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EXECUTIVE SUMMARY

In the County of Santa Clara, rates of chlamydia, gonorrhea, and syphilis diagnosis continued to rise in 2017, affecting nearly all populations although with persistent disparities by age, sex, and race/ethnicity.

Chlamydia cases rose among nearly all ages, sexes, and races/ethnicities, with females, youth ages 20 to 24, and African Americans most impacted.

Gonorrhea cases nearly quadrupled from 2010 to 2017, and rates rose among nearly all sexes, age groups, and races/ethnicities. Males, adults ages 20 to 34, and African Americans continue to be disproportionately impacted. African Americans diagnosed with gonorrhea tended to be younger than those of other races or ethnicities with gonorrhea, with the highest rates among African Americans ages 15 to 19. However, rates among African Americans ages 15 to 19 decreased from 2016 to 2017, while rates among all other racial/ethnic groups in the same age group increased, slightly lessening this marked disparity.

While the number and proportion of rectal and pharyngeal chlamydia and gonorrhea infections increased among men who have sex with men (MSM), these increases do not account for the overall rising rates of chlamydia and gonorrhea diagnoses across this subpopulation or the overall county population.

Cases of early syphilis more than tripled from 2010 to 2017. Males were more often diagnosed, but rates among females rose faster, with a 10–fold increase from 2010 to 2017. African Americans and Latinx males were disproportionately impacted compared to white and Asian/Pacific Islander males.

The rate of early syphilis among females of childbearing age increased more than three times from 2.9 cases per 100,000 people in 2015 to 9.5 cases in 2017. There were 7 cases of congenital syphilis in 2017, as many as were reported in the 6 years prior. Combatting the rising rate of this potentially debilitating or fatal complication of syphilis has become the top priority of the STD/HIV Prevention & Control Program over the past two years, requiring a coordinated and multifaceted response and collaboration across prenatal care, pediatrics, substance use treatment, and other health care sectors.

In addition to the above disparities by gender and sex, sexual orientation, and race and ethnicity, youth continued to be disproportionately impacted by STDs, especially gonorrhea and chlamydia, with the highest rates among adolescents ages 18 to 19, which were almost three times the rates among those ages 15 to 17.
The overall worsening syndemics of bacterial STDs and the persistent disparities have evolved in complex settings of ongoing stigma around STDs, inequitable access to health care and preventive measures, and changing social and sexual norms. The multifaceted nature of these urgent public health concerns and especially the devastating effects of congenital syphilis warrant increased resources, attention, and creative responses in order to turn the tide of disease that has continued to move in the wrong direction for approaching a decade.
I. Chlamydia

General Trend Over Time
Chlamydia was the most frequently reported sexually transmitted disease (STD) in the County of Santa Clara. In 2017, 7,639 cases were reported among residents in the County, which increased by nearly 60% from 4,856 cases in 2010. Chlamydia rates steadily increased over time from 271.3 cases per 100,000 people in 2010 to 392.7 cases in 2017 (Figure 1).

Overall, females had higher rates of chlamydia than males. In 2017, the rate among females was 477.5 cases per 100,000 people, 55% higher than the rate among males (308.3). From 2010 to 2017, chlamydia case rates increased among both females and males, with a more rapid increase among males (95% increase) than females (27% increase) (Figure 2). The increasing trends of chlamydia among both females and males were highly statistically significant.

Figure 1: Chlamydia case counts and rates, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Chlamydia and Age
Young adults ages 20 to 24 had the highest rate of chlamydia among all age groups, with a rate of 2008.2 cases per 100,000 people in 2017, which was 5 times the average rate among the total population (392.7) (Figure 3).

Gender–stratified age–specific rates among females reflected similar trends as the total population. Among females, the highest rate of chlamydia was among those ages 20 to 24 (Figure 4), which had a rate of 2898.3 cases per 100,000 people, more than 6 times the female average rate in 2017. Females ages 15 to 19 had the second highest rate of chlamydia. Females ages 25 to 29 had the most rapid increase in the rate of chlamydia among females younger than 30 years old, with a 77% increase in the rate over the years, compared with much slower increases among those ages 24 and under.

Figure 5 shows the rates of chlamydia among males in selected age groups from 2010 to 2017. Similar to the pattern among females, the highest rate of chlamydia among males was also among those ages 20 to 24, which had a rate of 1182.7 cases per 100,000 people in 2017, more than 3 times the male average rate in the same year. Males ages 25 to 29 had the second highest rate of chlamydia and also the most significant increase, with a rate that more than doubled between 2010 and 2017.
Figure 3: Chlamydia case rates by selected age group, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 4: Chlamydia case rates among females by selected age group, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Chlamydia and Race/Ethnicity

Due to large proportions of chlamydia cases reported with unknown race or ethnicity, the race/ethnicity information were imputed (see Technical Notes) to obtain estimated numbers and rates of chlamydia among each racial or ethnic group. These numbers were not absolute, and were intended to help describe the magnitude of the chlamydia epidemic in each subgroup as comparisons to each other and to the county average.

