2020 Sexually Transmitted Infections Annual Report

July 2022

COLORADO
Department of Public Health & Environment

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Colorado 2020 Sexually Transmitted Infections Annual Report

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Statement on Structural Inequity

The Colorado Department of Public Health and Environment acknowledges that generations-long social, economic and environmental inequities result in adverse health outcomes. They affect communities differently and have a greater influence on health outcomes than either individual choices or one's ability to access health care. Reducing health inequities through policies, practices and organizational systems can help improve opportunities for all Coloradans.

CDPHE aspires to present data humbly, recognizing statistics and numbers never tell the complete story. The goal is to work collaboratively with individuals and communities to learn and share their stories to build a collective understanding. Knowing that people have different lived experiences and have inequitable opportunities to achieve optimal health, we commit to pair data and stories to inform programs and systems change to improve health for all (Adapted from the Denver Public Health, Health Equity Data Commitment and Principles).

Executive Summary

The 2020 Sexually Transmitted Infection Annual Report is descriptive and its purpose is to present the data in multiple ways for use by local public health agencies, healthcare professionals, non-profit organizations and the public. It is intended to be a resource to aid in prevention planning, funding applications, reports, and presentations. It presents statistics and trends for reportable sexually transmitted infections (STIs) in Colorado. These include chlamydia, gonorrhea and syphilis. STIs are one of the most commonly reported conditions in Colorado and are among the world's most common diseases. In 2020, 37,599 cases of chlamydia (26,136), gonorrhea (9,686) and syphilis of all stages (1,777) were newly reported in Colorado. This year has seen the highest reported cases of gonorrhea and syphilis in Colorado, with a slight decrease in chlamydia cases reported. These trends mirror increases at the national level. For more information on national STI trends, please reference the CDC 2020 STD Surveillance Report.

This report describes trends in reportable STIs in Colorado by person, place, and time. STI surveillance data are used to detect outbreaks, prioritize resources, develop and tailor interventions, and evaluate the effectiveness of interventions. Some of the reasons for preventing and controlling STIs include high rates of complications and adverse health outcomes. STIs also can facilitate the transmission of HIV and are closely related to other comorbidities such as substance use and mental illness. STIs can also serve as a marker to identify health-related inequities that exist in Colorado communities.

Chlamydia

In 2020, Colorado reported 451.9 cases of chlamydia per 100,000, a 13.1% decrease from 2019 and a 2.3% decrease from 2016. The majority of chlamydia cases are among women, 63.4%, and 67.5% of cases among women were between 15 and 24 years of age in 2020.

Gonorrhea

For gonorrhea in 2020, there were 167.5 cases per 100,000, a 0.34% increase from 2019 and a 55.0% increase from 2016. Males represent a higher proportion of gonorrhea cases (59.4%) when compared to females, and 59.4% of all cases were among those 20-34 years of age.

Syphilis

There were 30.7 cases of syphilis (all stages) per 100,000 in 2020, a 22.9% increase from 2019 and a 129.6% increase from 2016. Males accounted for 81.6% of cases. However, the proportion of women diagnosed with syphilis has been increasing the past several years (8.2% in 2016 to 18.4% in 2020).

Data Sources and Methods

Under Colorado law updated in May 2017, health care providers and laboratories must report all diagnosed cases of chlamydia and gonorrhea to the Colorado Department of Public Health and Environment (CDPHE) within four days and all syphilis cases within one workday.[1] These case reports are entered into the statewide STI reporting database. Case reports entered into this database are the primary data source for

[1] CDPHE, DCEED, Colorado Revised Statutes § 6 CCR 1009-1, Rules and Regulations Pertaining to Epidemic and Communicable Disease Control (Promulgated by The State Board of Health). https://www.colorado.gov/pacific/cdphe/regulations-adopted-board-health-division. Effective May 2017.

diagnosed cases of STIs in Colorado. Chlamydia, gonorrhea and syphilis cases most often require laboratory confirmation; all laboratories submit STI reports to CDPHE, and all major laboratories report STIs electronically via secure data networks.

Colorado's STI reporting system, Patient Reporting Investigating Surveillance Manager (PRISM), is an event-based relational database. This system allows for electronic disease reporting for the vast majority of reports and helps to reduce reporting delays due to a small minority of reporting still using a paper-based process. This has led to an improvement in the speed of partner management and treatment activities. Case information is updated as provider reports are received and interviews with patients are completed. Additionally, STI related reports are now geocoded, providing assurance that cases are attributed to the right jurisdiction for official reporting purposes and allowing for more accurate calculation of rates at a geographic level.

