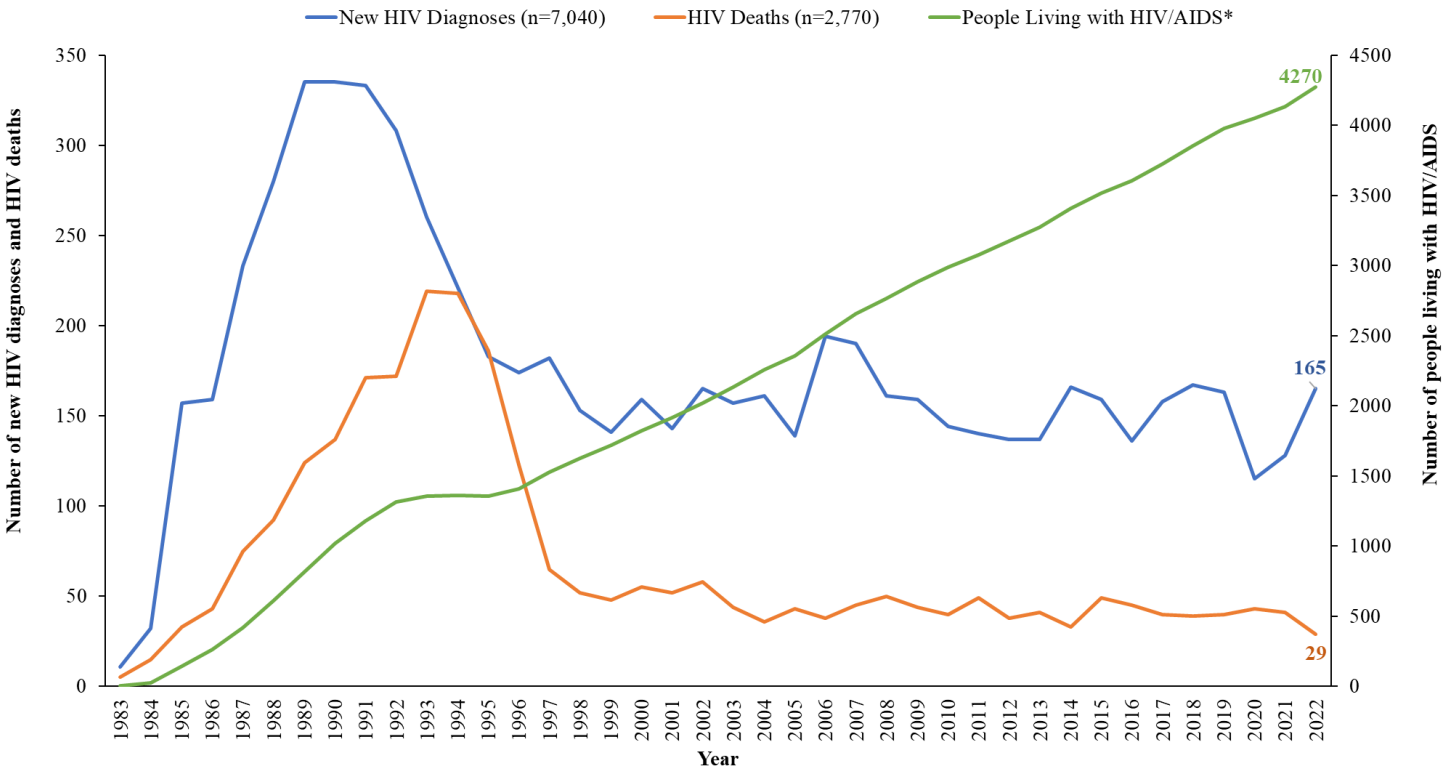


V. HIV

A. Overview of HIV in the County of Santa Clara

Since 1983, the County of Santa Clara has collected data on Human Immunodeficiency Virus (HIV) infection and Acquired Immune Deficiency Syndrome (AIDS), which is the most advanced stage of HIV infection, typically indicated by a very low count of Cd4 cells (T cells) or when specific opportunistic infections or certain cancers develop due to the HIV-related immunodeficiency. The number of annual new HIV diagnoses in the County peaked from 1989 until 1991, then declined through 2000 and has remained generally stable since. As of December 31, 2022, a total number of 7,040 individuals diagnosed with HIV had been reported to the County. Of these, 5,029 (71%) were diagnosed with AIDS. A cumulative number of 2,770 (39%) persons with HIV infection were known to have died, including 2,669 with a diagnosis of AIDS. In 2022, 3,770 current residents of the County were living with HIV, including 2,754 (73%) first reported with HIV in the County and 1,016 (27%) out of jurisdiction cases (Figure 40).

Figure 40: Number of new HIV diagnoses, deaths, and people living with HIV*, County of Santa Clara, 1983 – 2022



*Based on residence at the time of HIV diagnosis

New Diagnoses of HIV Infection

Diagnoses of HIV Infection in 2022

In 2022, 165 individuals were reported as newly diagnosed with HIV infection in the County of Santa Clara. Most of these individuals were male (89%), between ages 25 and 44 years (72%), Hispanic/Latinx ethnicity (61%), and MSM, including MSM who also use injection drugs (MSM & IDU) (62%) (Table 1).

Table 1. Demographic and transmission characteristics of people newly diagnosed with HIV in the County of Santa Clara, California, and the United States (2021 & 2022)

Demographic Characteristic	Category	Santa Clara, 2022 n (%)	California, 2021 n (%)	United States, 2021 n (%)
Gender*	Male	147 (89)	3,753 (85)	28,304 (79)
	Female	17 (10)	552 (12)	6,554 (18)
	Transgender/Other/Unknown	§	133 (3)	867 (2)
Age at diagnosis (years)	0-12	0 (0)	6 (0.1)	53 (<1)
	13-24	11 (7)	726 (16)	6,927 (19)
	25-44	119 (72)	2,764 (60)	20,624 (58)
	45-64	31 (19)	932 (21)	7,323 (20)
	65+ / Unknown	§	96 (2)	842 (2)
Race/ethnicity	African American/Black	6 (4)	777 (18)	14,555 (41)
	White	29 (18)	1,009 (23)	9,063 (25)
	Hispanic/Latinx	100 (61)	2,307 (52)	10,070 (28)
	Asian/Pacific Islander	24 (15)	243 (6)	815 (2)
	Multiple Races/Other	6 (4)	108 (3)	1,266 (4)
Transmission category**	MSM	100 (61)	2,526 (57)	23,855 (67)
	IDU***	§	243 (5)	2,490 (7)
	MSM & IDU***	§	141 (3)	1,373 (4)
	Heterosexual contact	§	872 (20)	7,916 (22)
	Unknown/Other	56 (34)	662 (15)	136 (0<1)

*Data on gender are based on variable completion of reporting data, may not distinguish between sex at birth and gender. Most transgender HIV cases reported in the County are trans female (male-to-female), data for transgender and gender diverse persons are presented with transgender men and women combined and without inclusion of other gender identities due to variations in how gender identity is collected and reported across jurisdictions, and to protect their confidentiality.

**Centers for Disease Control and Prevention transmission risk data have been statistically adjusted to account for missing transmission category; therefore, values may not sum to overall total.

*** Use of IDU is in accordance with CDC's coding and definitions.

§Case counts were suppressed due to small counts. See technical notes for more information.

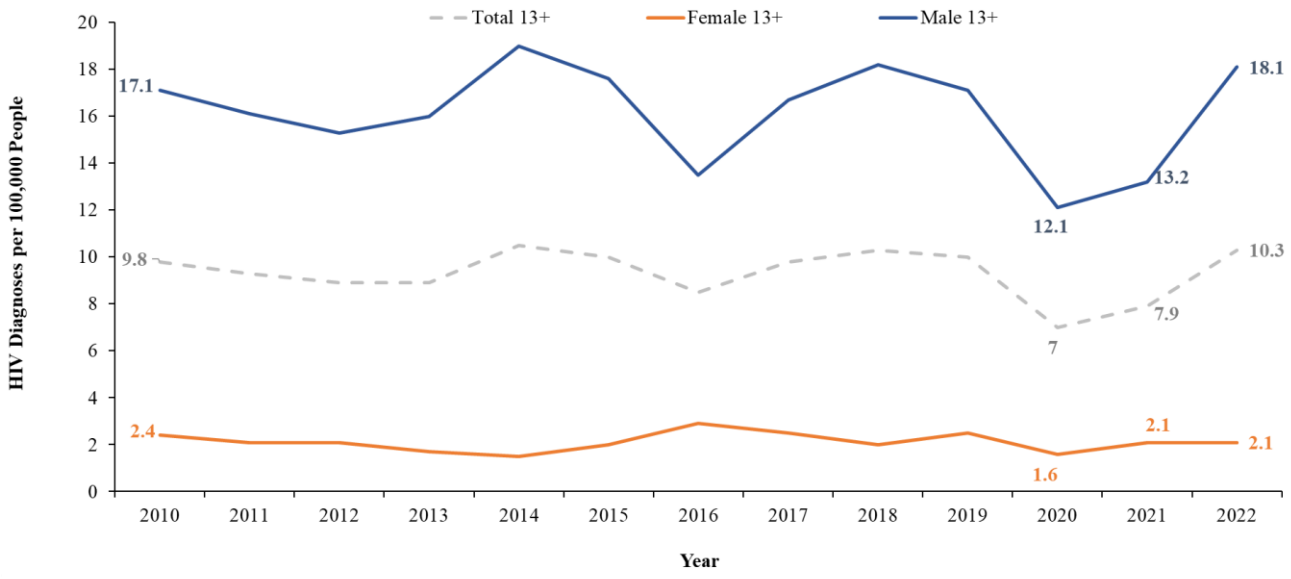
Trends in New HIV Diagnoses

The rate of new HIV diagnoses among individuals ages 13 and older in Santa Clara County remained relatively stable from 2010 to 2019, experienced a substantial decline in 2020, likely attributed to reduced testing, then saw increases in 2021 and 2022, reaching 10.3 cases per 100,000 people. In 2022, the rate of new diagnoses for males ages 13 and older (18.1) was nearly 9 times higher than the rate for females (2.1) (Figure 41). While there was a 22% increase between 2013 and 2014, primarily due to rising diagnoses among Hispanic/Latinx MSM, the rate of new HIV diagnoses subsequently declined in 2015 and 2016. However, since 2016, the rate has been on the rise, with diagnoses increasing among Hispanic/Latinx and Asian/Pacific Islander male patients (Figure 42).

In 2020, HIV diagnosis rates for males ages 13 and older varied significantly by race/ethnicity. African American/Black residents had the highest rate at 38.9 per 100,000 people, six times higher than their white counterparts (6.5). Hispanic/Latinx residents had a rate of 25.9, four times higher than white residents. Subgroups with smaller population size tend to have more fluctuating rates due to small case counts and the trend should be interpreted with caution. In 2021 and 2022, rates for African American/Black residents couldn't be reported due to small case counts and unstable rates. In 2022, excluding African American/Black residents, Hispanic/Latinx residents had the highest rate at 41.1 cases per 100,000, followed by white residents (8.9) and Asian/Pacific Islander residents (8.6). Rates among African American/Black and Hispanic/Latinx residents have consistently been the highest throughout the years, indicating the increasing disparities between white males and populations of color (Figure 42).

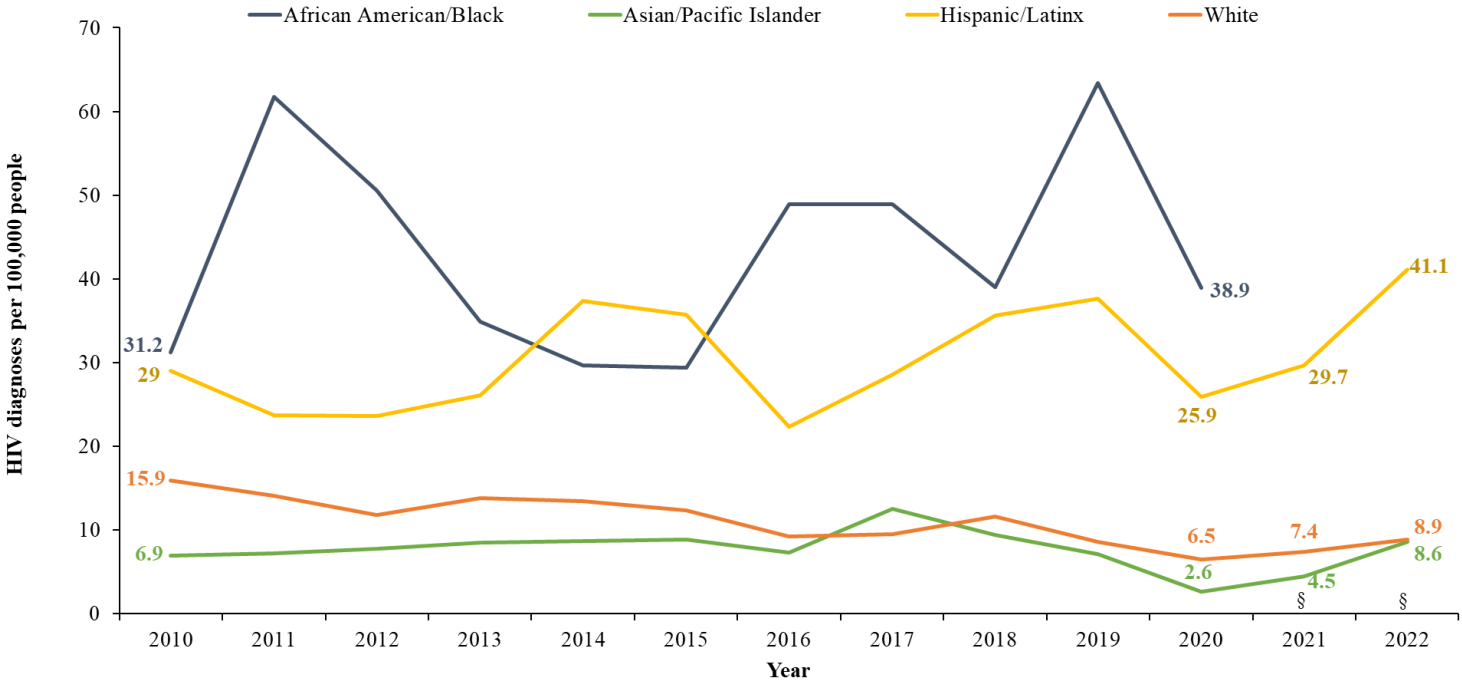
When stratified by age, the rate of HIV diagnosis in 2022 was the highest among males ages 25 to 29 (52.0 cases per 100,000 people), a sharp increase from 2021 (27.5). The second-highest rate was seen in the 30 to 39 age group. Between 2010 through 2022, there was a notable rise in HIV diagnosis rates among individuals ages 25 to 39 years (Figure 43).

Figure 41: Rate of HIV diagnoses among individuals age 13+, overall and by gender*, County of Santa Clara, 2010 – 2022



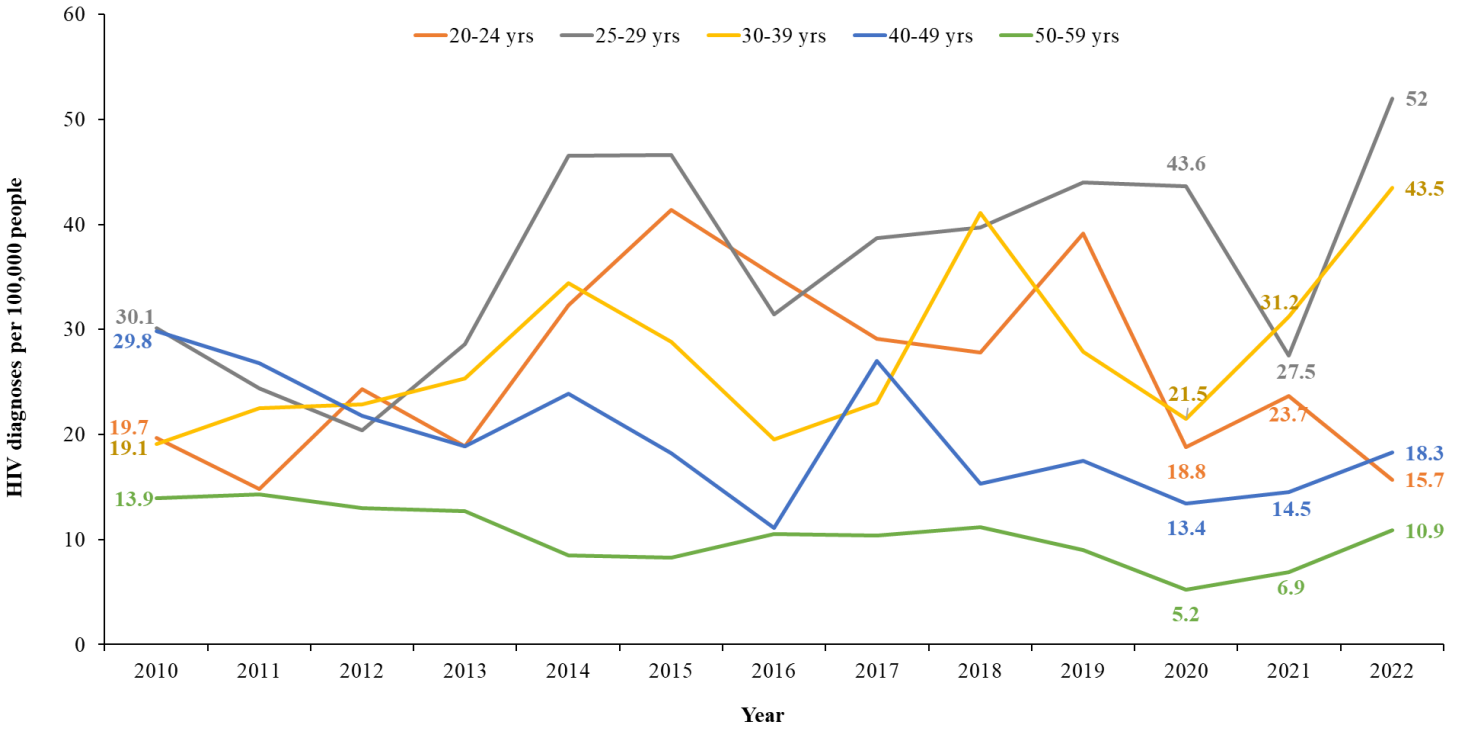
*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Figure 42: Rate of HIV diagnoses among males 13+ by race/ethnicity, County of Santa Clara, 2010 – 2022



§Case counts for African American/Black residents in 2021 and 2022 were suppressed due to small counts. See Technical Notes.

Figure 43: Rate of HIV diagnoses among males* by selected age group, County of Santa Clara, 2010 – 2022

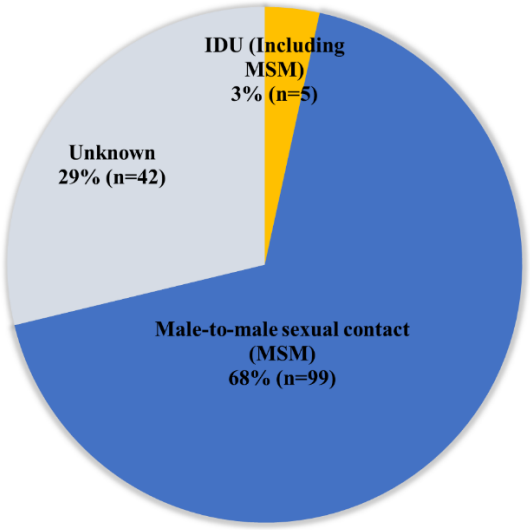


*Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

HIV Diagnoses by Transmission Mode

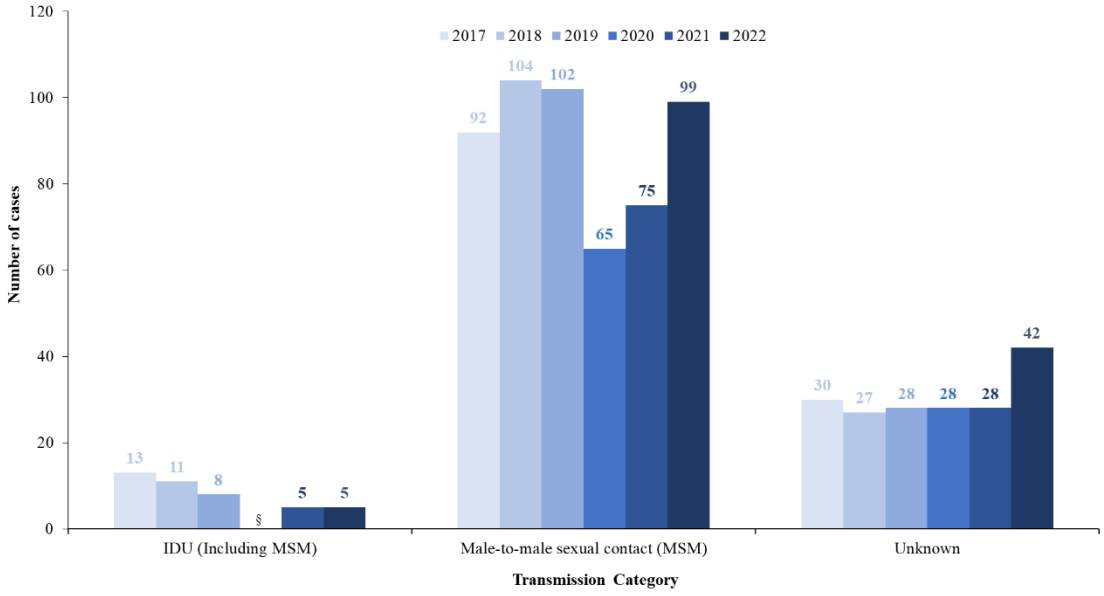
In 2022, 71% of males newly diagnosed with HIV were MSM including MSM & IDU. Notably, information on associated mode of transmission for 29% of newly diagnosed males was unknown in 2022 (Figure 44). The trend of HIV diagnoses among MSM displayed an increase from 2017 to 2018, remained stable through 2019, followed by a significant decrease in 2020, coinciding with the overall male trend. This decline was likely due to underreporting and underdiagnosis during the COVID-19 pandemic. However, both 2021 and 2022 saw a marked increase in diagnosis (Figure 45).