The disease burden of chlamydia varied dramatically by race/ethnicity. Overall, African Americans had the highest rate of chlamydia among all racial/ethnic groups, and Latinx had the second highest rate. Between 2010 and 2013, the rate of chlamydia among African Americans slowly declined, then remained relatively stable until 2017 when the estimated rate increased to 1117.3 cases per 100,000 people, which was close to the rate in 2010 (Figure 6). Substantially higher rate of chlamydia among African Americans than other racial/ethnic groups reflects the disproportionate impact of chlamydia on the relatively small African American population of the County of Santa Clara. The rates among Latinx have remained second highest and stable over the years, while the rates among whites and Asian/Pacific Islanders have been slowly increasing.
Figure 6: Chlamydia case rates by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

Gender–stratified trends suggested that African American and Latinx females had the highest rates of chlamydia among all racial/ethnic groups. The rates were 3 to 5 times higher than the rates among white and Asian/Pacific Islander females (Figure 7). African American males also had the highest rate of chlamydia, with a rate 3 to 9 times higher than the rate of chlamydia among males from other racial/ethnic groups in 2017 (Figure 8).

Figure 9 shows estimated race/ethnicity–specific rates in selected age groups from 2010 to 2017. 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 rates of chlamydia among the youngest age 15 to 19 group differed by race/ethnicity. Age 15 to 19 group ranked the second highest of all age groups among African Americans in 2017, whereas it ranked the third among whites and fourth among Asian/Pacific Islanders. Among Asian/Pacific Islanders, the estimated rate among those ages 25 to 29 had more rapid increase than other age groups, from 225.6 cases per 100,000 people in 2010 to 675.6 cases in 2017. A noticeable increase was found among whites from 2014 to 2017, especially among those ages 20 to 24 and those ages 25 to 29.

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions. Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 7: Chlamydia case rates among females by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 8: Chlamydia case rates among males by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
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 rectal chlamydia and pharyngeal chlamydia continued to increase (Figure 10). Among males with chlamydia, the percentage of rectal infection significantly increased from 3% in 2012 to 13% in 2017. Males were significantly more likely to be diagnosed with rectal chlamydia than females. In 2017, rectal infection accounted for 13% of male chlamydia cases, whereas less than 1% of female chlamydia cases were reported to be rectal infections (Data not shown). Figure 11 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 45 and older had the highest percentage of reported rectal infection.

Although in general pharyngeal chlamydia cases were fewer than rectal chlamydia cases, an increasing trend in the percentage of pharyngeal infection among male chlamydia cases was also observed, from 1% in 2012 to 4% in 2017 (Data not shown).

Figure 10: Number of cases and percentage of rectal/pharyngeal chlamydia, County of Santa Clara, 2012 – 2017

Figure 11: Percentage of rectal and pharyngeal chlamydia among males in selected age groups, County of Santa Clara, 2017

Chlamydia and Geographic Distribution

Geographic areas of County of Santa Clara with the highest rates of chlamydia by neighborhood were closest to the Downtown San Jose area (Downtown, and University neighborhoods) in the City of San Jose
(514.7 to 944.1 cases per 100,000 people). The higher rates in the downtown area may be due to a younger population and higher percentages of African American and Latinx residents residing in these areas compared to the County of Santa Clara as a whole\(^1\). Higher rates were also observed in Gilroy (North Central and East Side Neighborhoods). High rates in the East Unincorporated area should be interpreted with caution due to small population size in this area (Map 1).

### Map 1: Chlamydia Rates by Neighborhood, County of Santa Clara, 2017

![Map showing Chlamydia rates by neighborhood](map.png)

Note: 8.905 (0.5%) of people with chlamydia had valid residential address and were successfully geocoded.

II. Gonorrhea

#### General Trend Over Time
Gonorrhea was the second most frequently reported STD in the County of Santa Clara. In 2017, 2,460 cases of gonorrhea were reported among county residents, which was more than four times the number of cases in 2010. Gonorrhea rates among all county residents nearly quadrupled from 33.1 cases per 100,000 people in 2010 to 126.4 cases in 2017, with a 26% increase from 2016 to 2017 (Figure 12). Males were more likely to be diagnosed with the infection and had more than twice the rate compared to females (175.4 vs. 76.6) in 2017. Between 2010 and 2017, gonorrhea rates increased among both females and males, with a much

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\(^1\) 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/hd/Pages/san-jose.aspx](https://www.sccgov.org/sites/phd/hd/Pages/san-jose.aspx)
more rapid pace among males who had a more than 4 times increase in the rate of gonorrhea diagnosis, compared to the 2 times increase among females (Figure 13).

**Figure 12: Gonorrhea case counts and rates, County of Santa Clara, 2010 – 2017**

![Gonorrhea case counts and rates](image)

Source: Santa Clara County Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

**Figure 13: Gonorrhea case rates by sex, County of Santa Clara, 2010 – 2017**

![Gonorrhea case rates by sex](image)

Source: Santa Clara County Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

**Gonorrhea and Age**

Gonorrhea rates increased across all age groups and were the highest among people ages 25 to 29, which had at least 3 times the county average rate of 441.0 cases per 100,000 people in 2017, a four-fold increase.
from 2010 (86.0). People ages 20 to 24 had the second highest rate of reported gonorrhea, increasing by 164% from 142.3 cases per 100,000 people in 2010 to 375.5 cases in 2017 (Figure 14).