The National Electronic Telecommunications System for Surveillance (NETSS)[2] is a mechanism for state and local health jurisdictions to transmit surveillance data weekly and the finalized year-end data to the Centers for Disease Control and Prevention (CDC). This year-end data is the primary source of the official STI numbers in this report.

Rates of reported cases in this report were calculated based on cases diagnosed in the calendar year per 100,000 persons. The 2020 disease rates for all Colorado counties are calculated by dividing the number of cases diagnosed for that county in 2020 by the 2020 total population for each county estimated by the Colorado State Demography Office and multiplying by 100,000. Race/ethnicity categories are in line with the U.S. Census Bureau.

Age and sex-specific rates of reported cases are presented in this report. The counts presented are summations of all valid data reported in the 2020 reporting year. Rates based on a small number of cases are often statistically unreliable especially for counties with small populations or where rates are calculated for age, sex or race/ethnicity with small cell sizes.

Guidelines for Accurate Use of Data

The following guidelines are provided to ensure an accurate understanding of the use, interpretation and limitations of the data presented in this report. These guidelines can help prevent data misuse and increase understanding of the accuracy and correct use of the STI data. These guidelines may be considered when reviewing data from any source.

1. Data in this report are primarily reported for new cases of STIs diagnosed in 2020. They are not for unique persons diagnosed with disease, e.g. a person may have more than one occurrence of disease in a single year.
2. Data in this report are based on cases reported to the STI/HIV Surveillance, Data, and Analytics Program, Division of Disease Control and Environmental Epidemiology. These data represent occurrences of disease among persons seeking and receiving care for STIs.
3. Small changes in numbers from year to year can appear dramatic if the actual number of cases is small. For example, if two cases of gonorrhea are counted in a county in one year and three cases are counted the next year, this is an increase of 50%. While this may sound significant, a change of

[2] https://wwwn.cdc.gov/nndss/netss.html

one case does not represent a meaningful increase in the burden of disease. Although disease rates were calculated for counties reporting fewer than five cases, rates based on low case counts are considered statistically unreliable. Caution is recommended in interpreting trends or comparing across counties.

4. Data are presented for all reported cases and are known not to be 100% complete. Factors that impact the completeness and accuracy of STI data include:
    a. Level of STI screening by health care providers
    b. Individual test-seeking behavior (awareness of illness often depends on whether an individual is symptomatic or not)
    c. Sensitivity of diagnostic tests
    d. Compliance with case reporting
    e. Completeness of case reporting
    f. Timeliness of case reporting
    g. COVID-19 related delays in supply shortages or reporting
5. Increases and decreases in STI rates can be due to actual changes in disease occurrence and/or changes in one or more of the above factors.
6. CDPHE does not maintain statistics for other, non-reportable STIs, e.g. herpes, HPV, genital warts, but does maintain statistics for HIV and Hepatitis C, which are reported separately and not included here.
7. Early syphilis comprises of primary and secondary syphilis, which is symptomatic, and non-primary, non-secondary latent[3] syphilis, which is asymptomatic. Syphilis infectivity varies based on its presentation; while primary and secondary syphilis is considered to be highly infective, non-primary, non-secondary latent syphilis is not. For this reason, public health programming may base interventions and evaluation methods on primary and secondary syphilis infection rate alone. That said, given the morbidity of both primary and secondary and non-primary, non-secondary latent syphilis, we have included information on both presentations. For congenital syphilis, CDPHE previously reported only confirmed cases, and not probable cases. After review, CDPHE will be reporting both confirmed and probable cases. Data in this report reflect corrected figures from prior years.

Limitations

Due to the increasing number of STIs in Colorado, the percent of unknown race/ethnicity increased from 2012 to 2017. This was most evident in chlamydia where the percent of unknown race/ethnicity went from 28.1% in 2012 to 50.2% in 2017. There was a slight reduction in percent of unknown race/ethnicity in 2019 and 2020 (35.8% and 35.7%, respectively). Gonorrhea also showed an increase in unknown race/ethnicity from 13.9% in 2012 to 35.3% in 2017, with a decrease in 2018 and 2019, followed by an increase in 2020 at 28.9%. All stages of syphilis, however, have seen a decrease in unknown race/ethnicity from 10.1% in 2013 to 5.1% in 2020. When looking specifically at primary and secondary syphilis, the percent of unknown race/ethnicity went from 9.8% to 2.7% from 2013 to 2020. Non-primary, non-secondary latent syphilis follows the same pattern as chlamydia and gonorrhea where the percent of unknown race/ethnicity was 5.1% in 2013 and increased to 6.4% in 2017 with a decrease in 2020 to 3.3%. Race/ethnicity data for chlamydia and gonorrhea is primarily derived from labs, which often do not report race/ethnicity and results in less data completeness. Procedures were put in place to help with race/ethnicity data

[3] In 2017, CDC updated the case definition and naming convention for early latent syphilis to start January 1, 2018. What was referred to as early latent syphilis in the past is referred to as non-primary, non-secondary latent syphilis in this report.

ascertainment. In 2020, there was an increase of unknown data reported when compared to 2019 in chlamydia (35.7%), gonorrhea (28.9%), and syphilis (5.1%). Due to the proportion of cases having unknown race/ethnicity being over 30% for both chlamydia and gonorrhea in the previous years, trends of the rates by this variable are not displayed.