Figure 44: Proportion of males age 13+ newly diagnosed with HIV by transmission category[§], County of Santa Clara, 2022



§Heterosexual case counts were suppressed due to small counts. See technical notes for more information.

Figure 45: Number of males age 13+ newly diagnosed with HIV by transmission category, County of Santa Clara, 2017 – 2022



§2020 IDU (Including MSM) case counts and all years of heterosexual case counts were suppressed due to small counts. See technical notes for more information.

HIV Diagnoses by Diagnostic Setting

In 2022, 63% of new HIV diagnoses occurred in outpatient settings, which mainly include primary care and specialty clinics, community health centers, and public health clinics. Additionally, 18% of diagnoses were made at screening, diagnostic, and referral (S.D.R.) agencies, 15% during inpatient admissions, and 8% in unknown settings. It's worth noting that case counts at correctional facilities and emergency departments have been suppressed due to small counts (Figure 46).

From 2019 to 2022, the distribution of new diagnoses across facility types remained relatively stable. Notably, outpatient diagnoses were highest in 2021 and 2022. Meanwhile, there was a decline in both inpatient and S.D.R. diagnoses in 2021 (Figure 47).

Figure 46: HIV diagnoses by facility type, County of Santa Clara, 2022

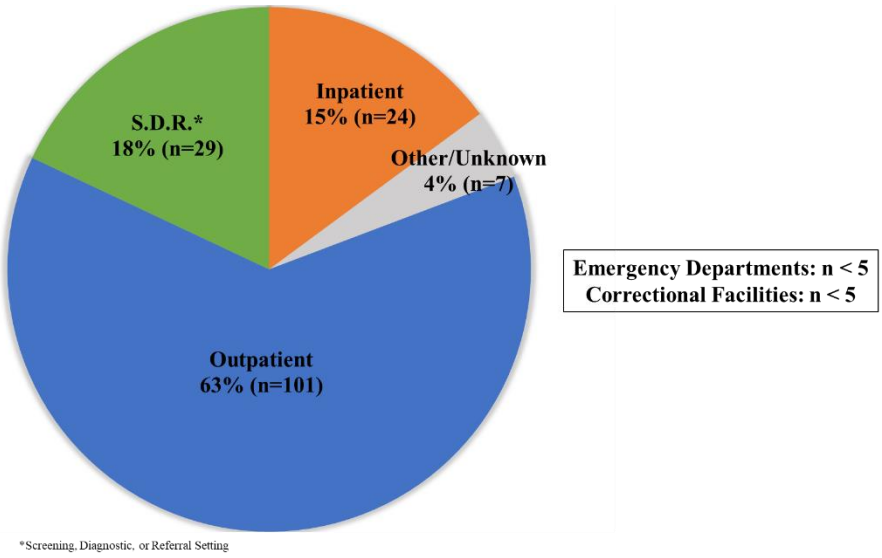
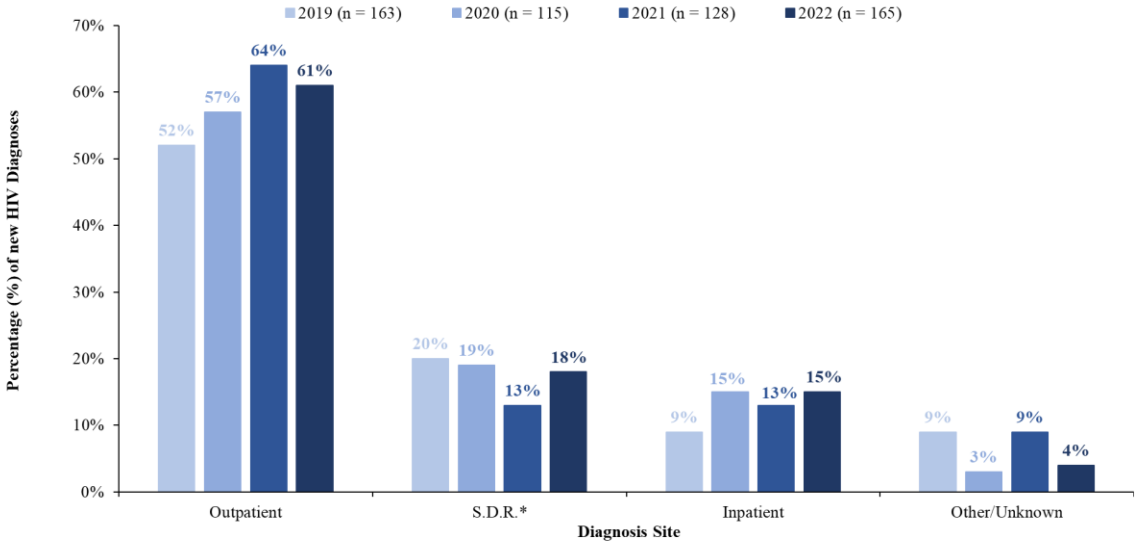


Figure 47: Percentage of HIV diagnoses by facility type, County of Santa Clara, 2019 – 2022



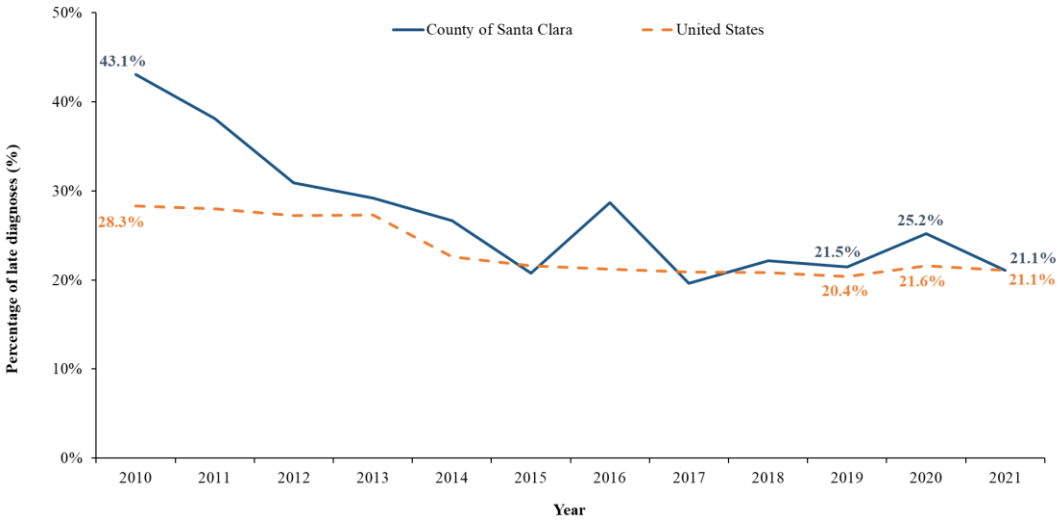
*Screening, diagnostic, and referral agency
§Case counts at Correctional Facilities and Emergency Departments were suppressed due to small counts. See Technical Notes.

Late HIV Diagnoses

As late diagnoses are defined by the onset of AIDS within three months following an HIV diagnosis, the data presented is limited to information through 2021 due to delays in collecting and processing the last three months of 2022 data. On average, the proportion of late diagnoses decreased significantly from 43.1% in 2010 to 21.1% in 2021. This reduction represents a substantial improvement, closing a gap of nearly fifteen percent compared to the national average in 2010. The percentage of late HIV diagnoses in the county was lower than the national average in 2017, and this trend has persisted through 2021, with the county's rate remaining on par with the national average (Figure 48).

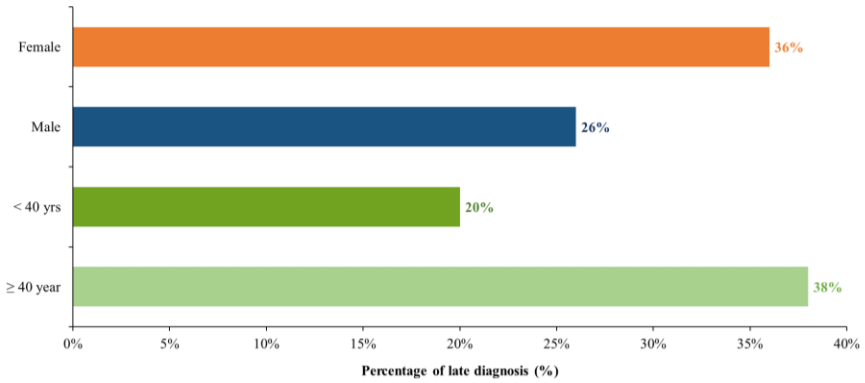
Combining data from 2010 through 2021, females and people ages 40 and older were more likely to receive a late diagnosis (36% and 38%, respectively) than their male and/or younger counterparts (26% and 20%, respectively) (Figure 49). African American/Black residents (31%), Asian/Pacific Islander residents (32%), and Hispanic/Latinx residents (27%) were more frequently diagnosed late compared to white individuals (22%) (Figure 50). People who acquired HIV through injection drug use (40%), MSM and injection drug use (26%), or heterosexual contact (33%), were more likely to be diagnosed late than MSM (21%) (Figure 51).

Figure 48: Percentage of late HIV diagnoses*, County of Santa Clara, and United States, 2010 – 2021



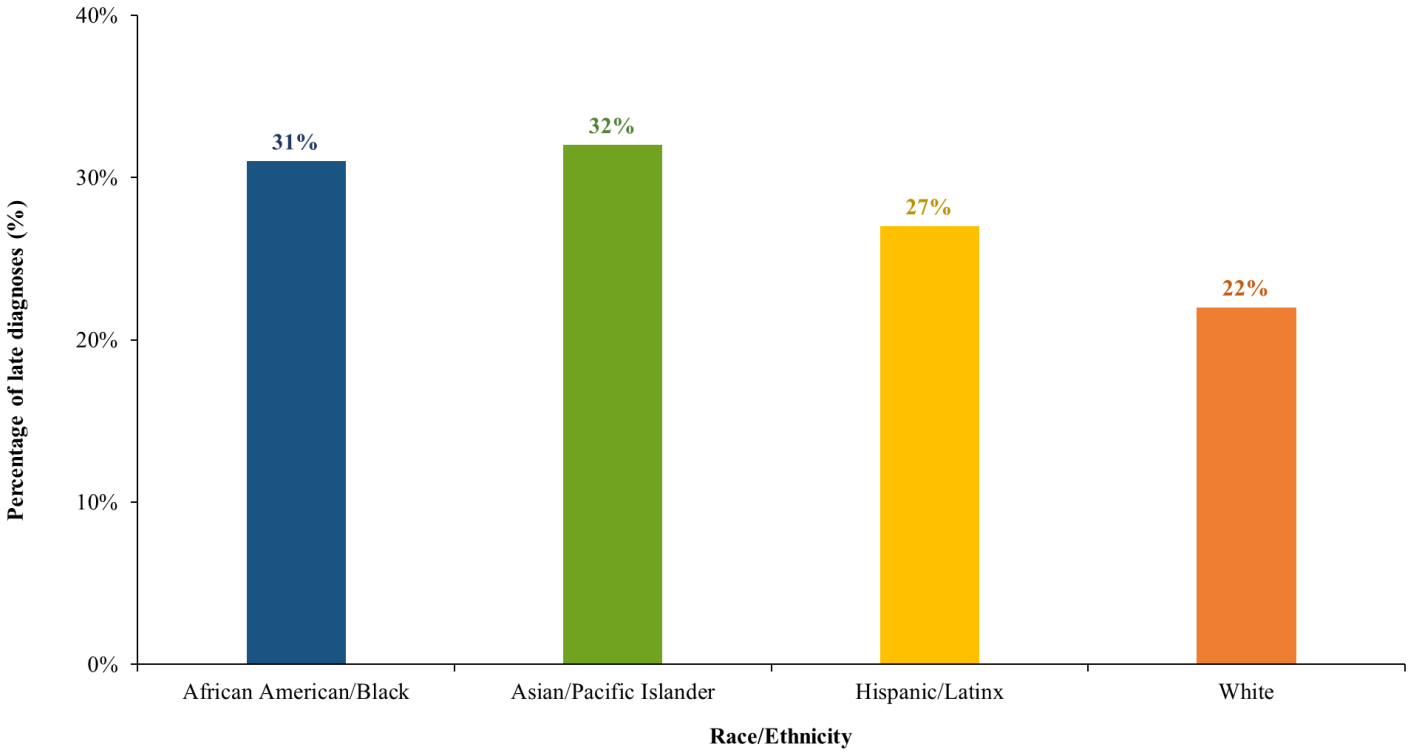
*Late diagnoses is defined as having AIDS diagnosis within 3 months of diagnosis of HIV infection.

Figure 49: Percentage of late HIV diagnoses* by gender and age, County of Santa Clara, 2010 – 2021**



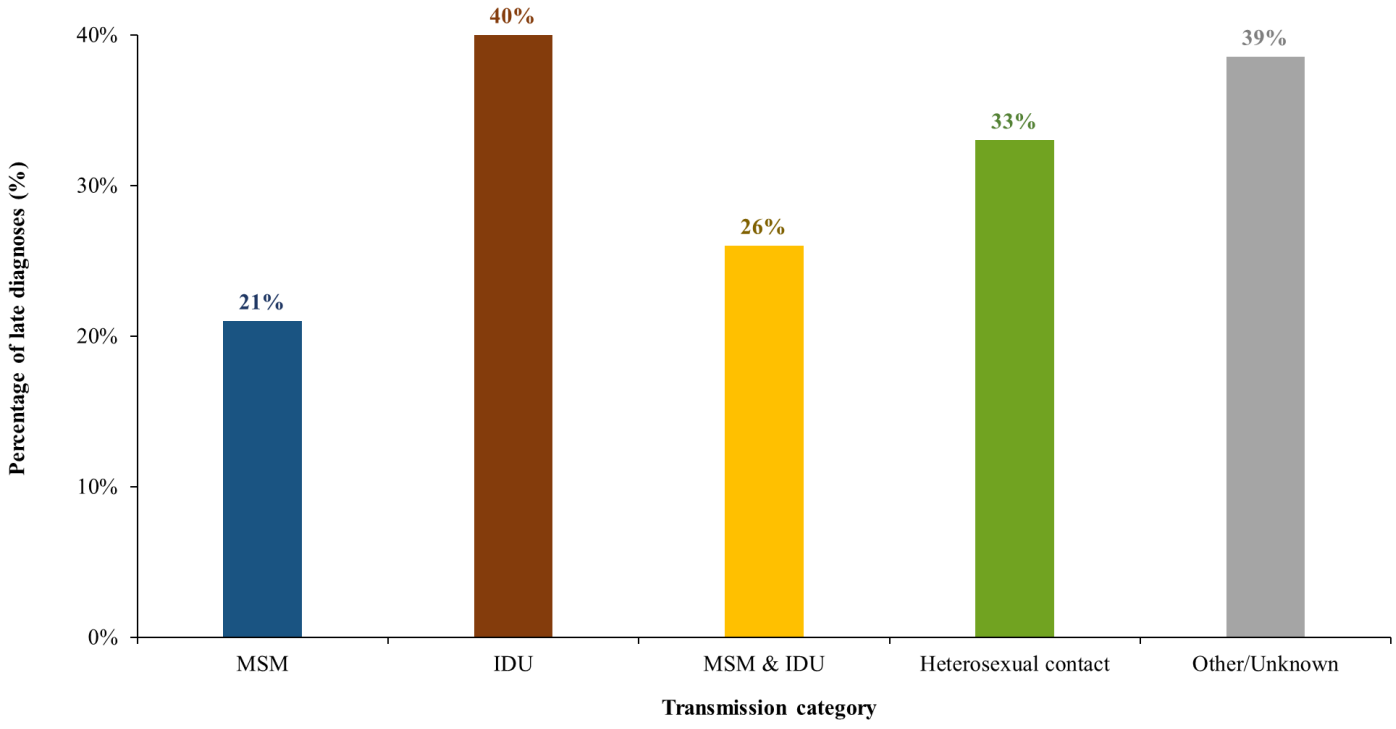
*Late diagnoses is defined as having AIDS diagnosis within 3 months of diagnosis of HIV infection.
**Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.

Figure 50: Percentage of late HIV diagnoses* by race/ethnicity, County of Santa Clara, 2010 – 2021



*Late diagnoses is defined as having AIDS diagnosis within 3 months of diagnosis of HIV infection.

Figure 51: Percentage of late HIV diagnoses* by transmission category, County of Santa Clara, 2010 – 2021



*Late diagnoses is defined as having AIDS diagnosis within 3 months of diagnosis of HIV infection.

People Living with HIV

In 2022, there were 3,770 people living with HIV (PLWH) with most recent address in the County of Santa Clara, including 2,754 (73%) first reported in the county and 1,016 (27%) out of jurisdiction cases. The rate of PLWH among males was nearly seven times the rate among females (340.5 vs. 51.1 cases per 100,000 people). The highest rates were seen amongst people ages 45 to 64 years (373.5) and African American/Black residents (804.1). (Table 2).

Table 2: Demographic and transmission characteristics of PLWH*, County of Santa Clara, 2022

	Group	N	%	Rate per 100,000 people
Gender**	Male	3,248	86	340.5
	Female	475	13	51.1
	Transgender – Male-to-Female	37	1	
	Transgender – Female-to-Male	7	<1	-
Age (years)	0-12	0	0	-
	13-24	56	1	18.9
	25-44	1,352	36	271.3
	45-64	1,866	49	373.5
	65+	496	13	158.3
Race/ethnicity	White	1,007	27	160.2
	Hispanic/Latinx	1,777	47	343.8
	African American/Black	363	10	804.1
	Asian/Pacific Islander	469	12	75
	Other/Unknown	154	4	-
Transmission category**	MSM	2,399	64	-
	IDU	156	4	-
	MSM & IDU	199	5	-
	Heterosexual contact	347	9	-
	Other/Unknown	669	18	-
Overall	**Total**	**3,770**	**100**	**234.5**

*PLWH includes people diagnosed with HIV who were alive through 12/31/2022 and had their most recent address in the County of Santa Clara.

**Rates among transgender population and by transmission mode are not available due to undefined population denominators.

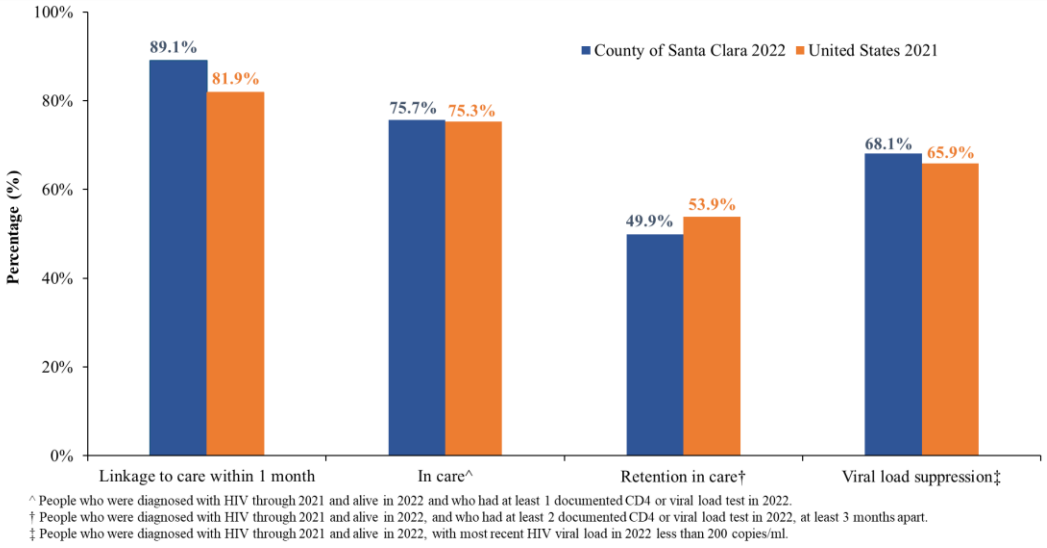
HIV Care Continuum

HIV Care Continuum

In 2022, 89.1% were connected to care within one month of diagnosis among those newly diagnosed with HIV in Santa Clara County. For those living with HIV in 2022, 75.7% were engaged in care, 49.9% were consistently retained in care, and 68.1% achieved viral suppression (Figure 52). The 2022 continuum of care in Santa Clara County exceeded the 2021 national average in all aspects, except for retention in care, which was comparatively lower.