When stratified by sex, rates of gonorrhea over time increased steadily from 2010 to 2017 among all age groups for both females and males, particularly for those ages 20 to 29 (Figure 15 – 16). Males ages 20 to 34 had the highest rate of gonorrhea, with a rate 2 to 3 times the male average rate in 2017. An especially marked upsurge in gonorrhea rates was seen among males ages 25 to 29, among whom the rate increased more than six-fold from 94.6 cases per 100,000 people in 2010 to 597.5 cases in 2017. This increase in reported gonorrhea may be due to an increase in infections and/or a possible increase in screening for oral and rectal infections, especially among young MSM population. Among females in 2017, the highest gonorrhea rates were among those ages 20 to 24 (297.6) and those ages 25 to 29 (260.1).

**Figure 14: Gonorrhea case rates by selected age groups, County of Santa Clara, 2010 – 2017**

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 15: Gonorrhea case rates among males by selected age groups, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 16: Gonorrhea case rates among females by selected age groups, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Gonorrhea and Race/Ethnicity
Due to large proportions of gonorrhea cases reported with unknown race or ethnicity, the race/ethnicity information were imputed (see Technical Notes) to obtain estimated numbers and rates of gonorrhea among each racial or ethnic group. These numbers were not absolute, and were intended to help describe the magnitude of gonorrhea epidemic in each subgroup as comparisons to each other and to the County average.

African Americans had the highest rate of gonorrhea cases of all racial/ethnic groups (Figure 17). In 2017, the estimated rate among African Americans (523.0 cases per 100,000 people) was nearly 3 times the rate among Latinx, 5 times the rate among whites, and 10 times the rate among Asian/Pacific Islanders. The rates of gonorrhea cases increased over time among all racial/ethnic groups, with the rate among African Americans more than doubling, and the rates among whites and Latinx more than tripling since 2010.

Figure 17: Gonorrhea case rates by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

African American females were most likely to experience gonorrhea among all females of racial/ethnic groups, followed by Latinx females (Figure 18). In 2017, the estimated rate of gonorrhea among African American females was 3 times the female average rate, and was nearly twice the rate among Latinx females, 5 times the rate among white females, and nearly 10 times the rate among Asian/Pacific Islander females. Similarly, African American males had a higher estimated rate of gonorrhea than other racial/ethnic groups. In 2017, African American males had a rate that was 4 times the male average rate, and 3 times the rate among Latinx males, 5 times the rate among white males, and 10 times the rate among Asian/Pacific Islander males (Figure 19).

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 18: Gonorrhea case rates among females by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 19: Gonorrhea case rates among males by imputed race/ethnicity*, County of Santa Clara, 2010 – 2017

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 20 shows race/ethnicity–specific rates in selected age groups from 2010 to 2017. Generally, young adults ages 20 to 24 were more likely to have gonorrhea than other age groups, and this feature was consistently observed across all racial/ethnic groups. However, among whites, Asian/Pacific Islanders, and Latinx, those ages 25 to 29 tended to surpass those ages 20 to 24 and had the highest rates of gonorrhea across all age groups in 2017. The rates of gonorrhea among the youngest age 15 to 19 group differed by race/ethnicity. A unique pattern was observed among African Americans—between 2016 and 2017, the rates of gonorrhea among all African Americans ages 15 to 19 slightly declined, whereas the rates among other racial/ethnic groups in the same age groups actually increased during the same time period. From 2016 to 2017, the rates in age 30 to 34 group increased sharply among whites, Asian/Pacific Islanders, and African Americans.

**Figure 20: Gonorrhea case rates by race/ethnicity* by selected age group, County of Santa Clara, 2010 – 2017**

* Due to large proportions of missing race/ethnicity information, unknown race/ethnicity cases were redistributed based on the proportions of the known race/ethnicity cases with consideration of age. Rates and counts based on imputed race/ethnicity need to be interpreted with precautions. Source: County of Santa Clara Public Health Department, CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

**Gonorrhea and Rectal/Pharyngeal Infections**

In 2017, 243 rectal gonorrhea and 266 pharyngeal gonorrhea were reported, and a vast majority (over 97%) were male cases. The percentage of rectal infection and pharyngeal infection has been increasing over time, with the highest percentage of 14% and 12%, respectively, in 2017, four-fold the lowest percentage in 2013 (Figure 21). Among males diagnosed with gonorrhea, 18% were rectal gonorrhea and 19% were pharyngeal gonorrhea as reported in 2017 (Figure 22). The highest percentage of rectal gonorrhea was reported among males ages 35 to 44, and males ages 30 to 34 had the highest percentage of pharyngeal gonorrhea.
Figure 21: Number of cases and percentage of rectal/pharyngeal gonorrhea, County of Santa Clara, 2012 – 2017