Access to STI, HIV, and Viral Hepatitis Services during the COVID-19 Pandemic were greatly impacted due to shifts in healthcare/public health infrastructure and workforce, limiting testing and identification of new diagnoses. Additionally, due to the increasing number of STIs in Colorado, follow-up and interviews were limited in 2020 to new HIV and syphilis diagnoses. This results in less data completeness for chlamydia and gonorrhea cases, especially for data relating to previous HIV diagnoses and risk behavior information and race/ethnicity reporting.

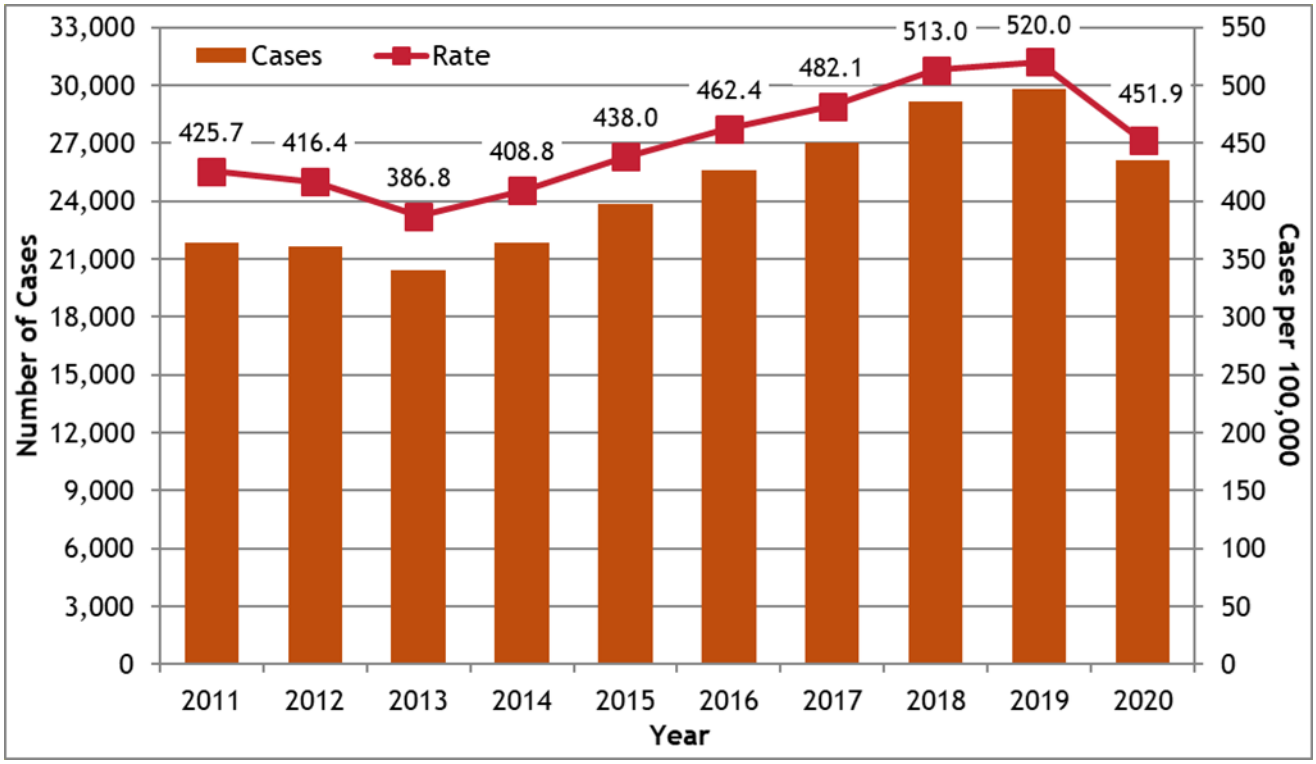
Reporting in chlamydia and gonorrhea cases decreased drastically in school-based clinics (60.6% and 29.6% decrease from cases reported in school-based clinics during 2019, respectively). This could be attributed to reported cases during the COVID-19 pandemic while a National Emergency was declared in March 2020, closing schools.