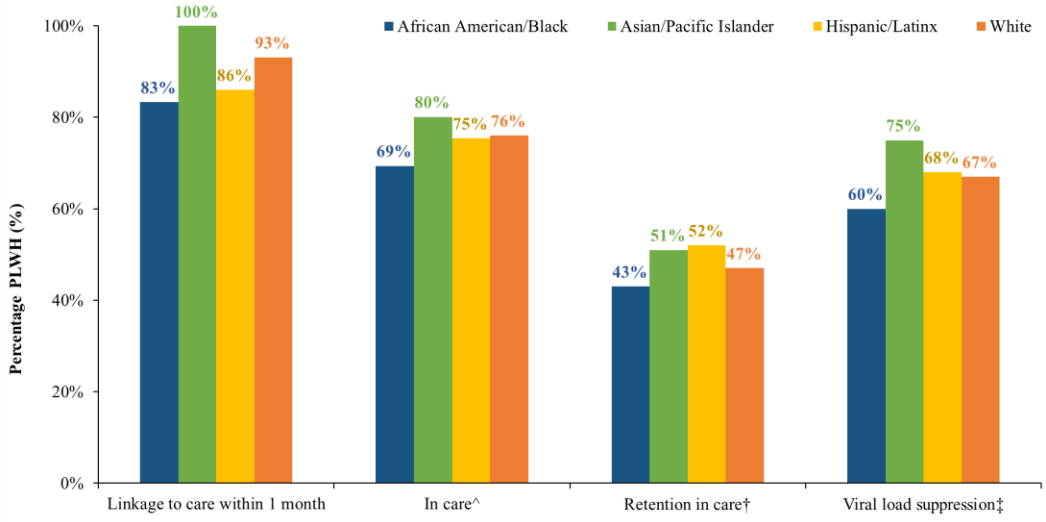
In 2022, Asian/Pacific Islander residents living with HIV showed slightly higher rates of timely care linkage, engagement in care, and viral suppression. In contrast, African American/Black residents had the lowest care continuum metrics among all major racial/ethnic groups (Figure 53).

Figure 52: HIV continuum of care, County of Santa Clara, and United States, 2021 & 2022



^ People who were diagnosed with HIV through 2021 and alive in 2022 and who had at least 1 documented CD4 or viral load test in 2022.
† People who were diagnosed with HIV through 2021 and alive in 2022, and who had at least 2 documented CD4 or viral load test in 2022, at least 3 months apart.
‡ People who were diagnosed with HIV through 2021 and alive in 2022, with most recent HIV viral load in 2022 less than 200 copies/ml.

Figure 53: HIV continuum of care, by race/ethnicity, County of Santa Clara, 2022

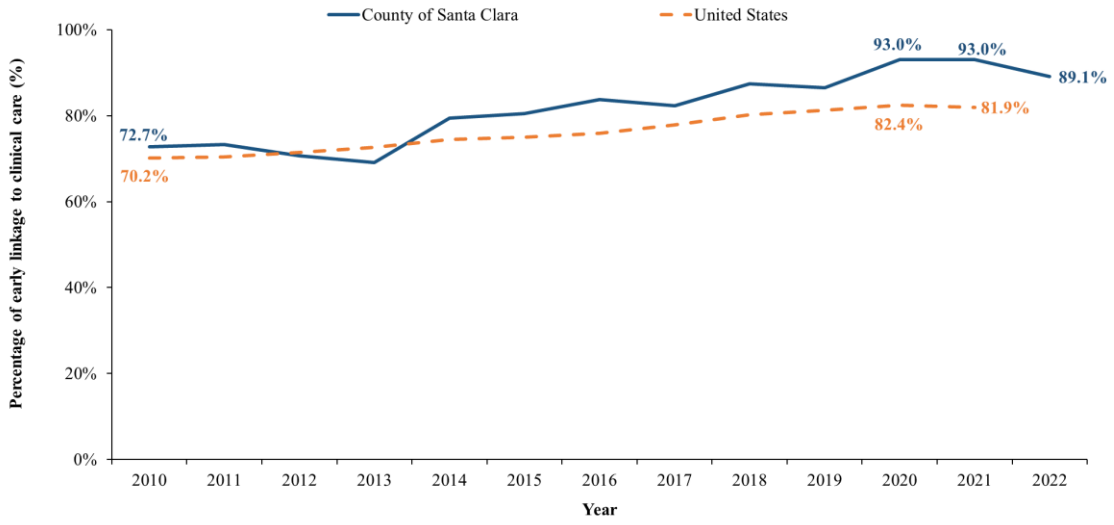


^ People who were diagnosed with HIV through 2021 and alive in 2022 and who had at least 1 documented CD4 or viral load test in 2022.
† People who were diagnosed with HIV through 2021 and alive in 2022, and who had at least 2 documented CD4 or viral load test in 2022, at least 3 months apart.
‡ People who were diagnosed with HIV through 2021 and alive in 2022, with most recent HIV viral load in 2022 less than 200 copies/ml.

Early Linkage to HIV Care

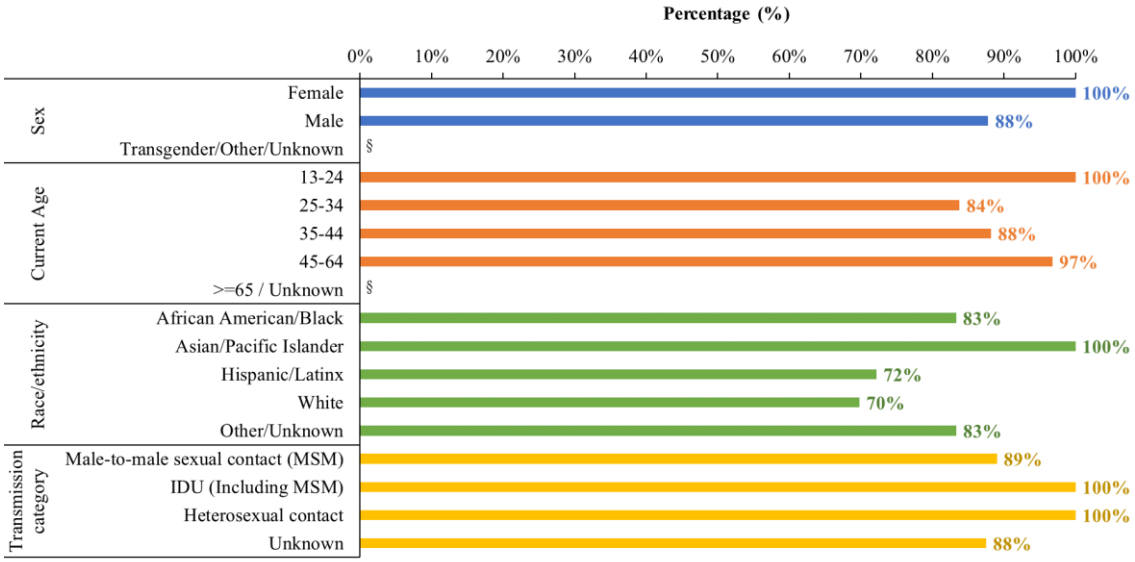
Between 2010 and 2022, the proportion of Santa Clara County residents diagnosed with HIV who received successful early linkage to care increased from 72.7% to 89.1%. Since 2014, the county has had a consistently higher percentage of successful early linkage to care compared to the U.S. average, and as of 2018 had exceeded the national goal of 85% (Figure 54). All females, young adults ages 13 to 24, Asian/Pacific Islander residents, and residents reporting either IDU use (including MSM), or heterosexual contact received successful early linkage to care (Figure 55).

Figure 54: Percentage of early linkage to HIV care* among people ages 13+ newly diagnosed with HIV, County of Santa Clara, and United States, 2010 – 2022



*Early linkage to care includes at least one CD4 or viral load test within one month of HIV diagnosis.

Figure 55: Percentage of early linkage to HIV care* among people ages 13+ newly diagnosed with HIV, by demographics and transmission characteristics, County of Santa Clara, 2022

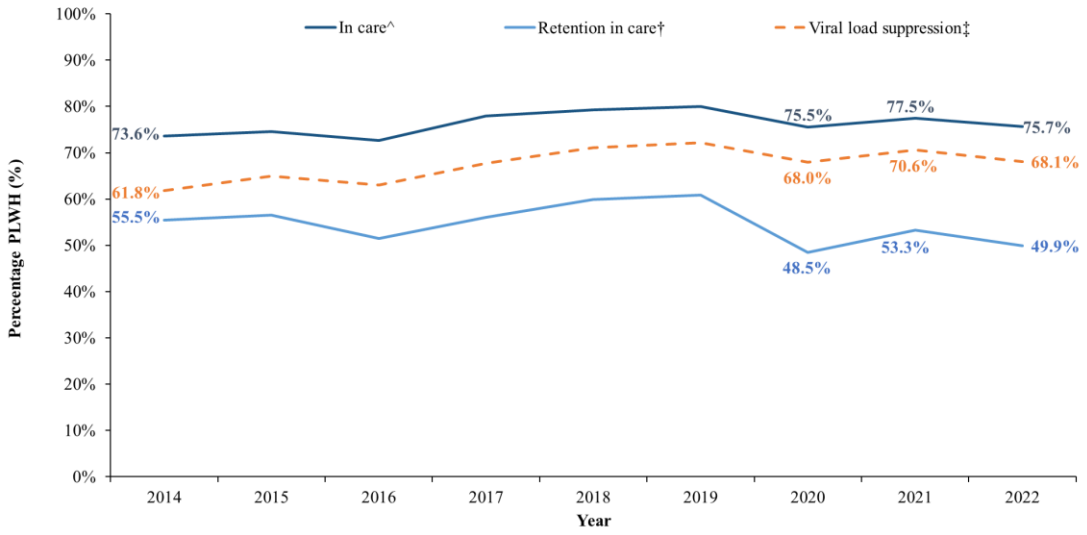


*Early linkage to care includes at least one CD4 or viral load test within one month of HIV diagnosis.
§Percentages were suppressed due to small counts. See technical notes for more information.

Viral Suppression

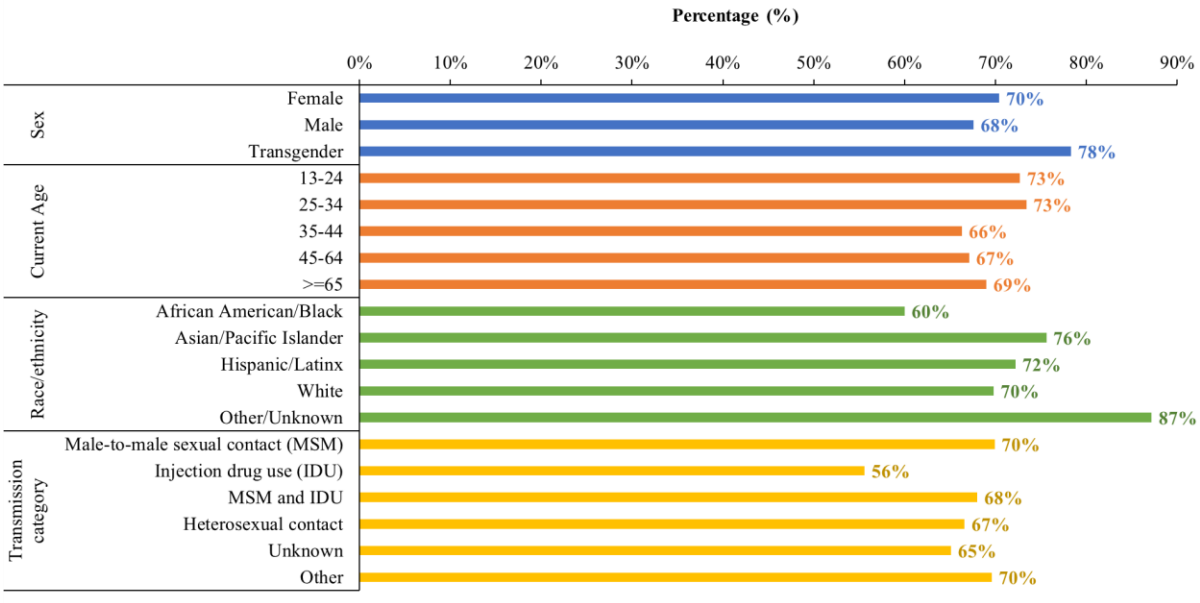
The percentage of those virally suppressed, with most recent HIV viral load less than 200 copies/ml, among PLWH in the county steadily increased from 61.8% in 2014 to 68.1% in 2022 (Figure 56). Males and females had similar viral suppression (68% and 70%, respectively). Viral suppression was most frequent among transgender individuals (78%), young people ages 13 to 34, Asian/Pacific Islander residents (76%), and MSM (70). Viral suppression was least frequent among adults ages 35 to 44 (66%), African Americans/Black (60%), and IDU (56%) (Figure 57).

Figure 56: HIV continuum of care among PLWH ages 13+, County of Santa Clara, 2014 – 2022



^ People who were diagnosed with HIV through 2021 and alive in 2022 and who had at least 1 documented CD4 or viral load test in 2022.
† People who were diagnosed with HIV through 2021 and alive in 2022, and who had at least 2 documented CD4 or viral load test in 2022, at least 3 months apart.
‡ People who were diagnosed with HIV through 2021 and alive in 2022, with most recent HIV viral load in 2022 less than 200 copies/ml.

Figure 57: Viral suppression among PLWH* ages 13+, by demographic and transmission characteristics, County of Santa Clara, 2022



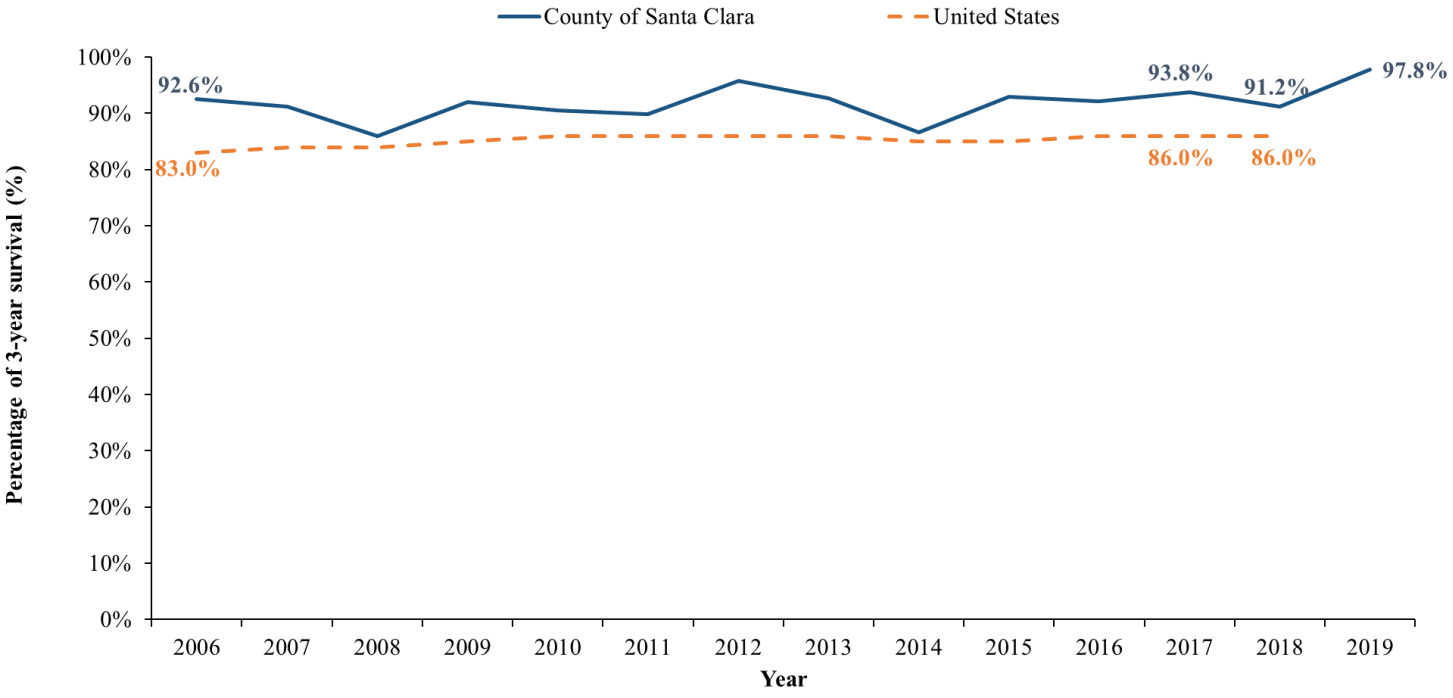
*People who were diagnosed with HIV through 2021 and alive in 2022, with most recent HIV viral load in 2022 less than 200 copies/ml.

HIV Survival

Figure 58 displays 3-year AIDS survival rates for the county and the national average from 2006 to 2019, limiting the analysis to persons diagnosed with AIDS through 2019. The county continues to have higher rates than the national average. In 2018, the county's rate was 91.2% compared to the national rate of 86.0%. In 2019, the county's rate improved to a peak of 97.8%.

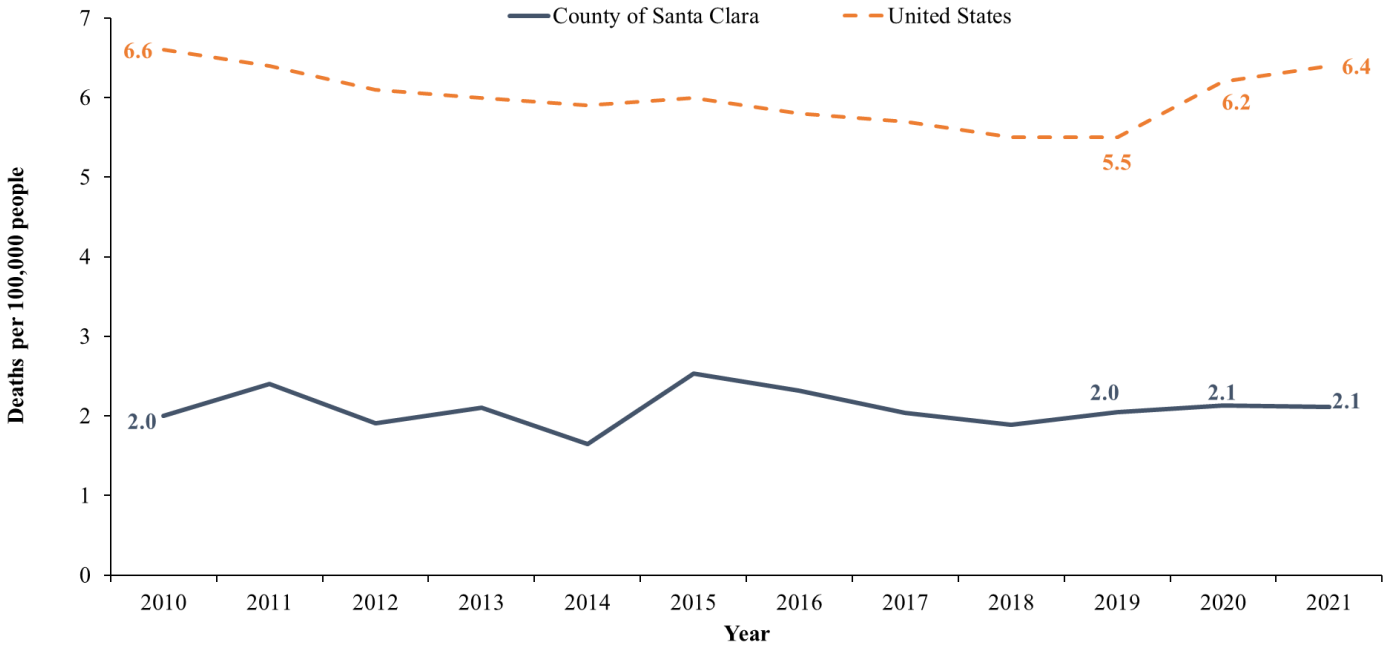
Since 2010, the county's age-adjusted HIV mortality rate and general population case-fatality rate have consistently been lower than the national average. The analysis of HIV deaths was restricted to those diagnosed through 2021 to allow at least 12 months for deaths to be reported to SCCPHD. In 2021, the county's age-adjusted HIV mortality rate (2.1 per 100,000) was one-third of the national rate (6.4), and the case-fatality rate (9.9) was nearly half of the national rate (18) (Figure 59-60).