Source: County of Santa Clara Public Health Department, CalREDIE (2012-2017), data are provisional as of April 15, 2018

Figure 22: Percentage of rectal and pharyngeal gonorrhea among males by selected age group, County of Santa Clara, 2017

Source: County of Santa Clara Public Health Department, CalREDIE (2017), data are provisional as of April 15, 2018
Gonorrhea and Geographic Distribution
Geographic areas of County of Santa Clara with the highest rates of gonorrhea by neighborhood were closest to the Downtown San Jose, San Jose North Side and University neighborhoods area in the City of San Jose (144.0 to 393.4 cases per 100,000 people). Rates may be highest in this area due to a younger population and a higher percentage of African American and Latinx residents residing in these areas compared to the County overall. Higher rates of gonorrhea were also reported in Coyote Valley neighborhood and Gilroy (South Central and East Side neighborhoods) area in southern County. High rates in the East Unincorporated area should be interpreted with caution due to small population size in this area (Map 2).

III. Early Syphilis
General Trend Over Time
Early syphilis refers to primary, secondary, or early latent syphilis in this report. Although generally early syphilis was less frequently reported than chlamydia and gonorrhea, there has been an increasing trend in diagnosis of early syphilis over time. In 2017, 410 residents of County of Santa Clara were diagnosed with early syphilis with a rate of 21.1 cases per 100,000 people. From 2010 to 2017, the number and rate of early syphilis increased.

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2 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/hd/Pages/san-jose.aspx
syphilis cases more than tripled (Figure 23) with a dramatic 57% increase in the number of early syphilis cases between 2015 and 2016 and then a slower 16% increase from 2016 to 2017.

Males were more likely to be affected by early syphilis. In 2017, the rate of early syphilis among males was nearly 8 times the rate among females (Figure 24). Overall, the rates of early syphilis increased for both males and females, with a three-fold increase among males, and 10 times increase among females. Compared to 2015, the rate in 2016 among females was more than doubled (1.4 cases per 100,000 people vs. 3.8 cases) and the rate among males was nearly 50% higher (22.0 vs. 32.6), both of which contributed to the overall increase of early syphilis between 2015 and 2016.

**Figure 23: Early syphilis case counts and rates, County of Santa Clara, 2010 – 2017**

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Overall, young adults ages 20 to 29 were most likely to have early syphilis compared to other age groups. In 2017, adults ages 25 to 29 had a rate of 75.7 cases per 100,000 people, which was over 3 times the county average rate, while adults ages 20 to 24 had a rate (51.3) that was more than 2 times the county average rate (Figure 25). From 2010 to 2015, the rates of early syphilis among age 20 to 24 group and age 25 to 29 group increased simultaneously following the same pattern. However, since 2016, the rate among those ages 25 to 29 increased out of proportion to other age groups, driven by the three-fold increase in the rate among females ages 25 to 29 from 2016 to 2017 (Data not shown). Among male early syphilis cases, those ages 25 to 29 and 20 to 24 had the highest rates in 2017, increasing by 45% to 55% compared to rates in 2016. Males ages 45 and older and males ages 15 to 19 were less likely to report early syphilis than other age groups (Figure 26).

**Early Syphilis and Age**
Figure 25: Early syphilis case rates by selected age group, County of Santa Clara, 2010 – 2017

Figure 26: Early syphilis rates among males by selected age group, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Early Syphilis by Sex and Gender of Sex Partners

Sex, gender, and gender of sex partner information 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), men who have sex exclusively with women (MSW), and men who have sex with partners of unknown sex or gender (MSUnknown). Figure 27 shows that majority of early syphilis cases were among MSM, which greatly impacted on the overall trend of the total number of cases over time. While the total number of early syphilis cases increased by 57% from 2015 to 2016, the number of cases among females nearly tripled from 13 cases to 36 cases. Between 2016 and 2017, the number of cases among MSUnknown more than doubled, although the number of MSM with early syphilis decreased by about 30%. This change occurred during a shift in disease investigation practice to interview fewer male cases in order to prioritize female cases at risk for syphilis in pregnancy.

Figure 27: Number of early syphilis cases by sex and gender of sex partners, County of Santa Clara, 2010 – 2017

![Number of early syphilis cases by sex and gender of sex partners, County of Santa Clara, 2010 – 2017](image)

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018.

Early Syphilis and Race/ethnicity

Rates of early syphilis differed by race/ethnicity, with African Americans most likely to be diagnosed with early syphilis, followed by Latinx. In 2017, the rate among African Americans (57.5 cases per 100,000 people) was more than double the county average rate (21.1), and it was 80% higher than the rate among Latinx (31.9), 3 times higher than the rate among whites (15.5), and 7 times higher than the rate among Asian/Pacific Islanders (7.4) (Figure 28).
African American males had the highest rate of early syphilis among all males of racial/ethnic groups (Figure 29). In 2017, the rate of early syphilis cases among African American males was nearly 3 times the male average rate, and nearly 2 times the rate among Latinx males, 5 times higher than the rate among white males, and 7 times higher than the rate among Asian/Pacific Islander males. Generally, the rates of early syphilis among females were much lower than the rates among males across all racial/ethnic groups (Figure 30). Since 2012, the rates among Latinx females began to rise but tended to be stable between 2013 and 2015, followed by a rapid increase since 2015. This was similar for white females. Rates of early syphilis among African American females and Asian and Pacific Islander females were not reportable due to small sample size.