Anyone with questions about how these data should be interpreted is encouraged to contact the STI/HIV/VH Data Analytics, Program Evaluation, and SURRG Program at (303) 692-2700.

Chlamydia

Chlamydia remained the most commonly reported STI in Colorado. In 2020, there were 26,136 cases diagnosed and reported for a statewide rate of 451.9 per 100,000. This is a 13.1% decrease from chlamydia cases reported in 2019. Figure C.1 shows annual case counts and rates of chlamydia in Colorado from 2011 to 2020. This is the first decrease in cases in 6 years, following a steady increase from 2013-2019. The rate of chlamydia in Colorado in 2020 is the lowest in five years and is likely due to the effects of the COVID-19 pandemic (see limitations section). Similarly, in the nation there were 1,579,885 cases of chlamydia which were diagnosed and reported to CDC in 2020, for a rate of 481.3 per 100,000, a 1.2% decrease from 2016.[4] Case rates in Colorado and the nation are largely impacted by screening coverage; therefore, these decreases are unlikely to be accurate representations for declining rates.

Figure C.1: Reported Chlamydia Cases and Rates of Reported Cases, Colorado, 2011-2020



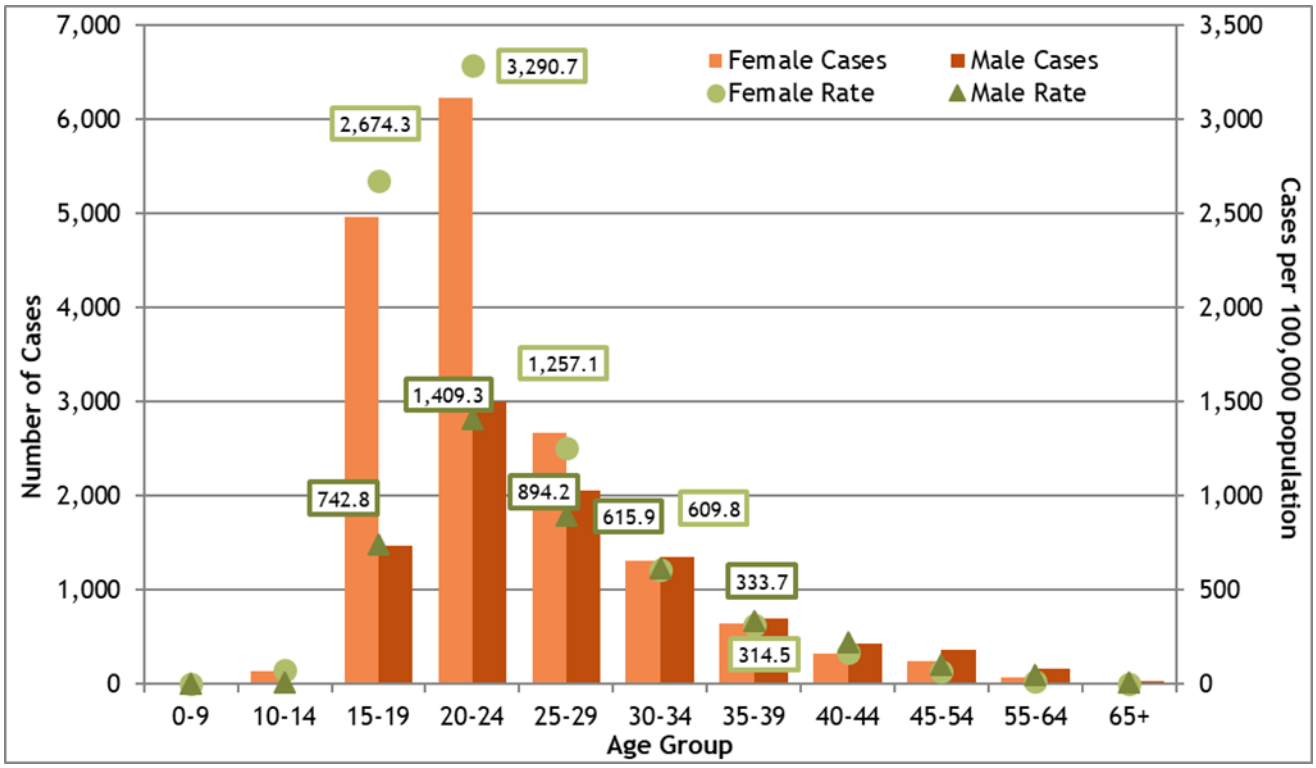
Rates per 100,000 varied significantly by sex and age. The chlamydia rate was nearly two times greater among females, 573.7 per 100,000, than males, 330.4 per 100,000 in 2020 (**Table 1** in the appendix). Rates were highest among adolescents and young adults for both males and females.