Figure 58: AIDS 3-year survival rate*, County of Santa Clara, and United States, 2006 – 2019



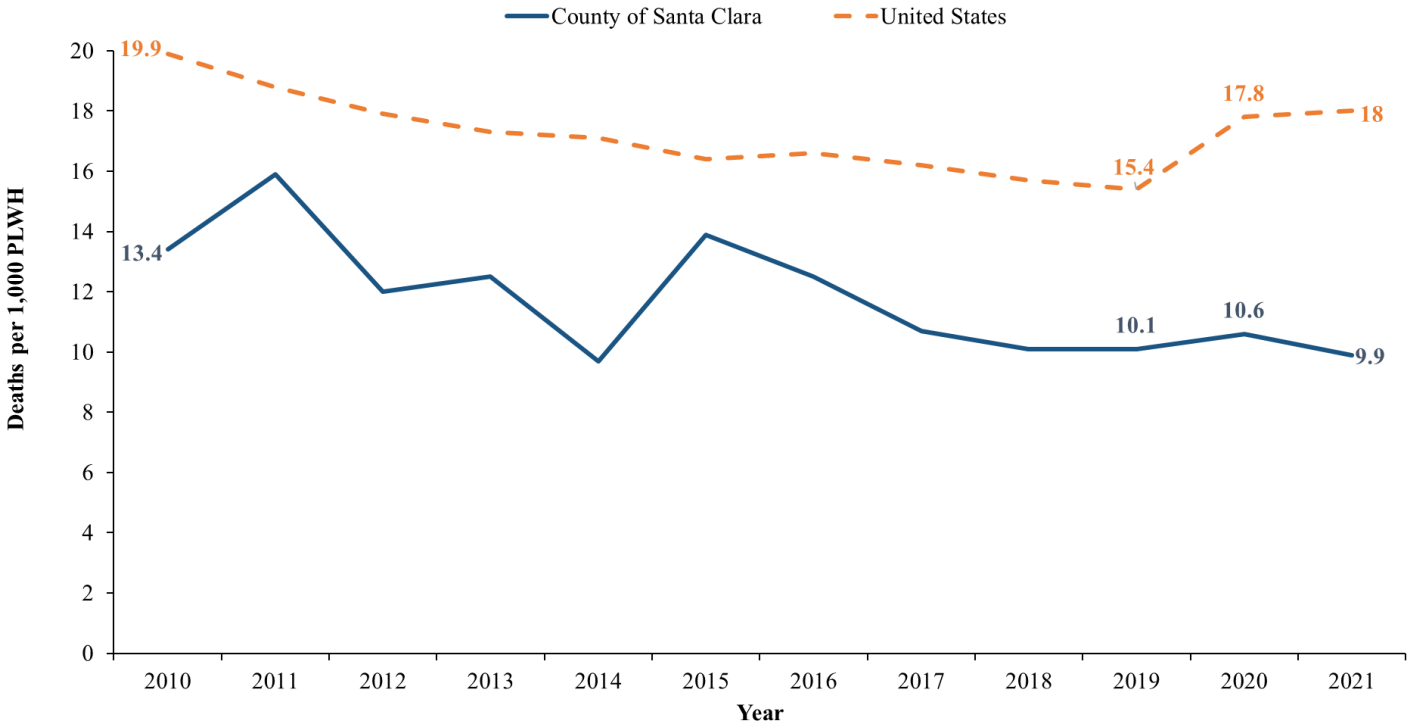
*The Kaplan-Meier approach was employed to calculate the likelihood of survival beyond 3 years (36 months) for individuals whose infection had been categorized as stage 3 (AIDS). To ensure a window of at least 3 years from HIV diagnosis to a death occurring on or before December 31, 2022, the tables included data only from individuals diagnosed or classified as stage 3 (AIDS) between 2013 and 2019.

Figure 59: Age-adjusted HIV mortality rate*, County of Santa Clara, and United States, 2010 – 2021



*Age-Adjusted Mortality Rates are calculated as the number of people diagnosed with HIV (all disease stages), or HIV stage 3 (AIDS), who died each year divided by the number of total people in Santa Clara County. A standard population distribution was used to adjust death rates per 100,000 population. The age-adjusted rates are rates that would have existed if the age distribution of the designated population and the age distribution of the standard population were the same.

Figure 60: HIV case fatality rate*, County of Santa Clara, and United States, 2010 – 2021



*Case-fatality rates are calculated as the number of people diagnosed with HIV (all disease stages), or HIV stage 3 (AIDS), who died each year divided by the number of total people living with HIV

HIV and STI Co-infection

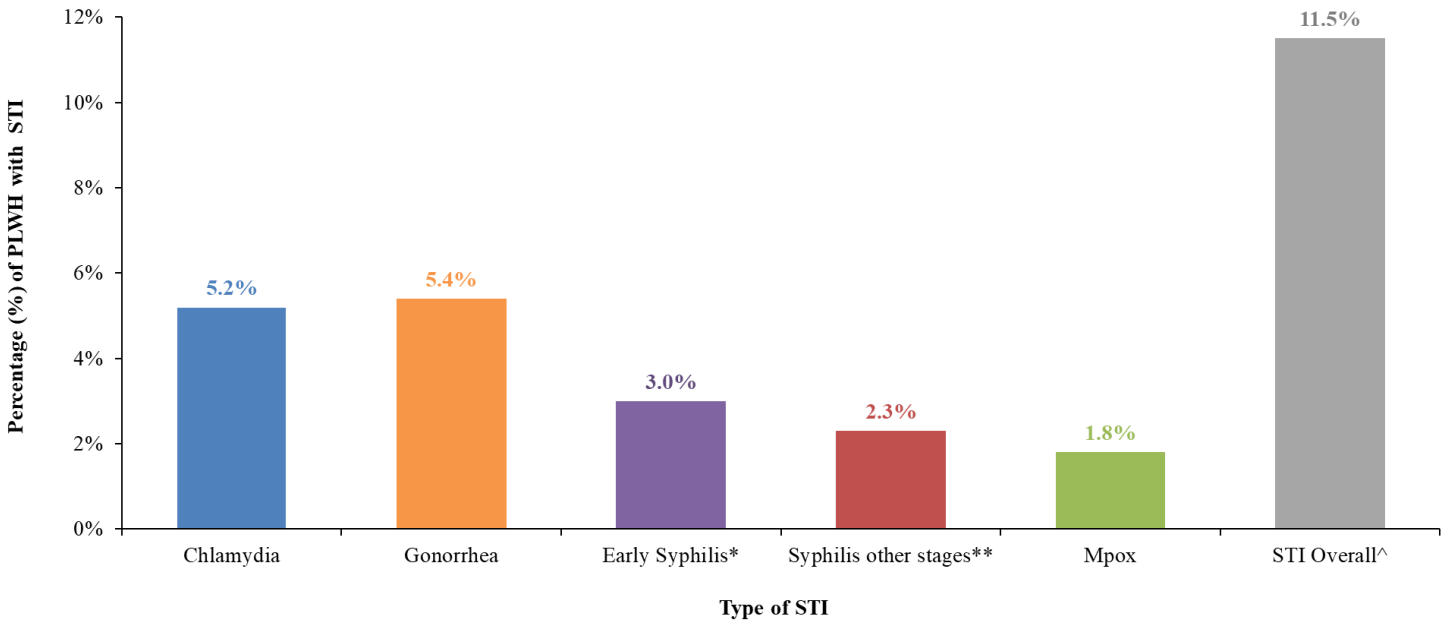
In 2022, 11.5% of PLWH were diagnosed with at least one STI (include chlamydia, gonorrhea, early syphilis, syphilis of all other stages, or mpox). The most common STIs among PLWH were gonorrhea (5.4%) and chlamydia (5.2%). Additionally, 3.0% were diagnosed with early syphilis, 2.3% with syphilis in other stages, and 1.8% with mpox (Figure 61).

In 2022, 22.7% of transgender PLWH had an STI co-infection, compared to 13.7% of males and 1.5% of females. The highest STI co-infection rates were observed among PLWH ages 13 to 29, with 33.9% in the 13 to 24 age group and 35.6% in the 25 to 29 age group (Figure 62).

In terms of race/ethnicity, the STI co-infection rates among PLWH were highest among Hispanic/Latinx PLWH at 16.9%, followed by Asian/Pacific Islander residents at 10.4%, then white residents at 7.4%, and then African American/Black residents at 3.3% (Figure 63).

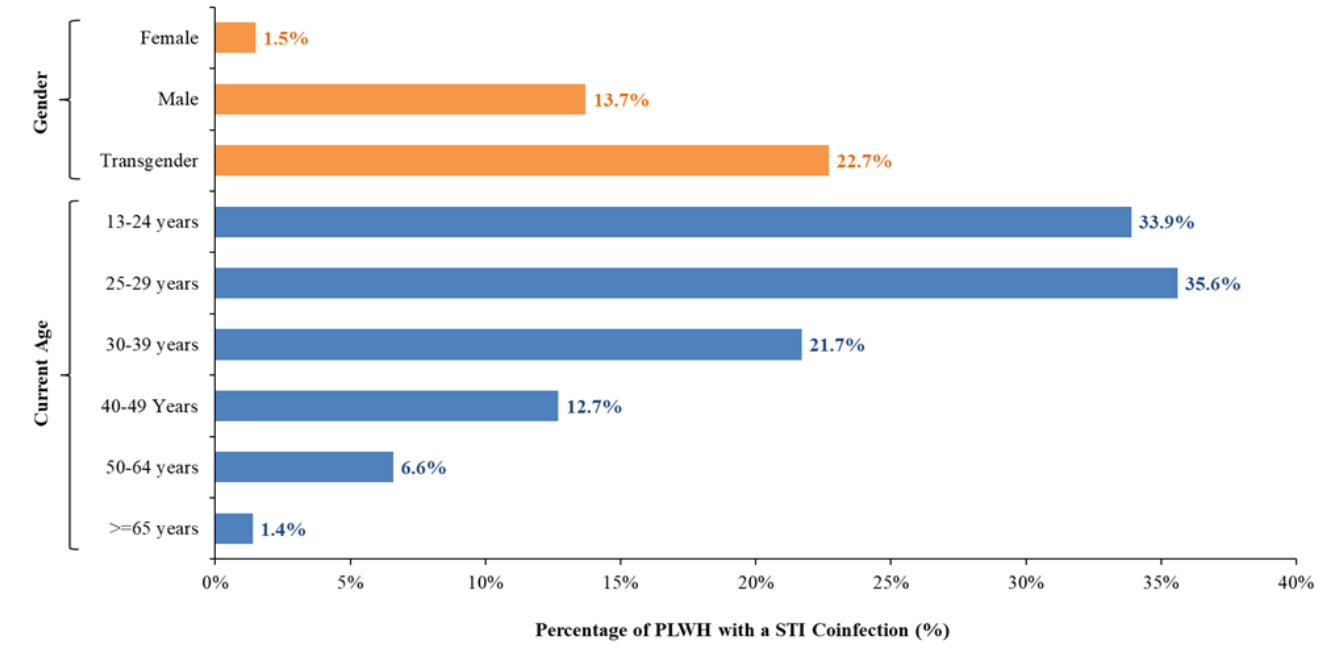
Among transmission categories, HIV/STI co-infection most disproportionately impacted MSM (15.6%), over two times greater than IDU (5.1%), and more than ten times higher than those whose HIV was attributed to heterosexual contact (1.2%) (Figure 64). The percentage of HIV/STI co-infection among MSM was over double that of non-MSM males, and over nine times that of females (Figure 65).

Figure 61: Percentage of people living with HIV with STI†, County of Santa Clara, 2022



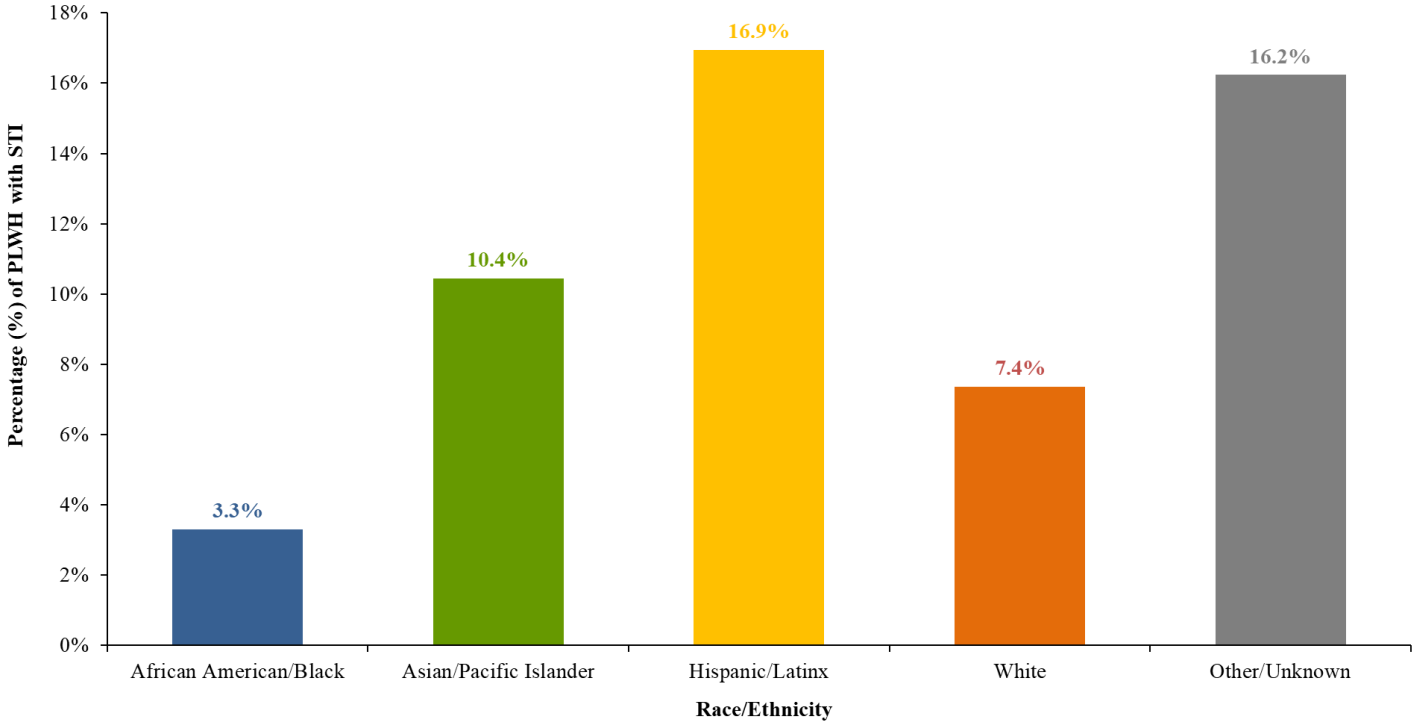
† People living with HIV ages 13 and older diagnosed with chlamydia, gonorrhea, early syphilis, syphilis of all stages, or mpox in 2022. A person with multiple episodes of one disease in the year will be only counted once for the disease.
*Includes primary, secondary and early latent syphilis cases.
** Includes syphilis cases with unknown duration or late or unknown stage.
^ The percentage of overall STI diagnosis is lower than the sum of the percentages of chlamydia, gonorrhea, early syphilis, other stages of syphilis, and mpox because one person may be diagnosed with multiple diseases.

Figure 62: Percentage of people living with HIV with an STI†, by gender and age group, County of Santa Clara, 2022



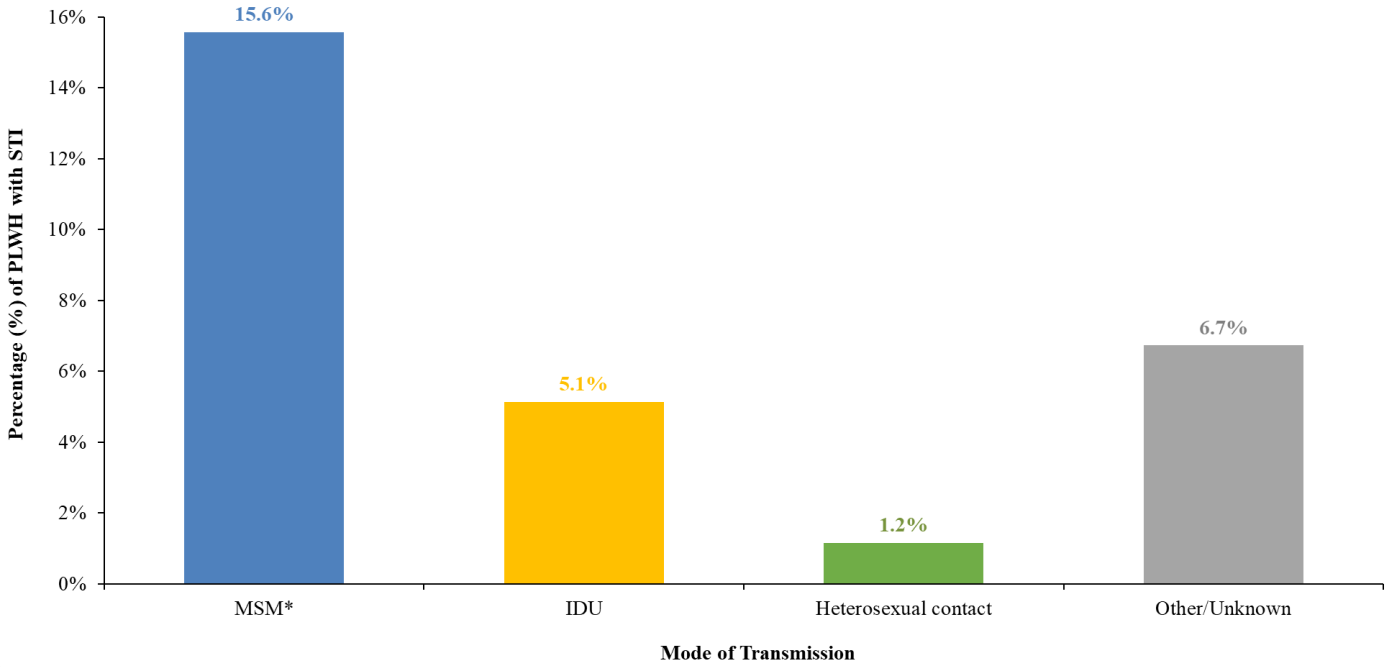
† People living with HIV ages 13 and older with a chlamydia, gonorrhea, early syphilis, syphilis of all other stages, or mpox diagnosis in 2022. A person with multiple episodes of disease in the year will be only counted once.

Figure 63: Percentage of people living with HIV with STI†, by race/ethnicity, County of Santa Clara, 2022



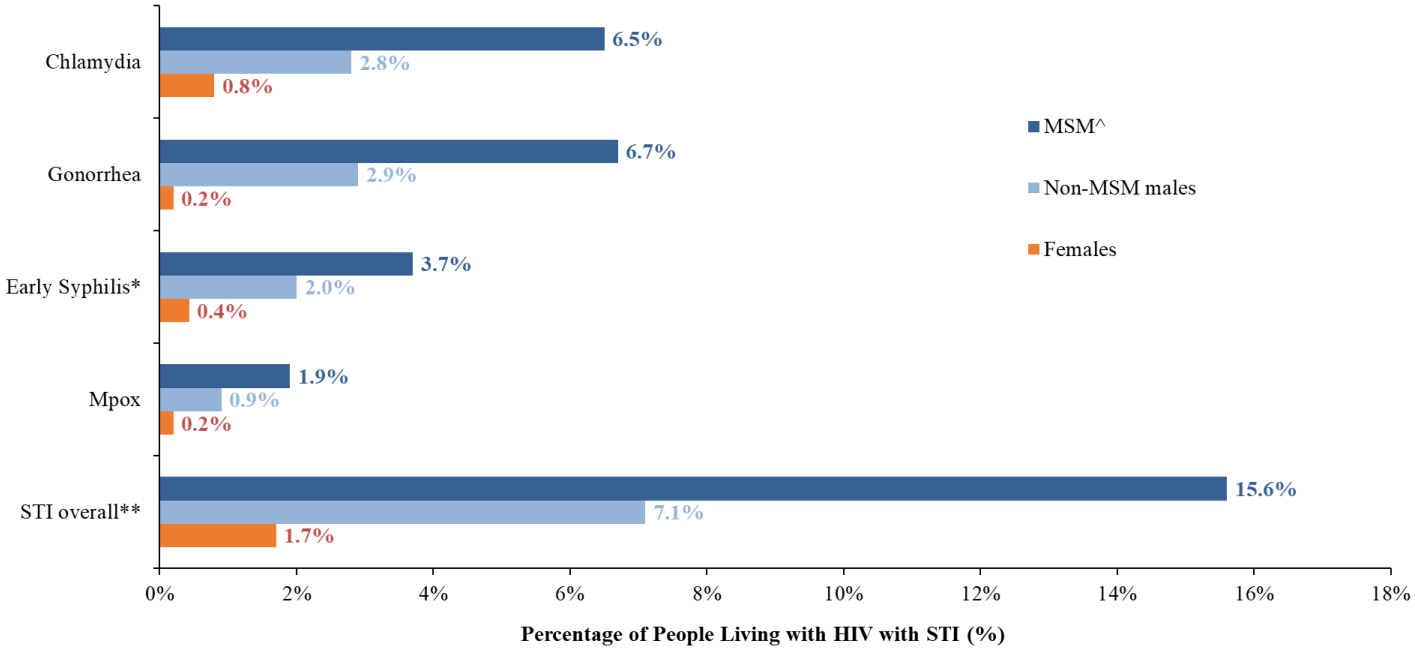
† People living with HIV ages 13 and older with a chlamydia, gonorrhea, early syphilis, syphilis of all other stages, or mpox diagnosis in 2022. A person with multiple episodes of disease in the year will be only counted once.

Figure 64: Percentage of people living with HIV with STI†, by transmission category, County of Santa Clara, 2022



† People living with HIV ages 13 and older with a chlamydia, gonorrhea, early syphilis, syphilis of all other stages, or mpox diagnosis in 2022. A person with multiple episodes of disease in the year will be only counted once.
*Includes MSM and MSM & IDU.