In 2017, when stratified by age, people ages 20 to 24 and ages 25 to 29 generally were more likely to have early syphilis, however, rates among African Americans differed less across age groups than was seen in other racial/ethnic groups. Youth ages 15 to 19 had the lowest rates among all racial/ethnic groups except among African Americans. Between 2015 and 2017, a rapid increase was observed among African American and white youth ages 15 to 19 (Figure 31).
Figure 29: Early syphilis rates among males by race/ethnicity, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 30: Early syphilis rates among females by race/ethnicity*, County of Santa Clara, 2010 – 2017

*Rates of early syphilis among African American females and Asian and Pacific Islander females were not reportable due to small sample size (n<12).

Source: Santa Clara County Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Congenital Syphilis and Pregnant Syphilis Patients

In 2017, 7 congenital syphilis cases were reported in the County of Santa Clara, which was significantly higher than previous years for which only 1 or 2 cases were reported during most years (Figure 31). Three out of the 7 (43%) congenital syphilis cases were born to mothers who were diagnosed with late latent syphilis during pregnancy, while the other 4 cases were born to mothers who were diagnosed with early syphilis (1 case at primary stage; 1 case at secondary stage; and 2 cases at early latent stage), and only two women had documented symptoms consistent with syphilis. During the same time, there was also a significant increase in the incidence of syphilis cases, including both early syphilis and late latent syphilis, among females of childbearing age between 15 and 44 years, with 24.2 cases per 100,000 females of childbearing age in 2017, about 6 times the rate in 2013 (4.2).

Five of the mothers of congenital syphilis cases were white, and two were Latinx. Upon review of electronic and paper medical records made available to the Public Health Department, it was found that five of the women had at least one documented prenatal care visit, with total prenatal care visits prior to delivery ranging from 0 to 7. Six of the women were unstably housed and four were incarcerated during their pregnancy. Four of the women had contact with the emergency department during their pregnancy, and three accessed emergency psychiatry resources. Coexisting mental health diagnoses were identified in five

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
women, and current or past substance abuse documented for all seven, with methamphetamine being the most frequent drug used. Four women initiated syphilis treatment during pregnancy. However, three of these women did not complete treatment more than 28 days prior to delivery, and the other successfully completed treatment but was re-infected later in her pregnancy, all leading to either inadequate treatment at delivery or treatment history with persistent risk for congenital syphilis. The maternal cases resulted in one stillbirth and six infants treated for probable congenital syphilis, with three of the live infants demonstrating physical findings consistent with congenital syphilis. Barriers to diagnosis and treatment included delay in collection of ordered prenatal labs drawn, refusal of treatment due to fear of needles, and a health center not stocking benzathine penicillin G.

In 2017, 18 out of 92 (20%) female syphilis cases (including both early syphilis and late latent syphilis) of child-bear age (15 – 44 years) who had valid information of their pregnancy status were pregnant at the time of syphilis diagnosis (Figure 33). During 2013 – 2017, overall 49 female syphilis cases of child-bearing age were pregnant at the time of syphilis diagnosis and majority of them (82%) were at late latent stage of syphilis (Figure 34).

Figure 32: Number of congenital syphilis cases and syphilis* rates among females ages 15 – 44 years, County of Santa Clara, 2013 – 2017

*Syphilis includes both early syphilis (primary, secondary, and early latent syphilis) and late latent syphilis.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 33: Number of pregnant syphilis* cases and percentage of pregnant women with syphilis* among all female syphilis^ case patients at child–bearing age (15–44 years), County of Santa Clara, 2013 – 2017

![Chart showing the number of pregnant syphilis cases and percentage of pregnant women with syphilis among all female syphilis case patients at child–bearing age (15–44 years), 2013–2017.]

* Syphilis includes both early syphilis (primary, secondary, and early latent syphilis) and late latent syphilis.
Source: County of Santa Clara Public Health Department, CalREDIE (2013-2017), data are provisional as of April 15, 2018.

Figure 34: Stages of syphilis of pregnant syphilis^ case patients, County of Santa Clara, 2013 – 2017

![Chart showing the stages of syphilis among pregnant syphilis case patients, 2013–2017.]

^ Syphilis includes both early syphilis (primary, secondary, and early latent syphilis) and late latent syphilis.
Source: County of Santa Clara Public Health Department, CalREDIE (2013-2017), data are provisional as of April 15, 2018.

Early Syphilis and Substance Use

Literatures suggest that drug use is associated with sexual behaviors that may raise the risk of syphilis infections. Thus, for those who were diagnosed with syphilis, a follow–up interview was conducted to collect more information regarding their syphilis–related risk factors, including substance use status. Methamphetamine, marijuana, and injection drug use (IDU) were the most commonly-reported patterns.