[4]Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.[:](:) //www.cdc.gov/std/statistics/2020/tables/1.htm

Figure C.2 shows age and sex case counts and rates for chlamydia diagnosed in 2020. The mean age at diagnosis was 25.5, with a range of 0 to 91 years of age. Females accounted for nearly two-thirds (63.4%) of the chlamydia cases. Among 15-19 year olds, the chlamydia rate for females, 2,674.3 per 100,000, was 3.6 times greater than the rate for males, 742.8 per 100,000. The most cases were among 20-24 year olds, where the rate for females is 2.3 times greater than the rate for males.

The marked difference in case rates by sex may be attributed to screening efforts which target females in reproductive health settings. To a lesser degree, this difference may also reflect the natural history of chlamydia infections. Males are less susceptible to infection, are more likely to be asymptomatic compared to females, and are less likely to access health services and receive routine screening.[5] The result of these factors is the burden of chlamydia infections among males remains largely undiagnosed, untreated and unreported.[6] Additionally, reduced testing in asymptomatic individuals during the COVID-19 pandemic could also explain a decrease in reported chlamydia cases during 2020 (see limitations section).

Figure C.2: Reported Chlamydia Cases and Rates of Reported Cases by Sex and Age Group, Colorado, 2020



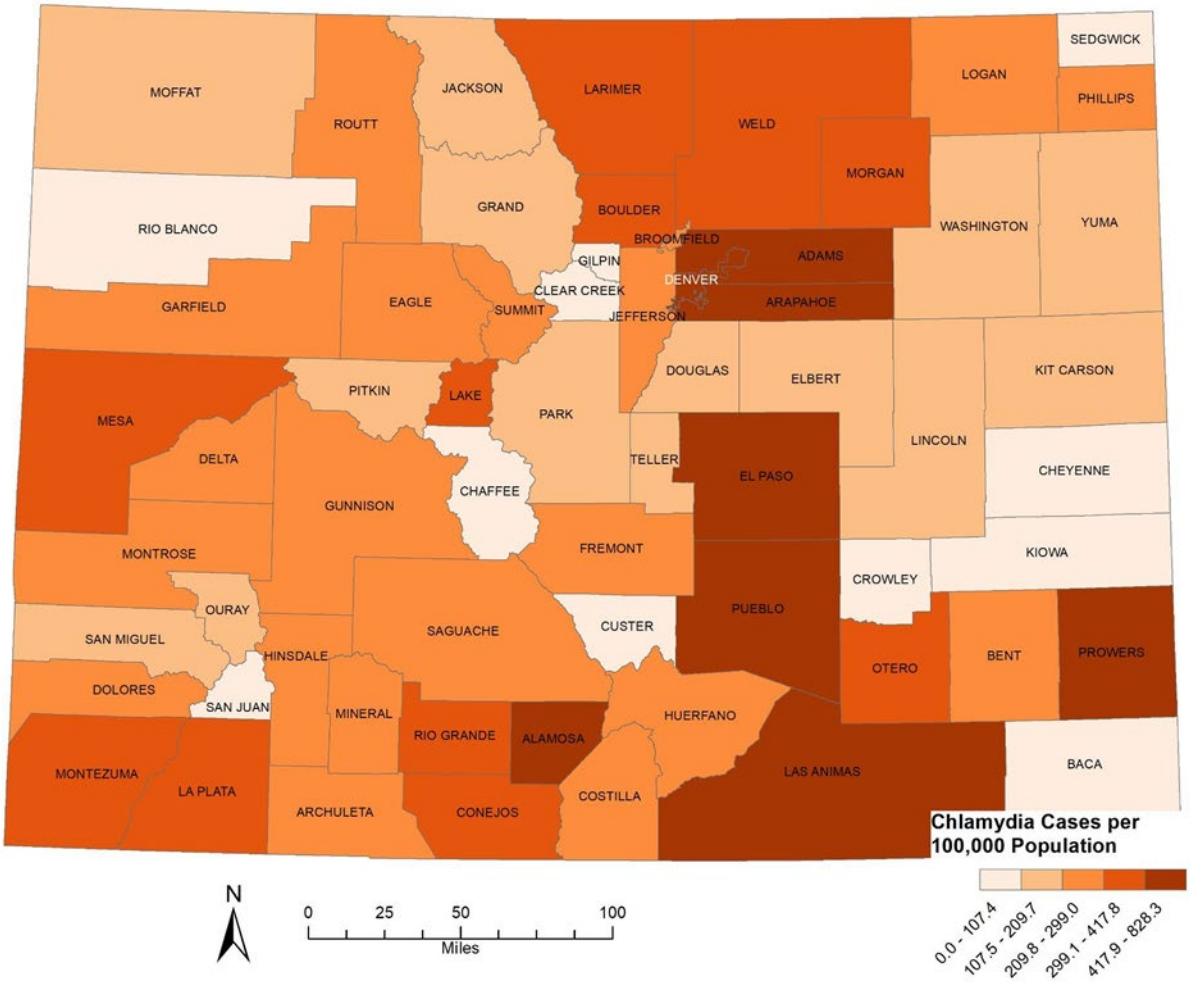
Racial and ethnic minorities continued to be disproportionately affected by STIs. Non-Hispanic Black/African Americans represented 4.7% of Colorado's population, but represented 9.5% of reported chlamydia cases in 2020. Please note, race/ethnicity data is not complete (see limitations section). In 2020, 35.7% of chlamydia cases reported had an unknown race/ethnicity. Therefore, the racial and ethnicity data should be interpreted with caution (**Table 1** in the appendix).