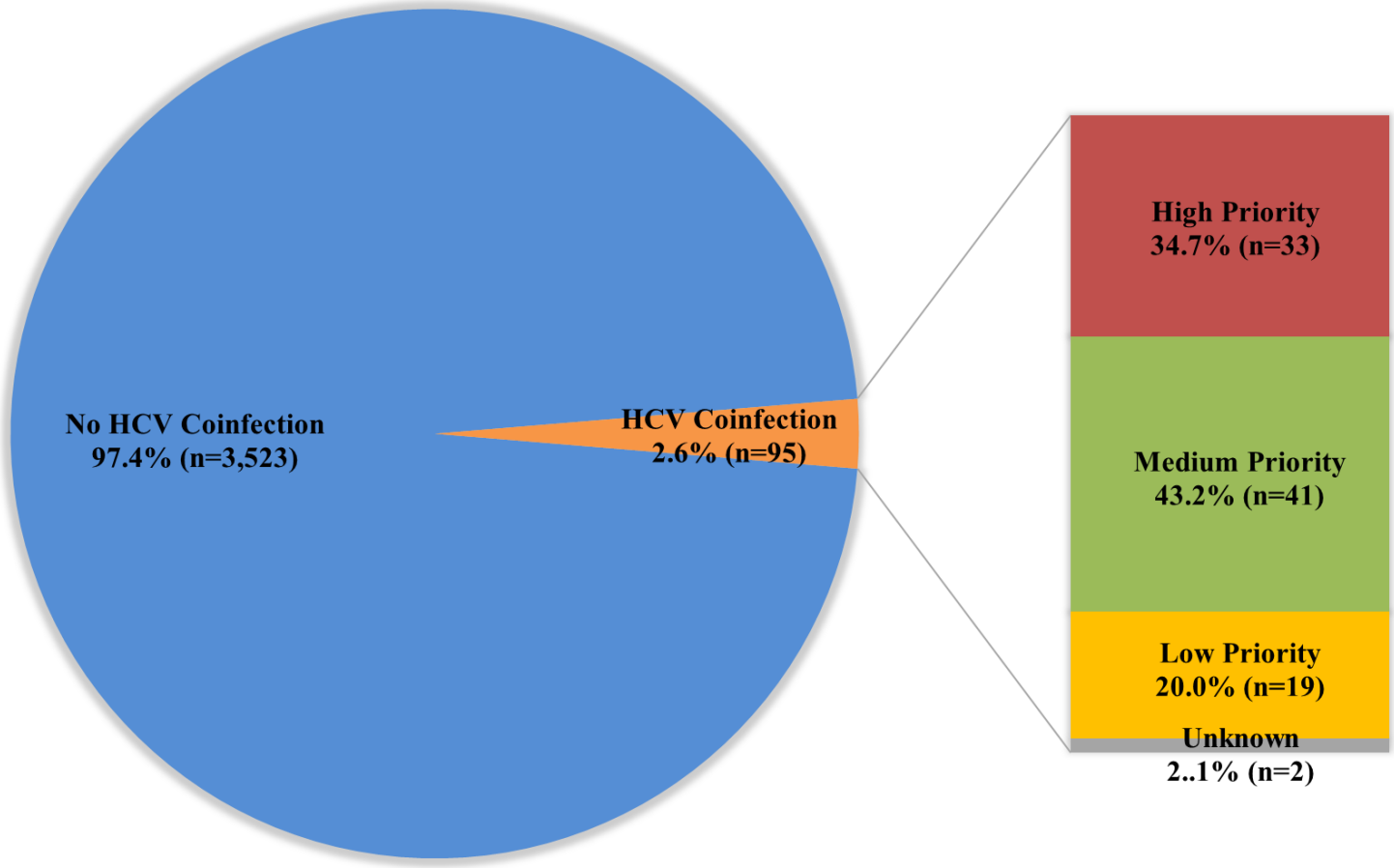
Figure 65: Percentage of people living with HIV with STI† by disease, County of Santa Clara, 2022



† People living with HIV ages 13 and older with chlamydia, gonorrhea, early syphilis (primary, secondary and early latent), or mpox diagnosis in 2022. A person with multiple episodes of one disease in the year will be only counted once for the disease.
* Includes primary, secondary and early latent syphilis cases.
** The percentage of overall STI diagnosis is lower than the sum of the percentages of chlamydia, gonorrhea, early syphilis, and mpox because one person may be diagnosed with multiple diseases.
^ Includes MSM and MSM & IDU.

In 2021, 2.4% of PLWH were coinfected with Hepatitis C (HCV), amounting to a total of 95 cases. Among these 95 cases, they were further categorized based on CDC-based priority levels for HCV treatment: 31.4% were deemed high priority, 43% fell into the medium priority category, 23.3% were considered low priority, and 2.3% remained of unknown priority (as depicted in Figure 66). These priority levels are determined by the HCV status of the individual: high priority for those with HCV viremia, medium priority for those with HCV antibody only, and low priority for those who have cleared or been cured of HCV. Data for 2022 is not yet available.

Figure 66: Percentage of people living with HIV with HCV Co-Infection, by Priority Level, County of Santa Clara, 2021



B. HIV among Priority Populations in the County of Santa Clara

The HIV epidemic has stabilized in the county since the mid-2000s, with 3,770 people known to be diagnosed and living with HIV as of December 31, 2022. African American/Black and Hispanic/Latinx residents are disproportionately impacted by the disease. MSM have been disproportionately impacted as well since the beginning of the epidemic. These disparities likely relate to social determinants, which are driven by structural factors impacting population health beyond the extent of individual characteristics.[9] CDC defines social determinants of health (SDH) as "overlapping social structures and economic systems (e.g., social environment, physical environment, health services, and structural and societal factors) that are responsible for most health inequities."[10] To address these health disparities and promote equity, CDC has adopted a holistic framework that emphasizes community-based prevention approaches for HIV.[11]

Health inequities persist in the County of Santa Clara as they do across the State of California and the United States. However, several factors uniquely shape health inequities in the county, such as a growing immigrant population, the rise of the technology industry, and the increase in income inequality. In this report, we highlight populations disproportionately impacted by HIV and other health disparities to illustrate the needs guiding our priorities regarding HIV surveillance and prevention in the County of Santa Clara.

HIV among Men Who have Sex with Men (MSM)

In 2022, the majority of MSM who were newly diagnosed with HIV were less than 40 years old. From 2010 to 2022, HIV diagnoses among MSM decreased among those ages 40 to 59 but increased among those ages 20 to 39 (Figure 67).

In 2022, the majority of new diagnoses among MSM were in the Hispanic/Latinx community (n = 68), followed by Asian/Pacific Islander residents (n = 20) and white individuals (n = 11). Due to small counts, new diagnoses among African American/Black residents were suppressed. From 2010 to 2022, new diagnoses increased by 20 among Hispanic/Latinx individuals, increased by 11 among Asian/Pacific Islander residents, and decreased by 27 among white residents. (Figure 68)

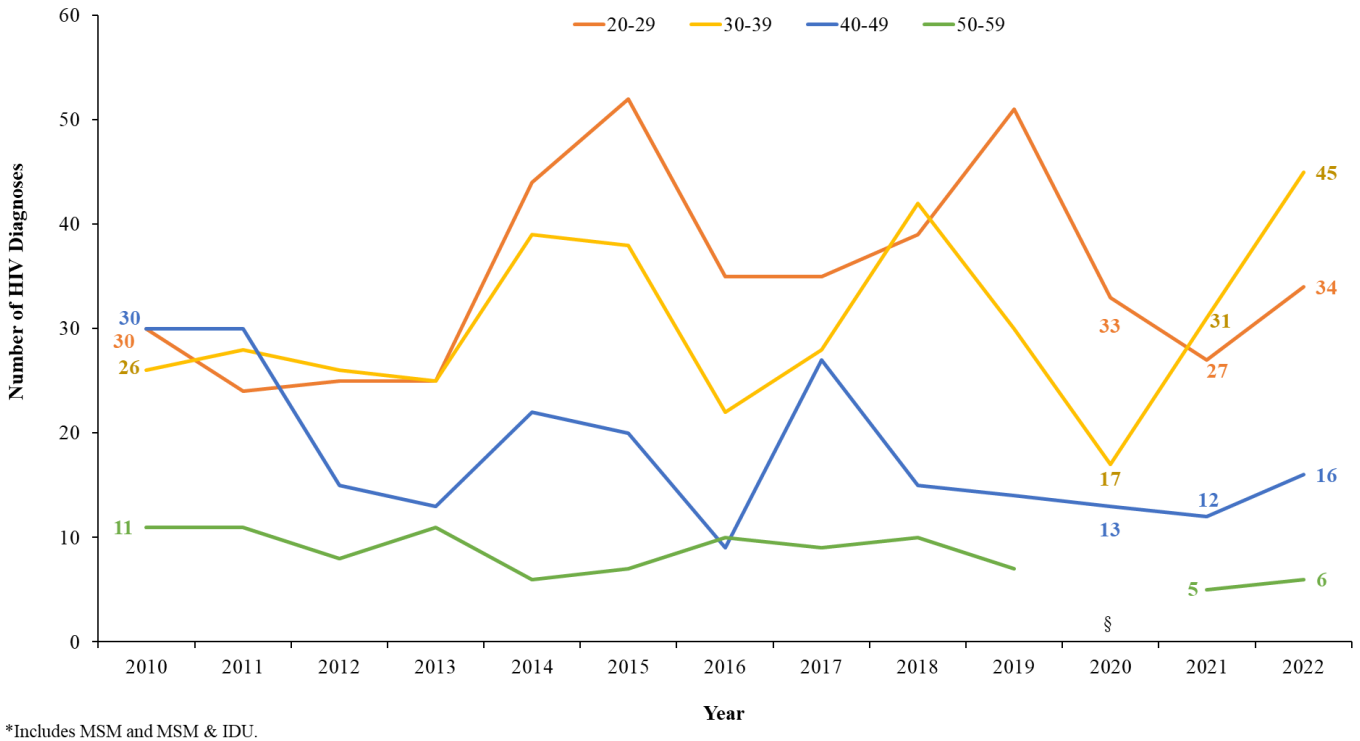
Finally, in 2022, the majority of MSM across all races/ethnicities achieved viral suppression; 76.8% of Asian/Pacific Islander MSM living with HIV were virally suppressed, 70.3 % of white MSM, and 70.0 % of Hispanic/Latinx, while only 50.4% of African American/Black MSM cases had met the clinical criteria for viral suppression (Figure 69).

[9] CDC. Social determinants of health among adults with diagnosed HIV infection in 13 states, the District of Columbia, and Puerto Rico, 2015. HIV Surveillance Supplemental Report 2017; 22 (No. 3). http://www.cdc.gov/hiv/library/reports/hivsurveillance.html. Published August 2017. Accessed [Sep 19th, 2019].

[10] CDC. Establishing a Holistic Framework to Reduce Inequities in HIV, Viral Hepatitis, STDs, and Tuberculosis in the United States. Atlanta (GA): U.S. Department of Health and Human Services, CDC; October 2010. Accessed [Sep 19th, 2019].

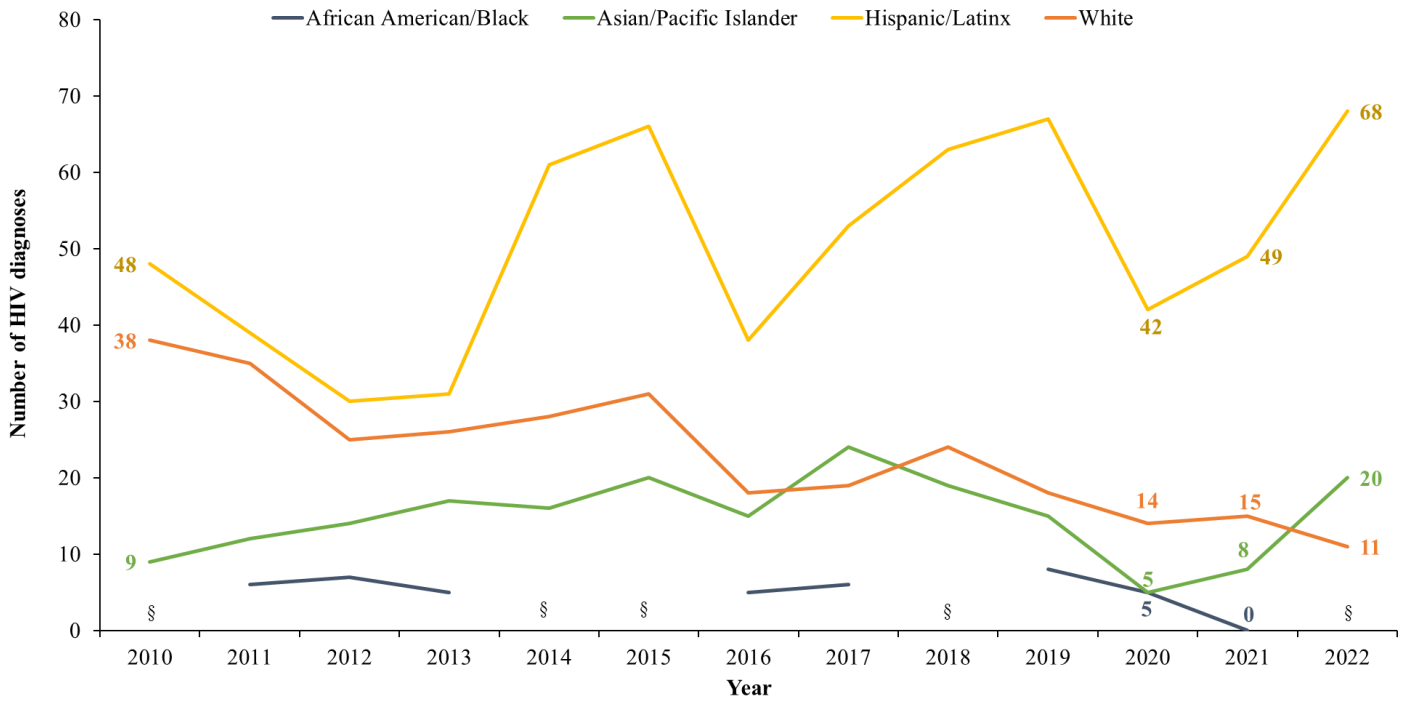
[11] Centers for Disease Control and Prevention. Establishing a Holistic Framework to Reduce Inequities in HIV, Viral Hepatitis, STDs, and Tuberculosis in the United States. Atlanta (GA): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; October 2010. Accessed [Sep 19th, 2019].

Figure 67: Number of MSM* newly diagnosed with HIV by selected age group, County of Santa Clara, 2010 – 2022



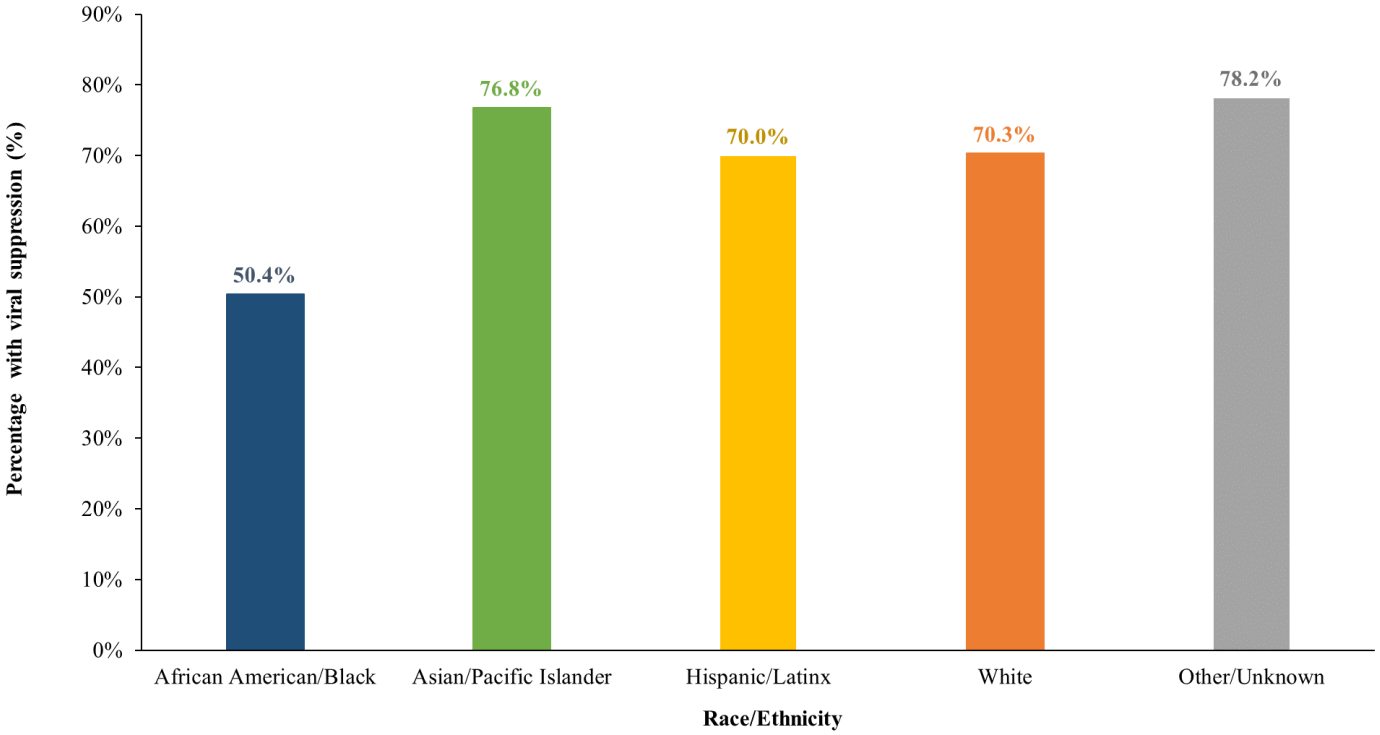
*Includes MSM and MSM & IDU.
§Case counts of those ages 50 to 59 in year 2020 were suppressed due to small counts. See technical notes for more information.

Figure 68: Number of MSM* newly diagnosed with HIV by race/ethnicity, County of Santa Clara, 2010 – 2022



*Includes MSM and MSM & IDU.
§Case counts of African American/Black residents in certain years were suppressed due to small counts. See technical notes for more information.

Figure 69: Viral suppression among MSM* living with HIV, by race/ethnicity, County of Santa Clara, 2022



*Includes MSM and MSM & IDU.

HIV among Women

In 2022, 17 women ages 13 and older were newly diagnosed with HIV in the County of Santa Clara. The rate of HIV diagnoses among women ages13 and older declined from 2010 to 2014, then rebounded in 2015 and 2016 before again declining in 2018. The rate then increased in 2019, decreased again in 2020, and finally increased to 2.1 in 2021 and 2022 (Figure 70).

Among all 475 women living with HIV in 2022 36% were Hispanic/Latinx, 25% were African American/Black, 18% were white, and 14% were Asian/Pacific Islander. Nearly half (45%) of women living with HIV in the county were associated with transmission through heterosexual contact compared to 9% through injection drug use. 43% of women living with HIV had no known source of HIV acquisition (Figure 71).