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of substance use among early syphilis patients who completed the follow-up interviews (Table 1 and Figure 35), whereas the reported usage of crack and heroin was relatively rare. Figure 35 shows that, over time, the percentage of marijuana, cocaine, and other substance use (including ecstasy, erectile dysfunction drugs, poppers and any other drugs) among early syphilis cases peaked in 2015, while the percentage of heroin, methamphetamine, and IDU continued to rise through 2017. Recent US national data suggested that the percentage of early syphilis cases who reported methamphetamine use, IDU, or heroin use within the past 12 months more than doubled among women and MSW from 2013 to 2017, but relatively stable among MSM population during the same time period.

Table 1: Number and percentage* of early syphilis cases who reported substance use, County of Santa Clara, 2010 – 2017^

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<td>130</td>
<td>151</td>
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<td>241</td>
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<tr>
<td>Percentage</td>
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<td>410</td>
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</tbody>
</table>

**Notes:**
*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.
^
Data for Marijuana and IDU are not available before 2013;
§Other drugs include ecstasy, erectile dysfunction drugs, poppers, and any other drugs.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018.
Figure 35: Percentage of early syphilis cases who reported substance use*, County of Santa Clara, 2010 – 2017

* Data for Marijuana and IDU are not available before 2013; other drugs include ecstasy, erectile dysfunction drugs, poppers and any other drugs. Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018.

Early Syphilis and Geographic Distribution

Geographic areas of County of Santa Clara with the highest five-year average rates of early syphilis by neighborhood were closest to the Downtown San Jose area (Downtown, North Side, and University neighborhoods) in the City of San Jose. Higher rates were also observed in Gilroy (South Central and East Side Neighborhoods), Santa Clara (West Central and East Central neighborhoods), Milpitas (North Central and Southeastern neighborhoods), and Sunnyvale (Lakewood neighborhood). High rates in the East Unincorporated area should be interpreted with caution due to small population size in this area (Map 3).
IV. STD among Youth

**Children and Adolescents Ages 14 and Under**

Chlamydia was the most commonly reported STD among children and adolescents ages 14 and under, and in 2017 there were 26 chlamydia case patients in this age group (Figure 36). The rates of chlamydia in this group increased from 9.7 cases per 100,000 people in 2010 to 11.3 cases in 2011 and then gradually decreased to 7.0 cases in 2017. Diagnoses of gonorrhea and early syphilis among age 14 and under group were very rare and rates were not reportable due to small sample size. However, of note, 9 gonorrhea incidences were reported in 2016 and 2017, respectively, whereas there was only 1 case was reported in 2010. A closer monitoring of gonorrhea diagnosis in this age group is needed. Early syphilis was reported among 2 adolescents ages 14 and under from 2010 to 2017.
Figure 36: STD case counts and rates* among children and adolescents ages 14 and under, County of Santa Clara, 2010 – 2017

Adolescents Ages 15 to 19
Adolescents ages 15 to 19 were more likely to be diagnosed with chlamydia than other STDs. The rates of chlamydia among this age group increased slightly from 974.4 cases per 100,000 people in 2010 to 1103.9 cases in 2017 (Figure 37). There was a noticeable rate bump during 2010 and 2012, which was mainly driven by the increase of diagnosis among males of this age group. A nearly 20% increase in the number of cases was observed from 2016 to 2017 for both males and females. Generally, chlamydia rates among females were significantly higher than the rates among males. In 2017, the rate among females (1739.5) was more than 3 times the rate among males (498.1) (Figure 38).

African American adolescents ages 15 to 19 had the highest estimated rate of chlamydia (3760.4 cases per 100,000 people) across all racial/ethnic groups in 2017, followed by Latinx adolescents (1543.0) (Figure 39). Between 2010 and 2012, the rate of chlamydia among African American adolescents rapidly declined by 52%, then remained stable until 2016, while a 30% increase occurred between 2016 and 2017. The trend of chlamydia among Asian/Pacific Islander and Latinx adolescents did not statistically change over time, however, the rate of chlamydia among white adolescents significantly increased by 57% from 502.6 cases per 100,000 people in 2010 to 789.0 cases in 2017.
Figure 37: Chlamydia case counts and rates among adolescents ages 15–19, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 38: Chlamydia case counts and rates among adolescents ages 15–19, by sex, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
The overall rates of gonorrhea among adolescents ages 15 to 19 had significantly increased from 89.3 cases per 100,000 people in 2010 to 156.0 cases in 2017 and both of the number of cases and rates were almost doubled (Figure 40). Generally, female adolescents were more likely to be diagnosed with gonorrhea than male adolescents, which may be attributed to the screening recommendations for gonorrhea in females under age 25, while the trends of gonorrhea over time also differed by sex. The rates among males nearly tripled from 49.9 cases per 100,000 people in 2010 to 141.9 cases in 2017, whereas the rates among females rose more moderately from 2010 (130.1) to 2017 (170.8) with no statistical significance to the trend (Figure 41).