[5] Maraynes, M. E., Chao, J. H., Agoritsas, K., Sinert, R., & Zehtabchi, S. (2017). Screening for asymptomatic chlamydia and gonorrhea in adolescent males in an urban pediatric emergency department. World Journal of Clinical Pediatrics, 6(3), 154-160. http://doi.org/10.5409/wjcp.v6.i3.154

[6] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2018. Atlanta: U.S. Department of Health and Human Services; 2021. https://www.cdc.gov/std/stats18/chlamydia.htm

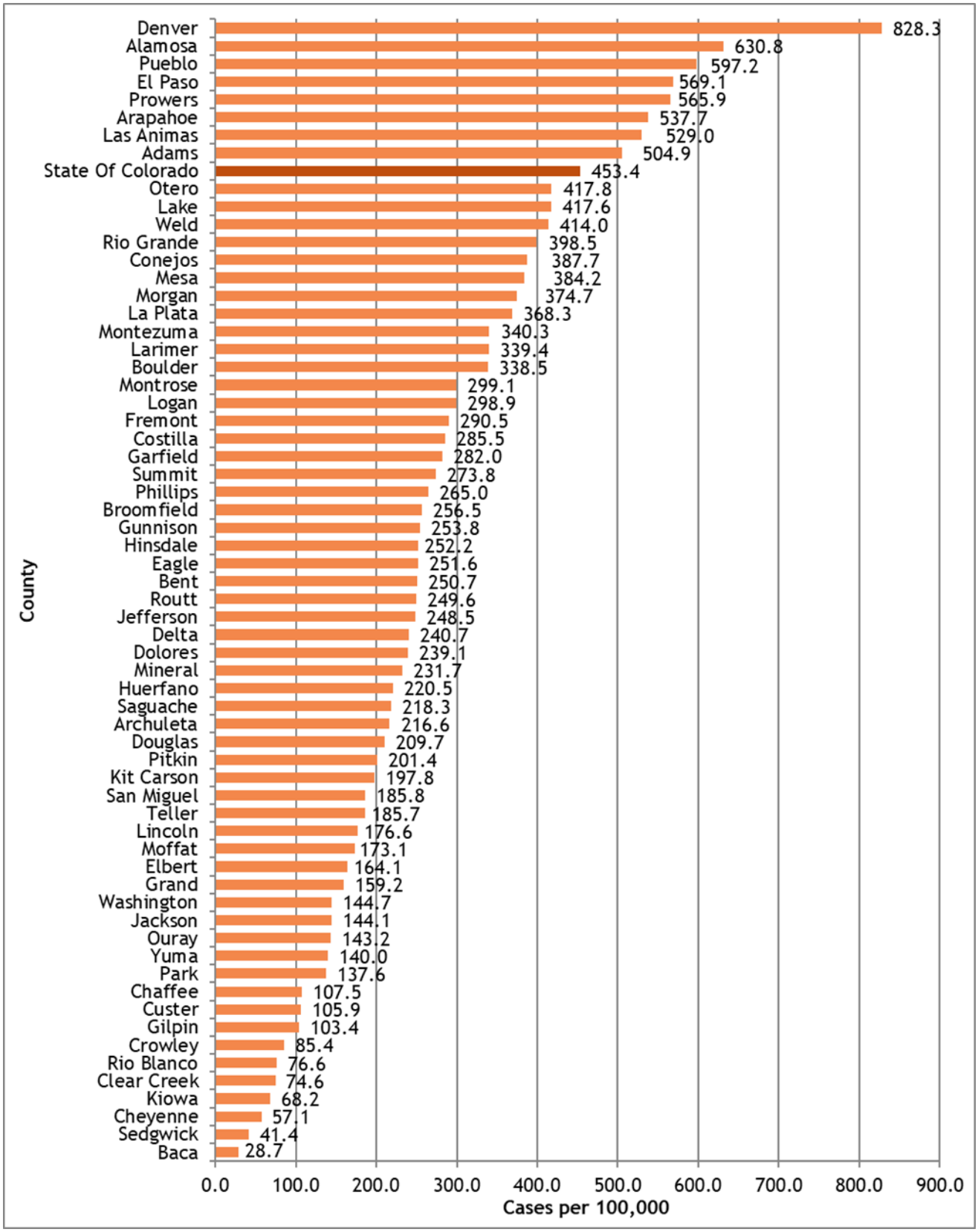
Figure C.3 shows the geographical distribution of chlamydia rates in Colorado at the county level. **Figure C.4** shows chlamydia rates by county for 2020. Denver, Alamosa, and Pueblo counties had the three highest rates of reported chlamydia cases and accounted for 27.0% of chlamydia cases in 2020. As shown in both **Figure C.3** and **Figure C.4,** chlamydia cases were largely concentrated in Denver County. In 2020, 63 out of 64 counties had at least one reported chlamydia case.