Figure 70: Number and rate of women ages 13+ newly diagnosed HIV, County of Santa Clara, 2010 – 2022

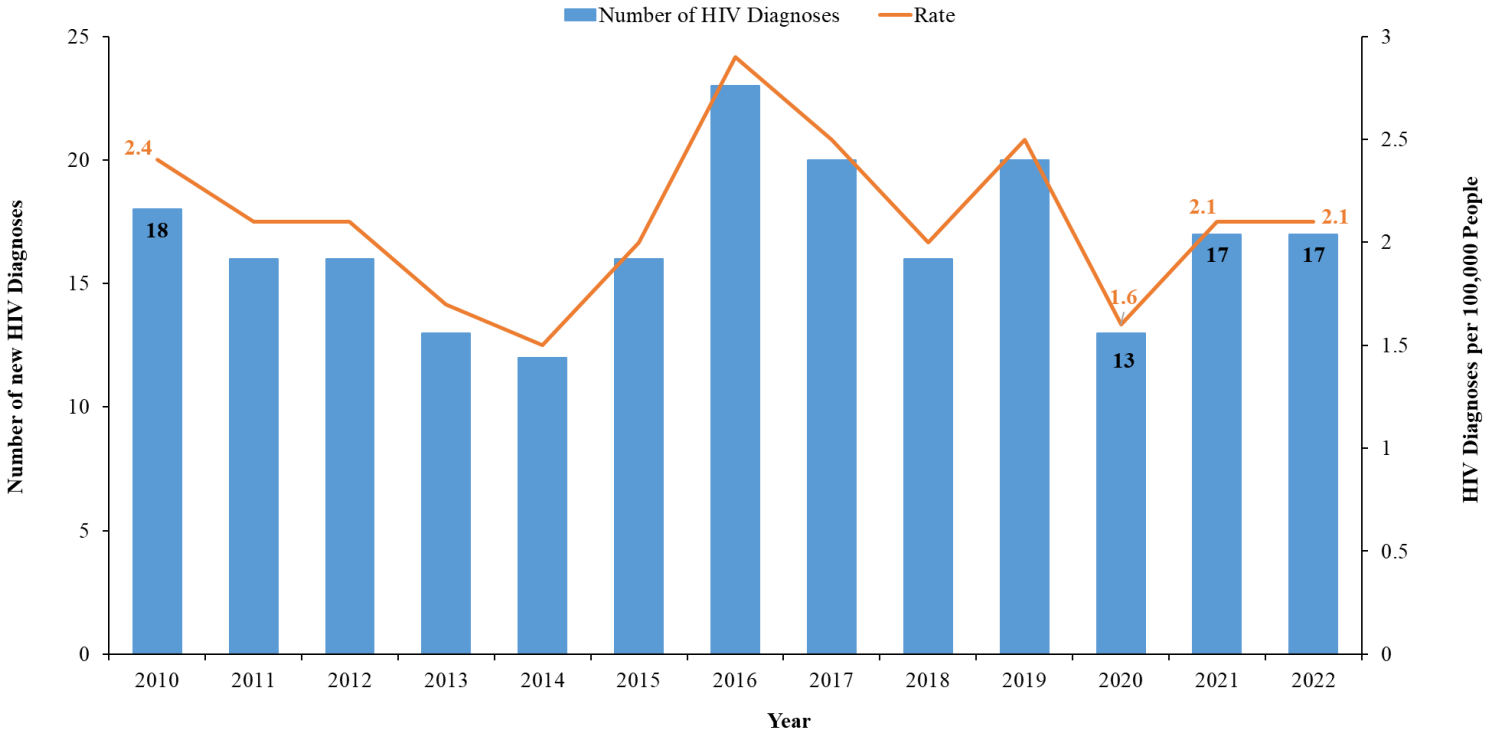
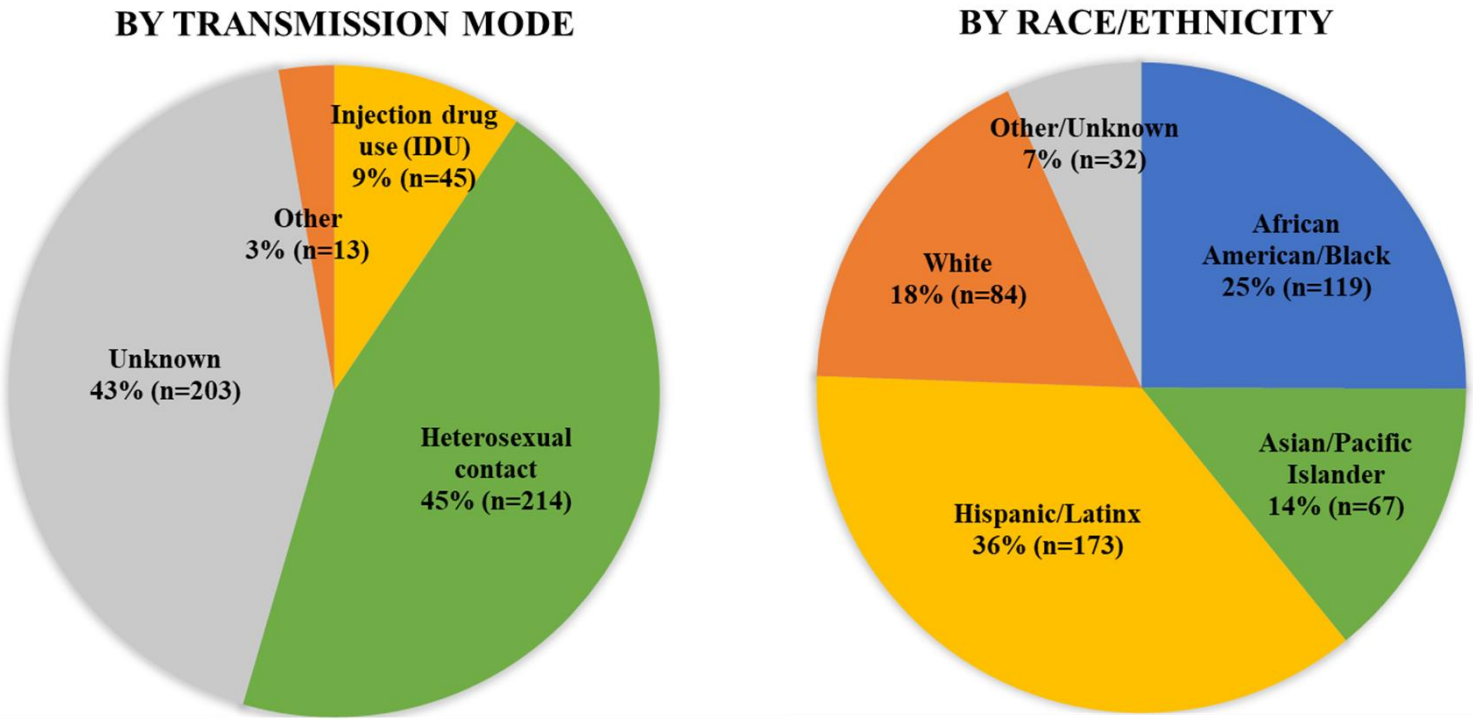


Figure 71: Women living with HIV by transmission category and race/ethnicity, County of Santa Clara, 2022



HIV among Adolescents and Young Adults

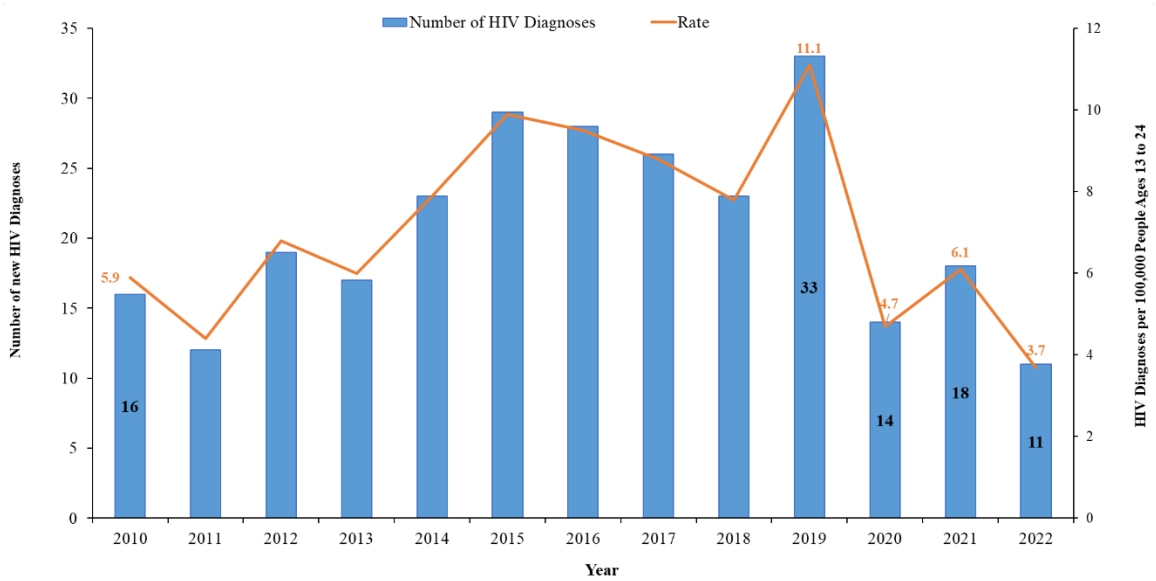
Among all 269 adolescents and young adults diagnosed with HIV between 2010 and 2022, the majority were male (92%), Hispanic/Latinx (56%) and MSM (80%). Adolescents and young adults diagnosed with HIV were less frequently associated with transmission through heterosexual contact (2%) and injection drugs, including MSM who used injection drugs (4%) (Table 3).

The rates of HIV among those ages 13 to 24 steadily increased from 5.9 per 100,000 people in 2010 to 11.1 in 2019, then decreasing to 3.7 in 2022 (Figure 72).

Table 3: Adolescents and young adults ages 13-24 with new HIV diagnosis by demographic and transmission characteristics, County of Santa Clara, 2010–2022

		N	Percent (%)
Gender	Female	17	6.3
	Male	247	91.8
	Transgender	5	1.9
Race/Ethnicity	African American/Black	22	8.2
	Asian/Pacific Islander	40	14.
	Hispanic/Latinx	150	55.8
	White	46	17.1
	Other/Unknown	11	4.1
Transmission Category	MSM	215	79.9
	IDU	4	1.5
	MSM & IDU	7	2.6
	Heterosexual contact	6	2.2
	Other/Unknown	37	13.8
Overall	**Total**	**269**	**100**

Figure 72: Number and rate of newly diagnosed HIV among adolescents and young adults ages 13 to24, County of Santa Clara, 2010 – 2022



HIV among People Ages 50 and Older

Among all 301 people ages 50 or older diagnosed with HIV between 2010 and 2022, the majority were male (81%), White (42%) and MSM (47%), including MSM who used injection drugs. (Table 4).

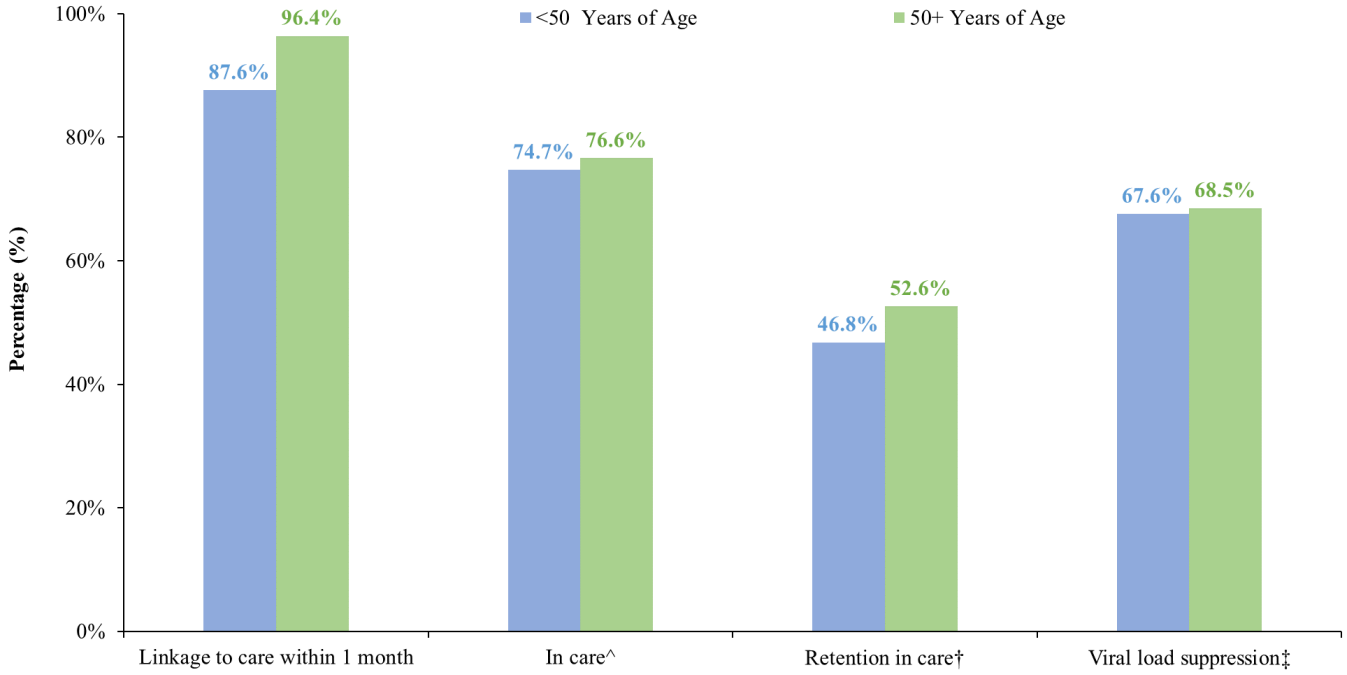
In 2022, among individuals newly diagnosed with HIV in Santa Clara County, 87.6% of those under 50 years of age were linked to care within one month, while this figure was higher at 96.4% for those ages 50 or older. For people already living with HIV, the care continuum showed similar patterns for both age groups: the percentage in care (74.7% vs. 76.6%), the percentage retained in care (46.8% vs. 52.6%), and the percentage virally suppressed (67.6% vs. 68.5%) (Figure 73).

Between 2010 to 2021, the number of deaths among those 50+ years of age remains substantially lower than those less than 50 years of age. In 2021, there were 32 deaths in the under-50 age group and 10 deaths in the 50 and older age group (Figure 74).

Table 4: People ages 50 and older with new HIV diagnosis by demographic and transmission characteristics, County of Santa Clara, 2010–2022

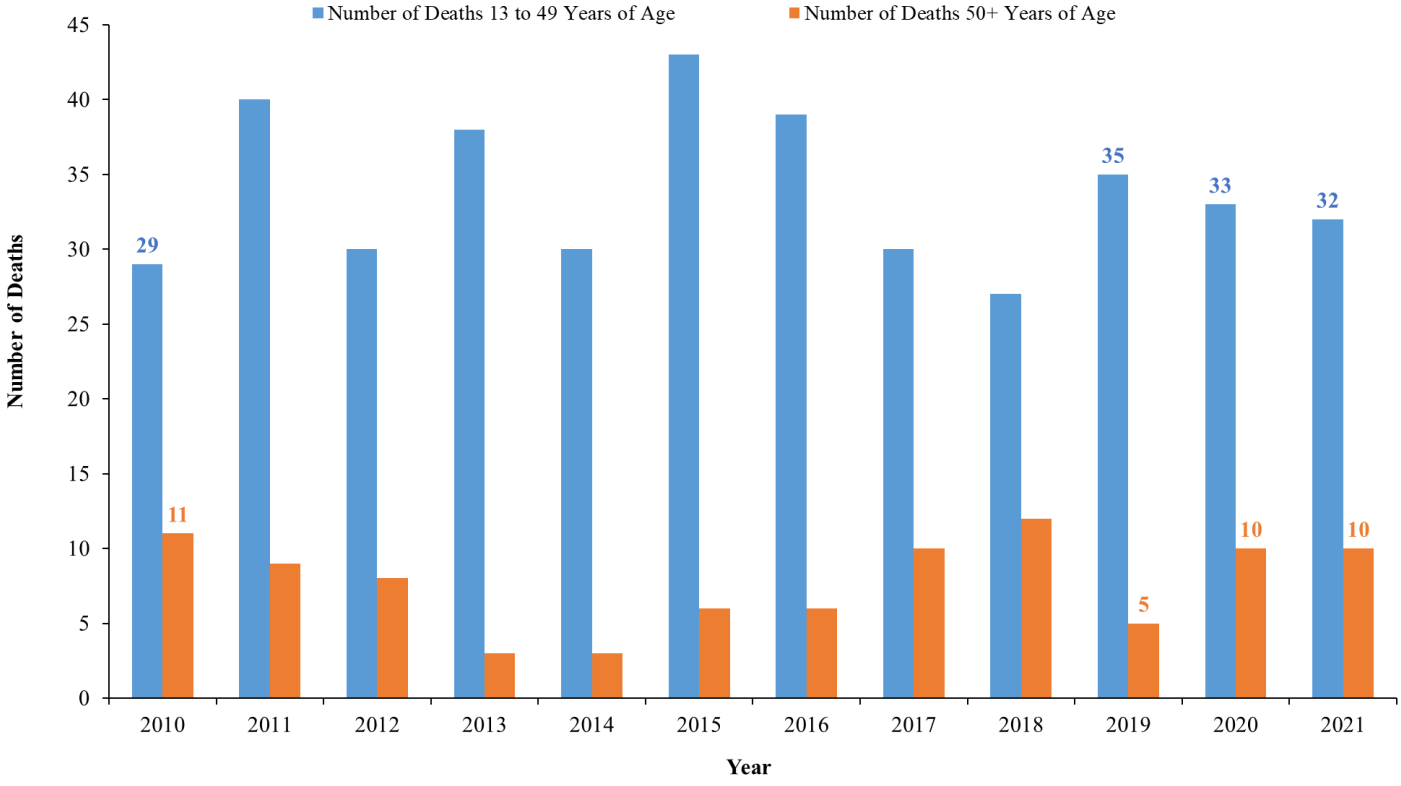
Demographic Characteristic	Group	N	Percent (%)
Gender	Female	55	18.3
	Male	244	81.1
	Transgender / Other / Unknown	2	0.7
Race/Ethnicity	African American/Black	23	7.6
	Asian/Pacific Islander	45	15.0
	Hispanic/Latinx	90	29.9
	White	127	42.2
	Other/Unknown	16	5.3
Transmission Category	MSM	129	42.9
	IDU	19	6.3
	MSM & IDU	11	3.7
	Heterosexual contact	26	8.6
	Other/Unknown	116	38.5
Overall	**Total**	**301**	**100**

Figure 73: HIV continuum of care, by age group, County of Santa Clara, 2022



^ People who were diagnosed with HIV through 2021 and alive in 2022, and who had at least 1 documented CD4 or viral load test in 2022.
† People who were diagnosed with HIV through 2021 and alive in 2022, and who had at least 2 documented CD4 or viral load test in 2022, at least 3 months apart.
‡ People who were diagnosed with HIV through 2021 and alive in 2022, with most recent HIV viral load in 2022 less than 200 copies/ml.

Figure 74: Number of deaths among PLWH, by age group, County of Santa Clara 2010 – 2021



HIV among People Who Inject Drugs

Among all PLWH in the County of Santa Clara in 2022, 355 had a history of IDU, 85% of which were males. Overall, the majority of IDU cases were Hispanic/Latinx (42%) or white (39%), followed by African American/Black (10%) and Asian/Pacific Islander (5%) (Figure 75). Viral load suppression among PLWH who reported IDU varied by race/ethnicity and sex but was higher among Hispanic/Latinx residents compared to white. The percentages for African American/Black and Asian/Pacific Islander groups were suppressed due to small counts (Figure 76).

A time trend analysis was conducted to track changes in the number and proportion of HIV cases associated with injection drug use (both IDU only and MSM & IDU) in the County of Santa Clara (Figure 77). Before 1995, 18% of HIV cases were among people who injected drugs, which significantly decreased to 15% for the period from 1995-2005 and to 9% for period after 2005 until 2022 ($p < 0.0001$). The county established the Needle Exchange Program (NEX) in 1994, which was the state's fourth such program at the time. The program has now expanded beyond syringe exchange and has been renamed the Harm Reduction Program (HRP). The significant reduction in the percentage of HIV cases associated with injection drug use in the County of Santa Clara may demonstrate the effectiveness of the HRP over the past 25 years in successful reduction of HIV transmission via sharing of needles and other injection equipment.

Figure 75: Injection drug use among people living with HIV, by race/ethnicity, County of Santa Clara, 2022