In 2017, African American adolescents had the highest estimated rate (534.5 cases per 100,000 people) of gonorrhea across all racial/ethnic groups, and the rate was nearly 2.5 times the rate among Latinx, 5 times the rate among whites, and 10 times the rate among Asian/Pacific Islanders. From 2010 to 2017, the rates of gonorrhea among Latinx adolescents gradually but significantly increased from 149.2 to 223.1. No significant change was observed among whites. Trends among African American and Asian/Pacific Islander adolescents were not examined due to small sample sizes in certain years (Figure 42).
Figure 40: Gonorrhea case counts and rates among adolescents ages 15 – 19, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 41: Gonorrhea case counts and rates among adolescents ages 15–19, by sex, County of Santa Clara, 2010 – 2017

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Early syphilis was relatively rare among adolescents ages 15 to 19 in the county, however, the number of early syphilis diagnosis more than tripled from 5 case patients in 2010 to 19 in 2017 (Figure 43). From 2015 to 2017, the number of case patients increased rapidly – doubling from 2015 to 2016 and then showing a 58% increase from 2016 to 2017. In 2017, the rate of early syphilis among adolescents ages 15 to 19 was 15.4 cases per 100,000 people. Due to small sample sizes, rates in certain years were not calculated and trends were not examined.

Among adolescents ages 15 to 19, males were more likely to be diagnosed with early syphilis than females. Among 62 total early syphilis diagnoses among this age group from 2010 to 2017, over three-quarters (77%) occurred among male adolescents. From 2016 to 2017, diagnoses among female adolescents doubled from 3 cases to 6 cases, meanwhile male cases increased from 9 cases to 13 cases (Figure 44).
Figure 43: Early syphilis* case counts and rates among adolescents ages 15–19, County of Santa Clara, 2010 – 2017

![Graph showing early syphilis case counts and rates among adolescents ages 15–19, County of Santa Clara, 2010–2017.]

*Early syphilis cases include primary, secondary, and early latent syphilis.
Notes: Rates for 2010 to 2015 are not reportable due to small sample sizes (n<12).
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

Figure 44: Early syphilis* case counts among adolescents ages 15 – 19, by sex, County of Santa Clara, 2010 – 2017

![Graph showing early syphilis case counts among adolescents ages 15–19, by sex, County of Santa Clara, 2010–2017.]

*Early syphilis cases include primary, secondary, and early latent syphilis.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018.

Age 15 to 17 vs. Age 18 to 19
Because adolescents of varying ages could experience different risks for STD, adolescents ages 15 to 19 were further examined by splitting into two sub-groups: 15 to 17 and 18 to 19. Figure 45 – 46 suggest that the rates of both chlamydia and gonorrhea among adolescents ages 18 to 19 were almost three times the rates among those ages 15 to 17. From 2016 to 2017, rates of chlamydia among those ages 18 to 19 increased by 27% from 1459.8 cases per 100,000 people to 1854.1. However, no increase was found among
those ages 15 to 17 during the same time period. The rates of gonorrhea have increased over time, especially since 2014, with an observed fluctuating pattern for both those ages 15 to 17 and those 18 to 19, although the increase among the 18 to 19 age group from 2016 to 2017 was more dramatic than the increase among age 15 to 17 group (42% vs. 22%). A dramatic 3-fold increase of the number of early syphilis diagnosis among adolescents ages 18 to 19 was also reported from 2016 (7 cases) to 2017 (20 cases) (Figure 47).

**Figure 45: Chlamydia case counts and rates among adolescents ages 15–17 and ages 18–19, County Of Santa Clara, 2010 – 2017**

![Chlamydia case counts and rates among adolescents ages 15–17 and ages 18–19, County Of Santa Clara, 2010 – 2017](image1)

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.

**Figure 46: Gonorrhea case counts and rates among adolescent ages 15–17 and ages 18–19, County of Santa Clara, 2010 – 2017**

![Gonorrhea case counts and rates among adolescent ages 15–17 and ages 18–19, County of Santa Clara, 2010 – 2017](image2)

Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity and Age, 2010-2060, Sacramento, California, January 2018.
Figure 47: Early syphilis* case counts among adolescents ages 15–17 and ages 18–19, County of Santa Clara, 2010 – 2017

*Early syphilis cases include primary, secondary, and early latent syphilis.
Source: County of Santa Clara Public Health Department, AVSS (2010-2011), CalREDIE (2011-2017), data are provisional as of April 15, 2018.

**High Risk Sexual Behaviors and Condom Use**

During 2015–2016, among 1,578 high school students in the County of Santa Clara⁵ who reported that they had sexual intercourse during the past 3 months, 33% of them reported having multiple sexual partners (Figure 48). Boys were about 2.5 times more likely to report having multiple sexual partners than girls. Half of African American students reported having multiple sexual partners, which was the highest among all racial/ethnic groups.

Among all 2,243 sexually active high school students surveyed, only about half (54%) of them reported that they had used a condom during last time sexual intercourse (Figure 49). The percentage of condom use among boys was slightly higher than the percentage among girls (56% vs 51%), although the difference was not statistically significant. The percentage of condom use varied by race/ethnicity but did not differ significantly.