Figure C.3: Rates of Reported Chlamydia Cases by County Map, Colorado, 2020



As population varies greatly between counties, high rates do not necessarily mean high case counts. For further details, see Figure C.4 and Table 2.

Figure C.4: Rates of Reported Chlamydia Cases by County Chart, Colorado, 2020

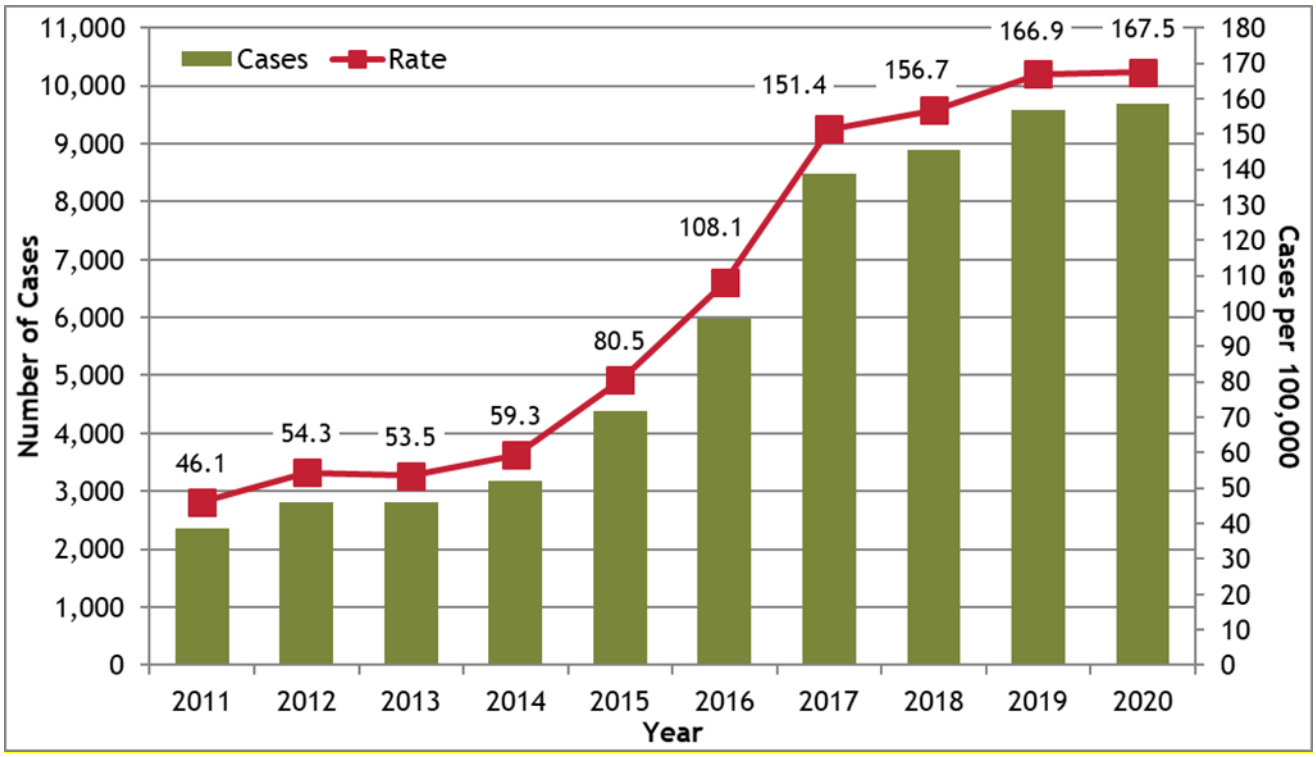


Gonorrhea

Gonorrhea remained the second most commonly reported STI in Colorado with 9,686 cases reported in 2020, yielding a rate of 167.5 per 100,000. This rate increased 0.3% from 2019 and 55.0% from 2016 as shown in **Figure G.1**. This is also a historic high for Colorado. In the United States, 677,769 gonorrhea cases were diagnosed and reported to the CDC in 2020, a 10% increase from 2020 and a 44.7% increase from 2016.The national case rate was 206.5 per 100,000 in 2020, which corresponds to a 10% increase from 2019 (187.8 per 100,000) and a 42.4% increase from 2016 (145.0 per 100,000).[7]