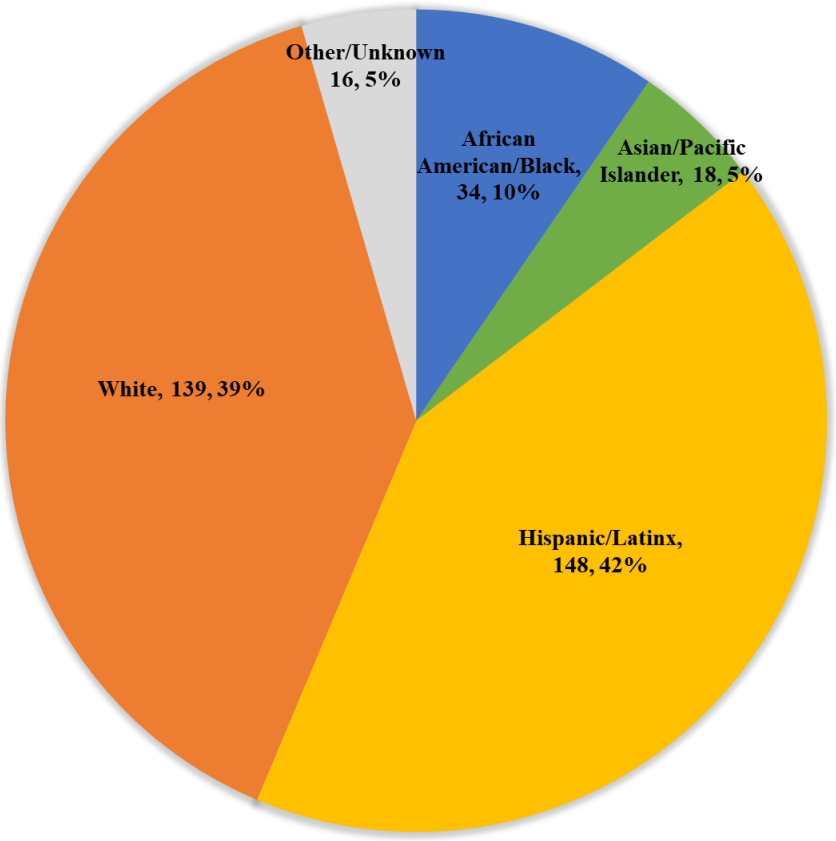
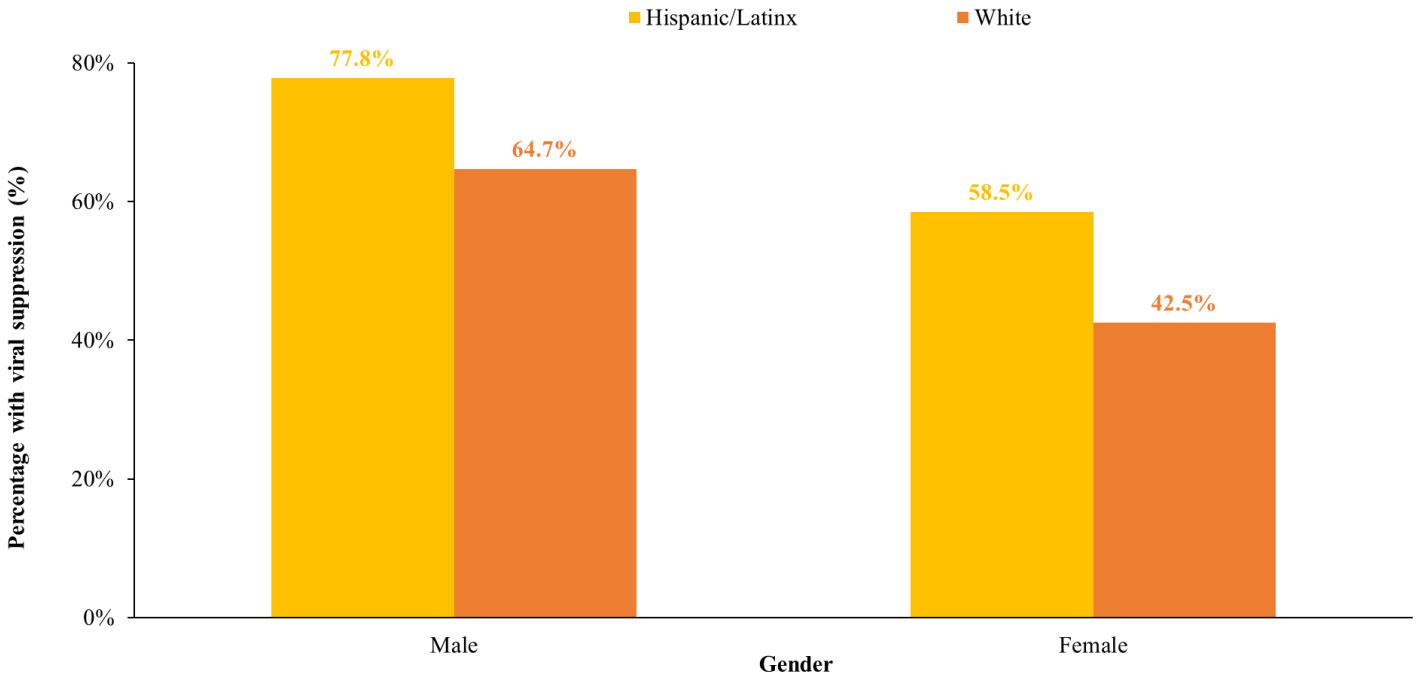
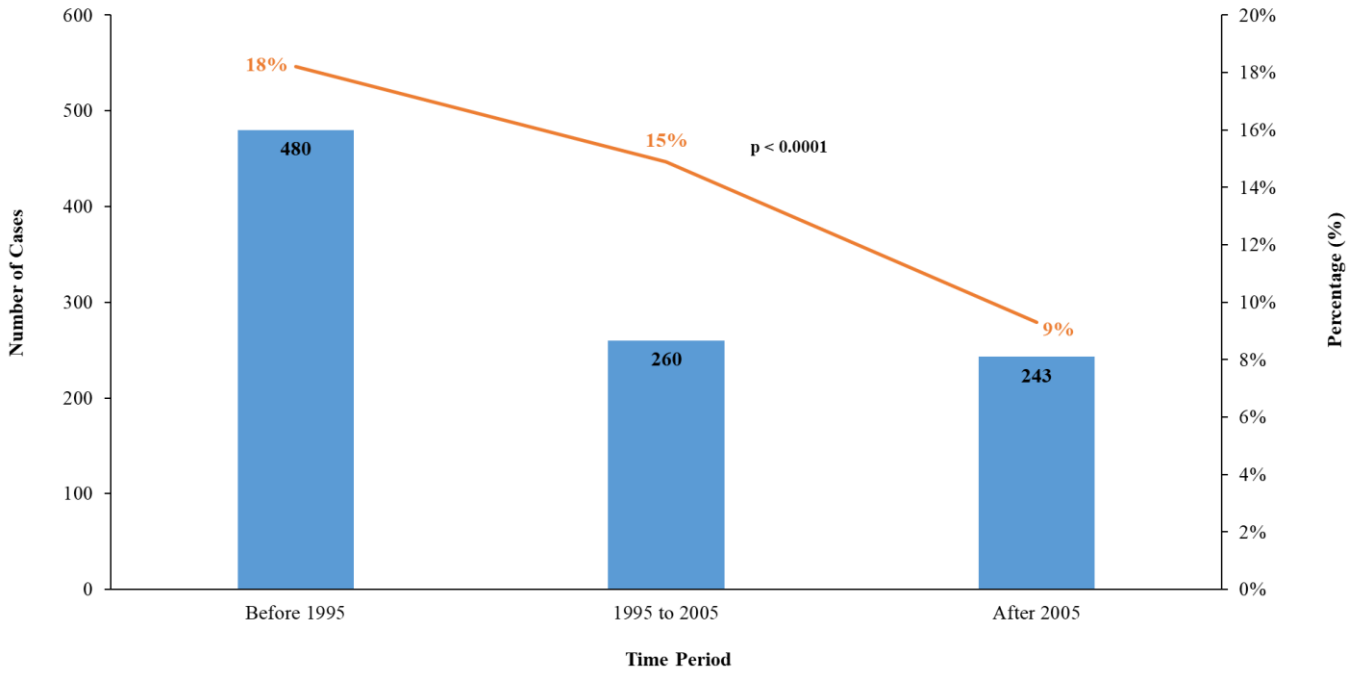


Figure 76: Viral suppression among people living with HIV* who reported IDU, by gender** and race/ethnicity§, County of Santa Clara, 2022



*People who were diagnosed with HIV through 2020 and alive in 2021, with most recent HIV viral load in 2021 less than 200 copies/ml.
**Gender variable name and categories are limited by how the California Department of Public Health is able to collect sexual orientation and gender identity (SOGI) data; Rates among transgender populations are not available due to small populations and undefined population denominators.
§ for African American/Black and Asian/Pacific Islander residents were suppressed due to small counts. See technical notes for more information.

Figure 77: HIV diagnoses associated with Injection Drug Use (IDU only and MSM & IDU) before 1995, 1995 –2005, and after 2005, County of Santa Clara



HIV Acquired Through Heterosexual Contact

In 2022, 9% of PLWH in Santa Clara County acquired HIV through heterosexual contact. African American/Black individuals had the highest reported rate at 20%, followed by Asian/Pacific Islander residents (10%), Hispanic/Latinx (8%), and white residents (6%). Among females, Hispanic/Latinx (46%) and white individuals (54%) had higher rates of heterosexual transmission than African American/Black (40%) and Asian/Pacific Islander females (40%). However, African American/Black and Asian/Pacific Islander females likely had higher rates due to cases with an unknown mode of transmission. Among those with heterosexual transmission, the highest percentage of late diagnoses were among Asian/Pacific Islander residents (61%) and Hispanic/Latinx (35%), while data was suppressed for African American/Black residents due to small counts. (Figures 78 and 79).

Figure 78: Percentage overall and women living with HIV associated with heterosexual transmission, by race/ethnicity, County of Santa Clara, 2022

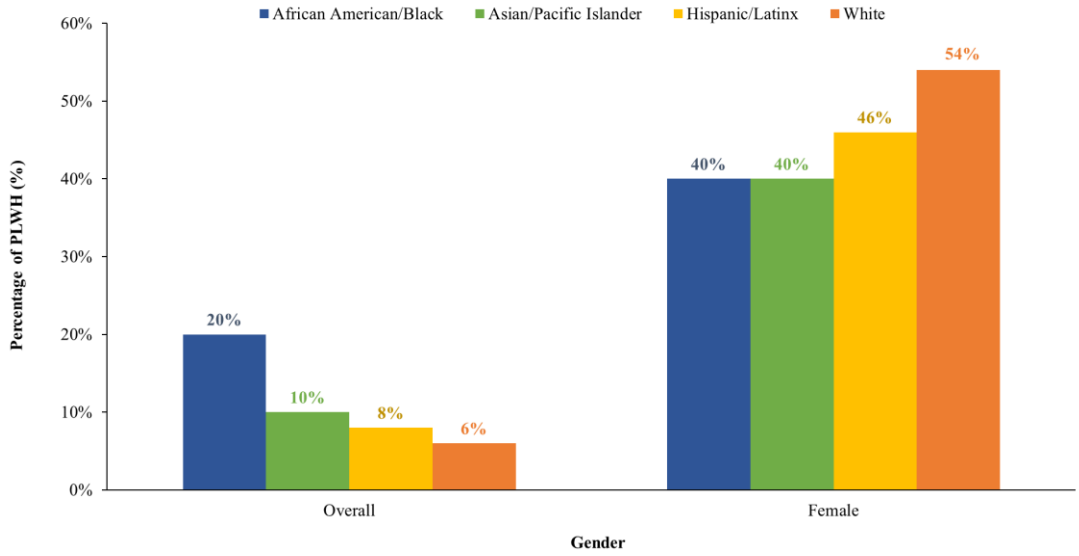
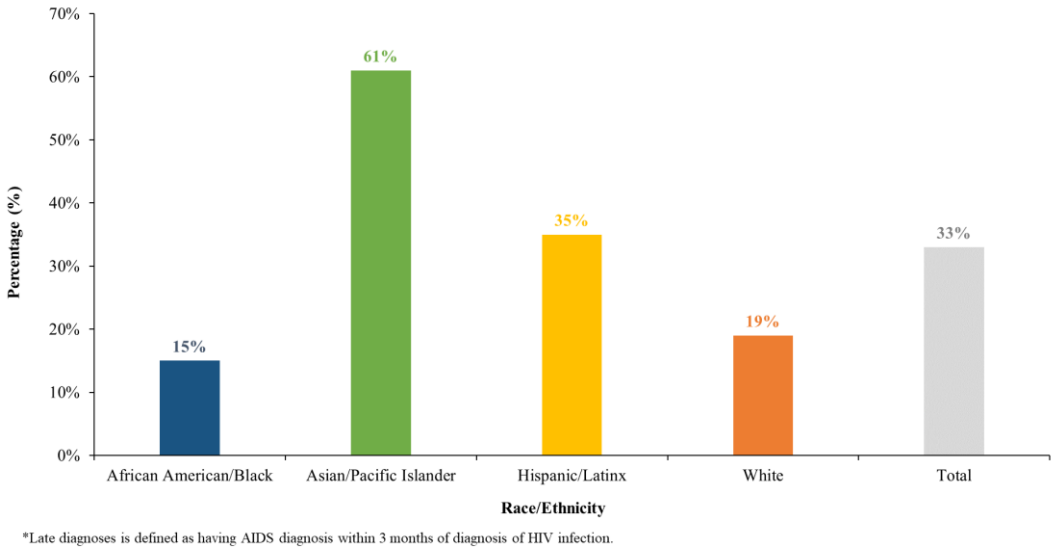


Figure 79: Percentage of people with late diagnoses* among HIV cases associated with heterosexual transmission, by race/ethnicity, County of Santa Clara, 2010 – 2021



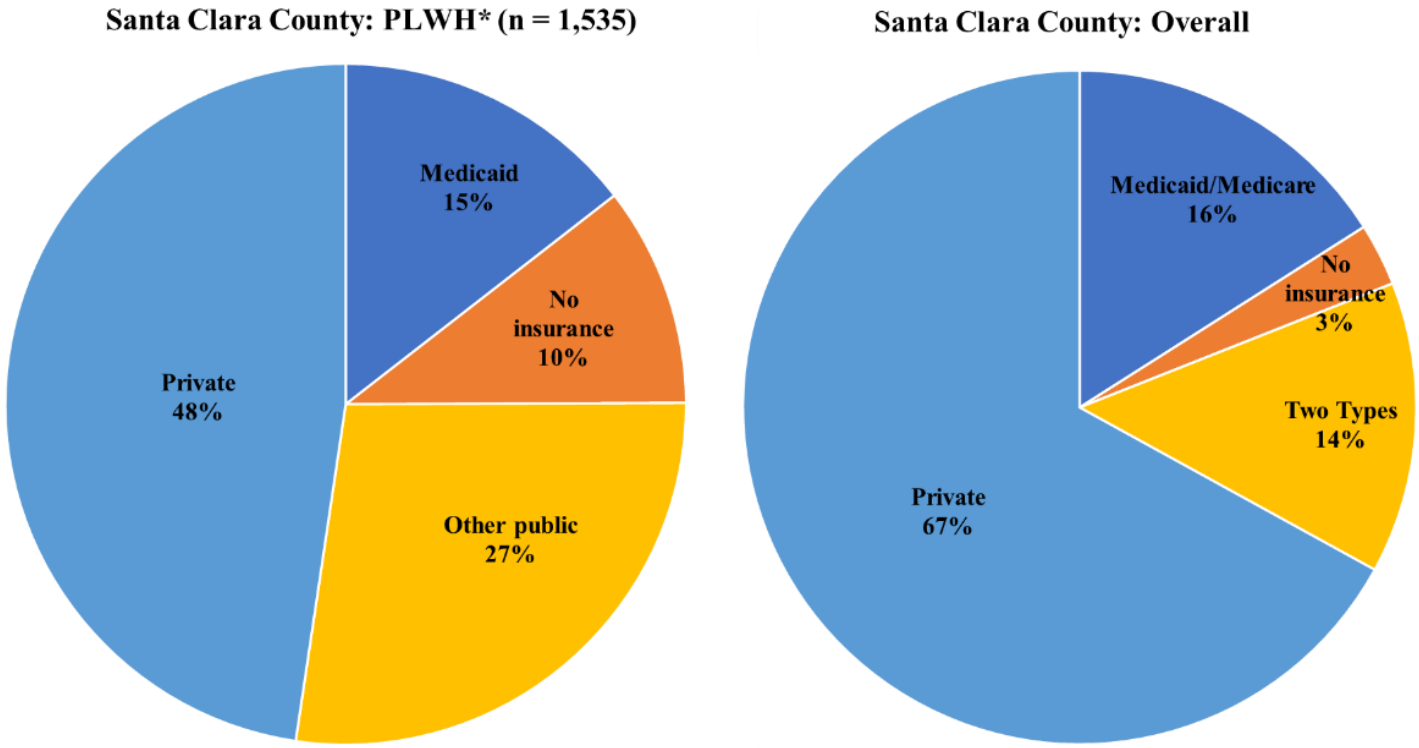
*Late diagnoses is defined as having AIDS diagnosis within 3 months of diagnosis of HIV infection.

Health Insurance Status at HIV Diagnosis

Among the 1,915 people diagnosed with HIV in Santa Clara County from 2010 to 2022, 80% provided information about their health insurance status at the time of diagnosis. Of these, 48% had private insurance, 15% had Medicaid, and 27% had other public insurance. No cases reported Medicare coverage. Approximately 10% had no insurance at the time of diagnosis (Figure 80). In the county as a whole, 67% had private insurance, 16% had Medicaid or Medicare, and 3% had no insurance.

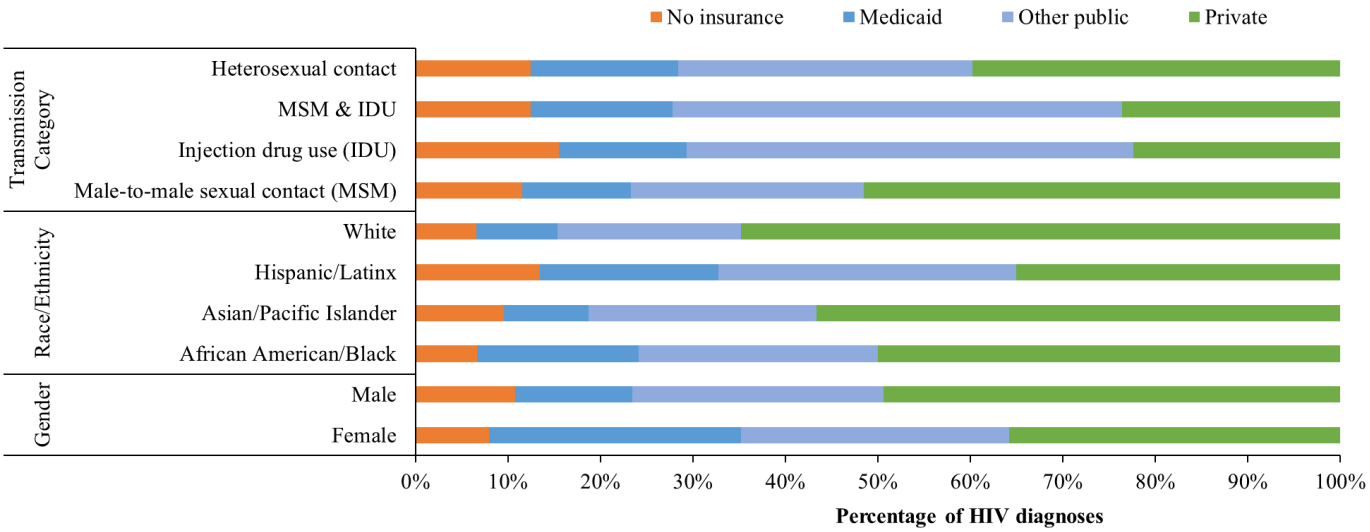
Figure 81 shows people who use injection drugs (14%), male (10%), and Hispanic/Latinx (13%) were three subgroups most likely to lack insurance coverage at the time of HIV diagnosis. Females (23%), Hispanic/Latinx (16%), and heterosexual (16%) reported the highest percentage of Medicaid. Males (43%), white (59%), and MSM (45%) groups reported the highest percentages of private insurance coverage, whereas transgender (21%), injection drug users (18%), and Hispanic/Latinx (30%) groups reported the lowest percentages.

Figure 80: Health insurance status among PLWH* at the time of HIV diagnosis and among the overall population, County of Santa Clara, 2010 – 2022



*People Living with HIV

Figure 81: Health insurance at the time of HIV diagnosis, by demographic and transmission characteristics, County of Santa Clara, 2010 – 2022



Country of Origin

Overall, 94% of 7,040 people who were diagnosed with HIV in Santa Clara County provided valid information regarding their country of origin: including 4,783 US–born cases and 1,828 foreign–born cases. Compared to foreign–born cases, US–born HIV patients were more likely to be males (91% vs. 82%), white (58% vs. 7%), MSM (68% vs 58%), IDU (9% vs. 2%), and MSM & IDU (9% vs. 3%) cases. Meanwhile, compared to US-born cases, foreign born cases had higher proportions of females and transgender individuals, as well as reported heterosexual transmission. (Table 5).

Table 5: People diagnosed with HIV, by country of origin, gender, and transmission category, County of Santa Clara, 1983-2022

		U.S. Born	Foreign Born
Demographic Characteristic	**Group**	**N (Column %)**	**N (Column %)**
Gender	Female	426 (8.9)	306 (16.7)
	Male	4,344 (90.6)	1,491 (81.6)
	Transgender	23 (0.5)	31 (1.7)
Race/Ethnicity	African American/Black	476 (10.0)	170 (9.0)
	Asian/Pacific Islander	125 (2.6)	410 (22.4)
	Hispanic/Latinx	1,262 (26.4)	1,078 (59.0)
	White	2,770 (57.9)	121 (6.6)
	Other/Unknown	150 (3.1)	49 (2.7)
Transmission Category	MSM	3,234 (67.6)	1,063 (58.2)
	IDU	438 (9.2)	42 (2.3)
	MSM & IDU	417 (8.7)	51 (2.8)
	Heterosexual contact	291 (6.1)	263 (14.4)
	Other/Unknown	403 (8.4)	409 (21.9)
Overall	**Total**	**4,783 (100)**	**1,828 (100)**

C. Geographic Assessment of Social Conditions, HIV, & STIs

In 2022, a geographical assessment of social conditions was conducted among individuals living with HIV/AIDS and STIs, using California's Healthy Places Index (HPI). The HPI is a tool that maps data related to social factors influencing health, such as access to education, job opportunities, clean air and water, and other indicators linked to increased life expectancy at birth (for more details, please refer to the technical notes). The HPI plays a crucial role in supporting endeavors to prioritize fair community investments, guiding interventions, and care services, and much more.

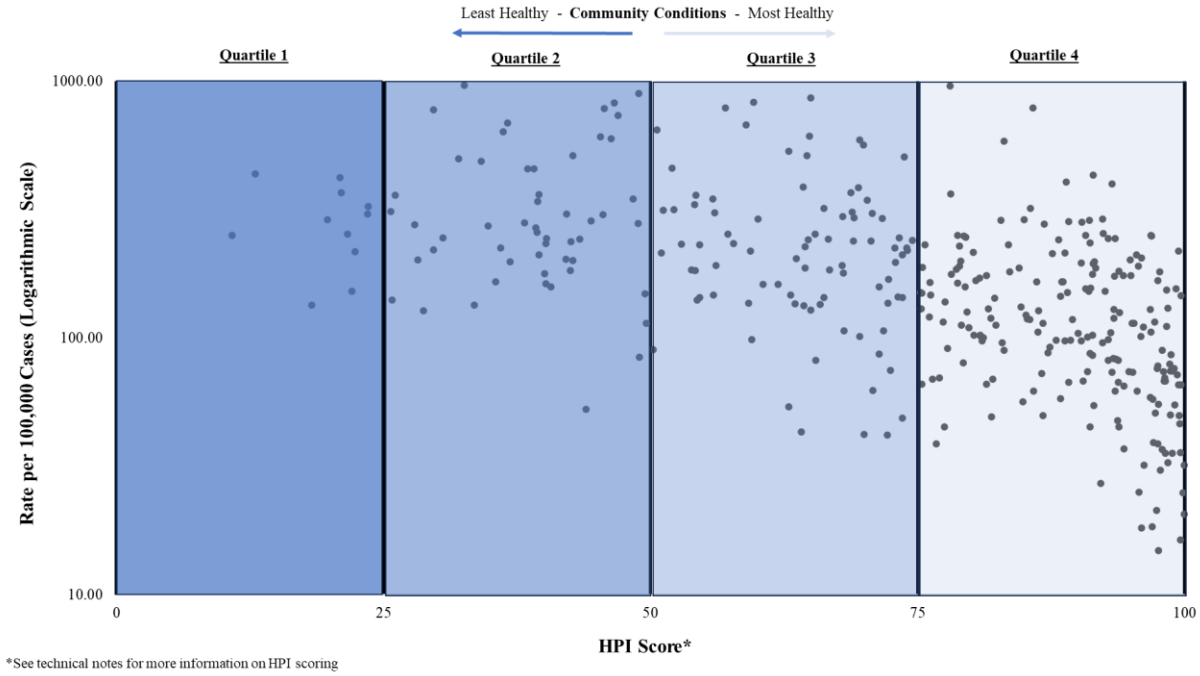
The HPI enables the categorization of every census tract in Santa Clara County into distinct quartiles, reflecting their relative health status from the least healthy (quartile 1) to the most healthy (quartile 4). Please refer to technical notes for more information regarding quartile categorization.