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Figure 48: Percentage of having multiple sexual partners during the past 3 months among sexually active high school students, County of Santa Clara, 2015 – 2016

![Chart showing percentage of multiple sexual partners by gender and race/ethnicity.]


Figure 49: Percentage of reported condom use during last time sexual intercourse among sexually active high school students, County of Santa Clara, 2015 – 2016

![Chart showing percentage of condom use by gender and race/ethnicity.]

Availability of Condoms in Retail Stores

In 2016, a statewide store observation survey\(^6\) collected information about the community retail environment, including the availability of condoms in retail stores as an indicator of STD prevention opportunity in the region. In 2016, 78% of retail stores in the County of Santa Clara sold condoms, about 3% lower than the state average (Figure 50). The survey also measured the percentage of stores with condoms on the shelf and unlocked, which is an important standard for easy access to condoms so that young people don’t need to confront the barrier of asking a clerk for help to unlock condoms or get condoms from behind the counter. Approximately 54% of retail stores in the County had condoms unlocked on a shelf, which was about 17% higher than the state average, suggesting relatively easier access to condoms for adolescents and young adults in the County, although still with significant barriers to condom access at most locations.

Figure 50: Availability of condoms in retail stores, County of Santa Clara and California statewide, 2016.

![Figure 50: Availability of condoms in retail stores, County of Santa Clara and California statewide, 2016.](image)


\(^6\) California Healthy Store for a Healthy Community (HSHC) survey is a store observation survey, which is developed by California Tobacco Control Program, collecting information about community retail environment. More details could be found here: http://healthystoreshealthycommunity.com/wp-content/uploads/2017/03/2016-Technical-Report-Final.pdf
V. Technical Notes

This report includes cases reported to the statewide infectious disease surveillance systems, Automated Vital Statistics System (January 1, 2010 to June 30, 2011) and California Reportable Disease Information Exchange (CalREDIE, July 1, 2011 to December 31, 2017), reported by April 15, 2018. Chlamydia and gonorrhea cases include those diagnosed with pelvic inflammatory disease (PID). Early syphilis refers to cases of primary, secondary, and early latent 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.

2015–2016 California Healthy Kids Survey (CHKS) high school data were used to examine high risk sexual behaviors and condom use among adolescents. CHKS is a statewide student survey of resiliency, protective factors, risk behaviors, and school climate. More information about CHKS can be found at https://calschls.org.

2016 California Healthy Store for a Healthy Community (HSHC) survey data were used to describe the availability of condoms in retail stores. HSHC is a store observation survey, which is developed by California Tobacco Control Program to collect information about community retail environment. More information can be found at http://healthystoreshealthycommunity.com/wp-content/uploads/2017/03/2016-Technical-Report-Final.pdf

Rates per 100,000 people were calculated for the numbers of reported chlamydia, gonorrhea, and early syphilis cases with specific to age, sex, and race/ethnicity. The population denominators used to compute these rates were based on the State and County population projections files for 2010 to 2060 developed by State of California, Department of Finance in January 2018. Rates of early syphilis cases among MSM and transgender people were not provided due to lack of reliable population estimates of these two groups.

Due to large proportions of missing race/ethnicity information for chlamydia and gonorrhea cases, unknown race/ethnicity cases 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 STD Prevention and Control Branch. This algorithm is built upon a strong assumption that case patients without race/ethnicity information have the same distribution of race/ethnicity as the case patients that have the 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 genders and age groups must be interpreted cautiously. They may not reflect the true disease epidemic in each racial/ethnic subgroup and may only be used for comparisons with the State and other jurisdictions within California that use the same adjustment technique. The reflectiveness of early syphilis cases by gender of sex partners must also be interpreted with caution, because approximately 20% to 30% of the cases from 2010 to 2017 had no information.

Geocoding was performed for chlamydia and gonorrhea cases in 2017 and early syphilis cases from 2013 – 2017. Cases with missing address or no residential address such as homeless individuals, people incarcerated or in health centers/clinics were excluded. Overall, 6,905 (91%) chlamydia cases, 2,167 (88%)
gonorrhea cases, and 1,245 (90%) early syphilis cases were able to be geocoded. The denominators used for calculating the rates by geographic area were 2010 U.S. Census Data from the U.S. Census Bureau. The resulting rates were broken up into quantiles. Neighborhoods boundaries and names were defined using the same methodology as the Santa Clara County Public Health Department Neighborhood Profiles.
VI. Abbreviations

AVSS: Automated Vital Statistics System
CalREDIE: California Reportable Disease Information Exchange
CDC: Centers for Disease Control and Prevention
CHKs: California Healthy Kids Survey
HIV: Human Immunodeficiency Virus
HSHC: California Healthy Store for a Healthy Community
MSF: male who have sex with female
MSM: male who have sex with male
MSUnknown: male who have sex with unknown partners
PID: pelvic inflammatory disease
STD: Sexually Transmitted Diseases