Table 6 and Figure 82 illustrate a clear trend with higher rates of People Living with HIV (PLWH) in the census tracts characterized as less healthy, while conversely, as the health of the census tract improves, the rate of PLWH decreases.

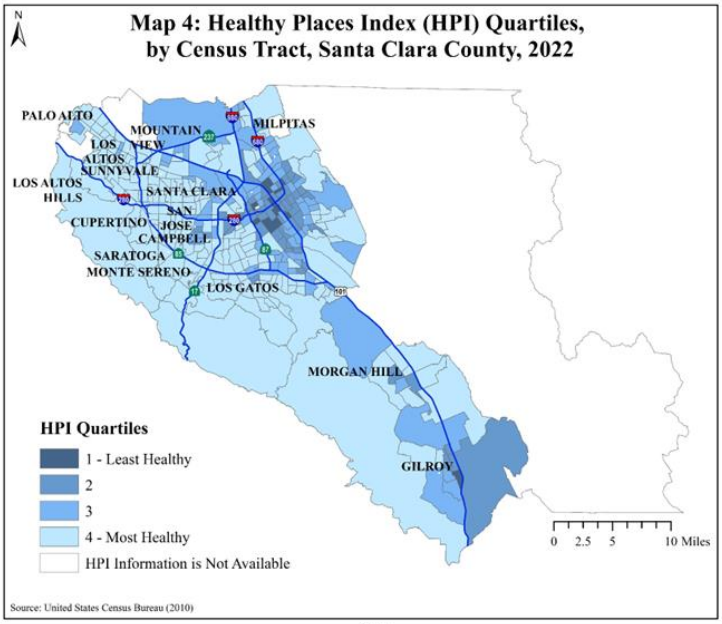
Table 6. Counts and Rates of People Living with HIV/AIDS (PLWH) by HPI Quartile (Census Tracts), Santa Clara County, 2022

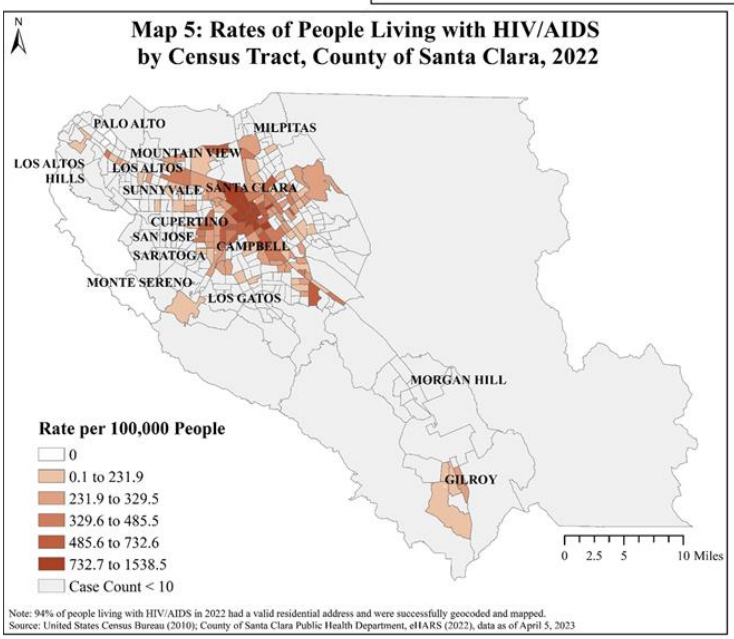
HPI Quartile	PLWH Count	Overall Population	PLWH Rate (95% CI)
Quartile 1	172	47,818	359.7 (307.9 – 417.7)
Quartile 2	945	273,435	345.6 (323.9 – 368.4)
Quartile 3	1099	429,811	255.7 (240.8 – 271.3)
Quartile 4	1323	1,019,370	129.8 (122.9 – 137)

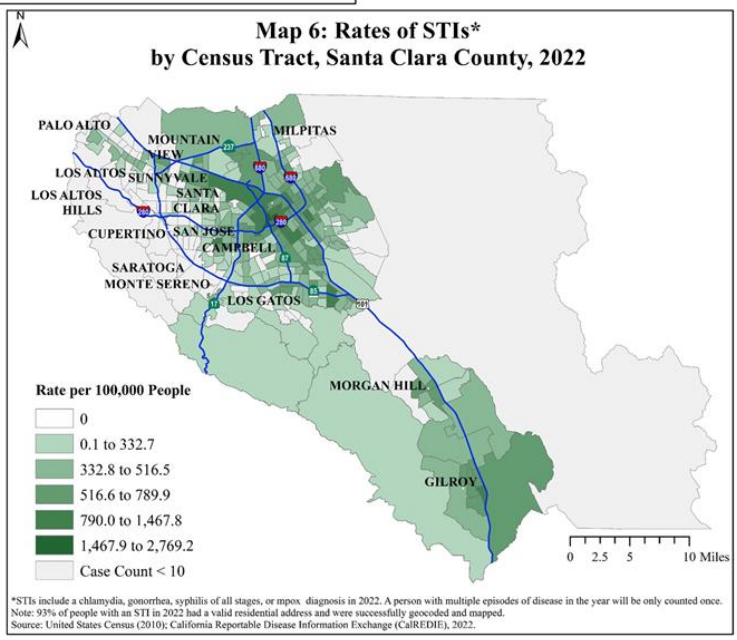
Figure 82: Rate of People Living with HIV/AIDS (PLWH) by HPI Quartile (Census Tracts), Santa Clara County, 2022



By utilizing the HPI, it became possible to make comparisons regarding the health and well-being of different communities, as well as the prevalence of individuals living with HIV/AIDS and STIs. The geographic analysis revealed that regions with high rates of individuals affected by HIV/AIDS and elevated STI incidence were predominantly concentrated within the least healthy census tracts. These areas included the north-central part of the county, encompassing Downtown San Jose, as well as the more rural southern region, which includes Gilroy (Maps 4-6).







VI. Data Sources

The Title 17 California Code of Regulations (CCR) Section 2500 requires health care providers to report all cases of reportable diseases and conditions, including HIV and STIs, to local health departments. Data from these reporting forms are further supplemented by additional investigations by internal communicable disease investigators. Reported and collected data are then used for statistics on mortality, morbidity, health behaviors, and health outcomes to help prevent the spread of disease and eventually aid our communities and leaders in developing effective public health policies and programs. In this report, rates are calculated as the number of cases within a specific population per 100,000 residents of that population annually, for which population denominators are necessary.

Data is sourced from the following:

- Santa Clara County
    - STI data (including chlamydia, gonorrhea, syphilis, and mpox):
        - California Reportable Disease Information Exchange (CalREDIE), which is a secure system that the California Department of Public Health has implemented for electronic disease reporting and surveillance. This report includes CalREDIE data from January 1, 2013, through December 31, 2022, and was retrieved on September 18, 2023.
    - HIV (and HCV comorbidity) data:
        - Enhanced HIV/AIDS Reporting System (eHARS), which is a CDC- developed browser-based application that assists health departments with reporting, data management, analysis, and transfer of data to the CDC. This report includes eHARS data from January 1, 2010, through December 31, 2022, and was retrieved on April 5, 2023.
    - Population denominator data
        - Tables and Figures
            - State of California Department of Finance, E-2. California County Population Estimates and Components of Change by Year - July 1, 2010 - 2022, January 2023.
            - State of California Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010 - 2060, Sacramento, California, July 2021.
        - Maps
            - U.S. Census Bureau, 2018 – 2022 American Community Survey (ACS) 5-year estimates. http://www.census.gov/acs.
            - Public Health Alliance of Southern California. (2021). Healthy Places Index (HPI) Version 2.0. https://map.healthyplacesindex.org/.

- California and the United States
    - STI
        - California Department of Public Health, STD Control Branch. (2022). 2021 STI Surveillance. https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/STD-Data.aspx.
        - Division of STD Prevention, National Center for HIV, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention. (2022). Sexually Transmitted Disease Surveillance 2021. https://www.cdc.gov/std/statistics/2021/default.htm.

- HIV
  - California Department of Public Health, Office of AIDS. (2023). California HIV Surveillance Report - 2021. https://www.cdph.ca.gov/Programs/CID/DOA/CDPH%20Document%20Library/California_HIV_Surveillance_Report2021_ADA.pdf
  - Centers for Disease Control and Prevention. (2023). Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2021. *HIV Surveillance Supplemental Report*, 2023; 28(No. 4). http://www.cdc.gov/hiv/library/reports/hiv-surveillance/html.
  - Centers for Disease Control and Prevention. (2023). *HIV Surveillance Report*, 2021; vol. 34. http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html.

VII. Technical Notes

Information regarding data from previous years:

The numbers presented in this document for prior years might not align with the totals in earlier reports as number may fluctuate upwards due to delayed reports and fluctuate downwards if duplicate entries are removed or cases are determined to fall outside our jurisdiction. Furthermore, changes in disease rates might result from updated denominator data.

Chlamydia, Gonorrhea, and Early Syphilis

Chlamydia and gonorrhea cases include those diagnosed with pelvic inflammatory disease (PID). Early syphilis refers to cases of primary, secondary, and early non-primary non-secondary syphilis, the most infectious forms of syphilis. Other forms of syphilis cases were excluded for the purposes of this report except for syphilis cases among pregnant women. The data are provisional and subject to change.

By the end of 2022, there remained 25 male syphilis cases within CalREDIE that had not been processed yet and were not included in this report.

HIV

Data may not represent HIV-infected residents who have not been tested or who were tested at a time when the infection could not be detected. Consistent with national reporting standards, individuals diagnosed with HIV infection include persons classified as stage 3 (AIDS).

Given the small number of HIV diagnoses among children under 13, most data presented in this report are for adults and adolescents ages 13 and older.

Data for recent years should be interpreted with caution due to reporting delay, particularly for 2022. Reporting delay occurs when HIV diagnoses or deaths are not reported to SCCPHD in a timely manner. Analysis of HIV deaths was restricted to those diagnosed through 2021 to allow at least 12 months for deaths to be reported to SCCPHD. For 3-year survival of AIDS cases, the analysis was limited to persons diagnosed with AIDS through 2019.

HIV/STI Coinfections

STI co-infections among PLWH were identified by matching, using unique combinations of name and date of birth, the list of PLWH who were known to be residents of the County of Santa Clara based on their current address and the list of newly reported STI cases in the County of Santa Clara in 2021. Only chlamydia, gonorrhea, syphilis, and mpox were included as STIs in this report. For our analysis, early syphilis cases include primary, secondary, and early non-primary non-secondary cases. Similarly, other syphilis cases include late syphilis or cases of unknown duration.

Gender Identity

SCCPHD collects information on gender identity for HIV and STI cases when it is available. The majority of transgender cases reported in the County are trans female (male-to-female). Due to the small number of reported trans male cases (female-to-male), data are combined with trans female cases to protect their confidentiality in

some instances. Our report likely underestimates the number of transgender persons affected by HIV or STIs because data on gender identity collected for case reporting is limited.

Data prior to 2017 lacks information distinguishing sex assigned at birth (based on genetics, hormones, and/or physical features) from gender identity. In this report, cases are classified as male, female, or transgender. However, this classification conflates the concepts of sex and gender while limiting the inclusion of the full spectrum of gender identity and sexual orientation. Therefore, data presented elsewhere in this report that describe a person by gender or sex (including the transmission category MSM) prior to 2017 overlooks the significant impact of HIV or STIs on transgender and non-binary populations.

Sex and Sexual Behavior

Data on sex and sexual behavior was collected from early syphilis cases during disease investigation and partner services interviews, and case patients were grouped into four categories: females, men who have sex with men (MSM) including those who have sex with men and partners of other genders, men who have sex exclusively with ciswomen (MSW), and men whose partners' gender is unknown or not reported (MSUnknown).

The analysis on HIV infection among MSM includes all cases of men who report sexual contact with male partners, including men who have sex with both men and people of other genders, as well as men who report both sex with male partners and injection drug use as risk factors for HIV acquisition (MSM & IDU).

Imputed Race/Ethnicity

Between 2013 and 2022, self-reported race/ethnicity information was missing or unknown for 35% of chlamydia cases and 28% of gonorrhea cases. There is a rising trend in the percent of individuals with unknown race and ethnicity in later years, and we are unable to identify which racial/ethnic group is most affected by the increased missingness. Due to these large proportions of missing race/ethnicity information for chlamydia and gonorrhea cases, cases with missing information were redistributed for these two diseases based on the proportions of the known race/ethnicity cases with consideration of age. This imputation was done using an existing algorithm from the California Department of Public Health STI Prevention and Control Branch. This algorithm is built upon a strong assumption that cases without race/ethnicity information have the same racial/ethnic distribution as the cases with complete information. Given that the accuracy of this assumption is hard to test, the data on case counts and rates of chlamydia and gonorrhea for racial/ethnic groups and associated sex and age groups must be interpreted with caution. Notably, race/ethnicity redistribution categories were limited to the following: African American/Black, Asian/Pacific Islander, Hispanic/Latinx, and White. They may not reflect the true disease distribution by race/ethnicity and may only be used for comparisons with the State and other jurisdictions within California that use the same adjustment technique.

Deaths and Survival Analysis

The Kaplan-Meier approach was employed to calculate the likelihood of survival beyond 3 years (36 months) for individuals whose infection had been categorized as stage 3 (AIDS). To ensure a window of at least 3 years from HIV diagnosis to a death occurring on or before December 31, 2022, the tables included data only from individuals diagnosed or classified as stage 3 (AIDS) between 2013 and 2019.

The analysis of HIV deaths was restricted to those diagnosed through 2021 to allow at least 12 months for deaths to be reported to SCCPHD. Age-adjusted mortality rates are calculated as the number of people

diagnosed with HIV (all disease stages), or HIV stage 3 (AIDS), who died each year divided by the number of total people in Santa Clara County. A standard population distribution was used to adjust death rates per 100,000 population. The age-adjusted rates are rates that would have existed if the age distribution of the designated population and the age distribution of the standard population were the same. Case-fatality rates are calculated as the number of people diagnosed with HIV (all disease stages), or HIV stage 3 (AIDS), who died each year divided by the number of total people living with HIV.

Data De-Identification and Sharing

The County of Santa Clara Public Health Department adheres to HIPAA regulations to protect patient rights and PHI. These guidelines apply to the release of de-identified data on residents' health, demographics, and geography. The goal is to ensure consistent reporting while safeguarding PHI and respecting patient rights. Therefore, data can be publicly released or published in aggregate/summary form, provided it adheres to the following (unless data is shown from multiple pooled years):

- County level: Counts must be 0 or ≥ 5
- Sub-county level: Counts must be 0 or ≥ 10

Additionally, rates based on counts < 12 will be suppressed due to potential unreliability and instability. These rates are susceptible to statistical volatility and may not accurately represent the true underlying trends or patterns in the data. When counts are low, minor fluctuations in the data can lead to significant changes in the calculated rates. This instability can make it challenging to draw reliable conclusions or make informed decisions based on the data.

Data Deduplication

To ensure accurate STI counts retrieved from CalREDIE, deduplication of chlamydia and gonorrhea cases was necessary. While CalREDIE automatically removes most duplicate cases, we implemented additional code for thorough deduplication due to potential system errors. However, as the state and other jurisdictions might not adopt our deduplication processes, external counts may vary due to differences in deduplication methods.

Geocoding

Geocoding was performed for HIV, chlamydia, and gonorrhea cases in 2022 and early syphilis cases pooled from 2018 to 2022. Cases with missing address or no residential address such as unhoused individuals, people incarcerated or in health centers/clinics were excluded. The denominators used for calculating the rates by geographic area were 2018-2022 American Community Survey (ACS) data. The resulting rates were broken up into quantiles.

Healthy Places Index (HPI)

The Healthy Places Index® is an initiative of the Public Health Alliance of Southern California, a collaborative effort involving the executive leadership of ten local health departments in Southern California, collectively representing over 60% of the state's population. The HPI tool assesses the relationship between 23 recognized indicators (see below table) influencing health and the life expectancy at birth across 8,000 California census tracts, with significant variations observed from one neighborhood to another. As a result of this analysis, it generates a score ranging from 1 to 99 for each census tract, reflecting cumulative community conditions, whose scores are ranked and categorized into four quartiles from the least- to the most healthy community conditions

(see below bullets). For more information, please view the Healthy Places Index Guidance and Technical Report sourced below.

- HPI Quartile Categories:
    - Quartile 1: The most disadvantaged or least healthy areas, often characterized by low income, limited access to healthcare, poor environmental conditions, and other factors that contribute to poor health outcomes.
    - Quartile 2: Areas that are moderately disadvantaged, with some health challenges but generally better off than Quartile 1. These areas may have slightly better access to resources and services.
    - Quartile 3: Areas that are moderately healthy, with fewer disadvantages and relatively better access to resources and services. People in these areas may experience better health outcomes than those in Quartiles 1 and 2.
    - Quartile 4: The most advantaged or healthiest areas, characterized by higher income, excellent access to healthcare, good environmental conditions, and other factors that contribute to good health.

Policy Action	Indicator
Economic	Percent of the population with an income exceeding 200% of federal poverty level
	Percentage of population aged 25-64 who are employed
	Per capita income
Education	Percentage of population over age 25 with a bachelor's education or higher
	Percentage of 15-17 year olds enrolled in school
	Percentage of 3 and 4 year olds enrolled in pre-school
Social	Percentage of registered voters voting in the 2020 general election
	Percent of the population responding to the 2020 census (short form)
Transportation	Percentage of households with access to an automobile
	Percentage of workers (16 years and older) commuting by walking, cycling, or transit (excluding working from home)
Healthcare Access	Percentage of adults aged 18 to 64 years currently insured
Neighborhood	Percentage of the population living within ½ -mile of a park, beach, or open space greater than 1 acre
	Population-weighted percentage of the census tract area with tree canopy
	Combined employment density for retail, entertainment, supermarkets, and educational uses (jobs/acre)
Housing	Percentage of occupied housing units occupied by property owners
	Percent of households with complete kitchen facilities and plumbing
	Percentage of low income homeowners paying more than 50% of income on housing
	Percentage of low income renter households paying more than 50% of income on housing
	Percentage of households with less or equal to 1 occupant per room
Clean Environment	Annual average spatial distribution of gridded diesel PM emissions from on-road and non-road sources 2016 (tons/year).
	CalEnviroScreen 4.0 drinking water contaminant index for selected contaminants
	Mean of summer months (May-October) of the daily maximum 8-hour ozone concentration (ppm), averaged over three years (2017 to 2019)
	Annual mean concentration of PM2.5 (µg/m3) over three years (2015 to 2017).

Sources: 1.) Maizlish, N. Healthy Places Index Guidance. Public Health Alliance of Southern California. June 2023. Access November 2, 2023. https://phasocal.org/wp-content/uploads/2023/06/PHA_HPI_Guidance_Report523_4.pdf; 2.) Bodenreider C, Damicis A, Delaney T, et al. Healthy Places Index (3.0): Technical Report. Los Angeles, CA: Public Health Alliance of Southern California; 2020. Accessed November 2, 2023. https://assets.website-files.com/613a633a3add5db901277f96/63320a9e98493bbdcc03d509_ HPI3TechnicalReport2022-09-20.pdf

VIII. Abbreviations

ACS: American Community Survey

AIDS: Acquired Immune Deficiency Syndrome

AVSS: Automated Vital Statistics System

CalREDIE: California Reportable Disease Information Exchange

CDC: Centers for Disease Control and Prevention

CHKS: California Healthy Kids Survey

COVID: Coronavirus Disease 2019

DGI: Disseminated Gonococcal Infection

eHARS: Enhanced HIV/AIDS Reporting System

GTZ: Getting to Zero

HCV: Hepatitis C Virus

HIV: Human Immunodeficiency Virus

HPI: Healthy Places Index®

IDU: Injection Drug Use

LGBTQ: Lesbian, Gay, Bisexual, Transgender, and Queer

MSM: Men Who Have Sex with Men

MSM & IDU: Men Who Have Sex with Men Who Also Use Injection Drugs

MSW: Men who Have Sex Exclusively with Women

MSUnknown: Men Whose Partners' Sex is Unknown or Not Reported

NEX: Needle Exchange Program

PID: Pelvic Inflammatory Disease

PLWH: People Living With HIV

PrEP: Pre-Exposure Prophylaxis

PEP: Post-Exposure Prophylaxis

SCCPHD: County of Santa Clara County Public Health Department

SDR: Screening, Diagnostic, and Referral

SHHRP: Sexual Health and Harm Reduction Program

STI: Sexually Transmitted Infections