Figure G.1 shows cases diagnosed each year and the rate per 100,000 from 2011 to 2020. Gonorrhea rates remained relatively consistent from 2011 through 2014, followed by sharp increases from 2015 - 2017 and a gradual increase through 2020.

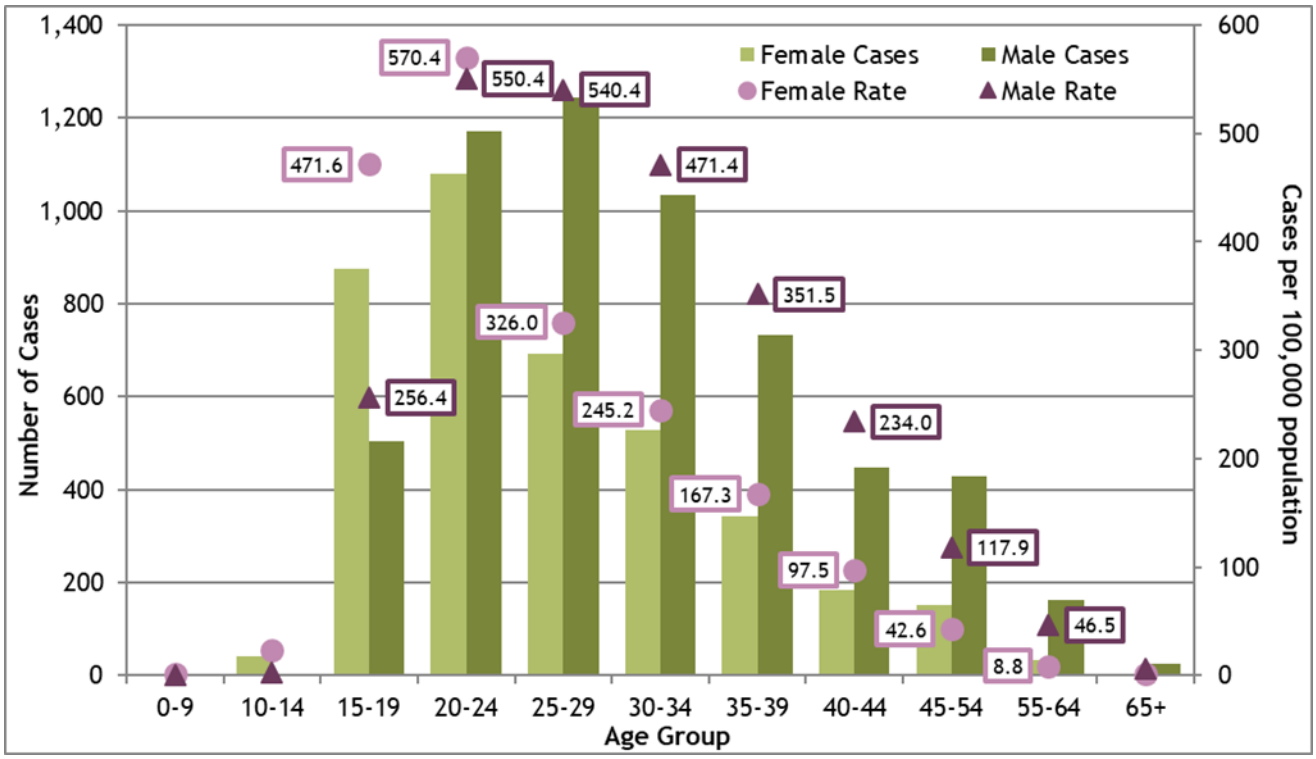
Figure G.1: Reported Gonorrhea Cases and Rates of Reported Cases, Colorado, 2011-2020



[7] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020*. Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm

Figure G.2 shows age and sex case counts for gonorrhea diagnosed in 2020. The mean age at diagnosis was 29.8 with a range of 0 to 87 years of age. Males accounted for 59.4% of total cases and rates by sex and age were typically higher for males. However, among 15-19 year olds, the gonorrhea rate for females, 471.6 per 100,000, was 1.8 times greater than the rate for males, 256.4 per 100,000.

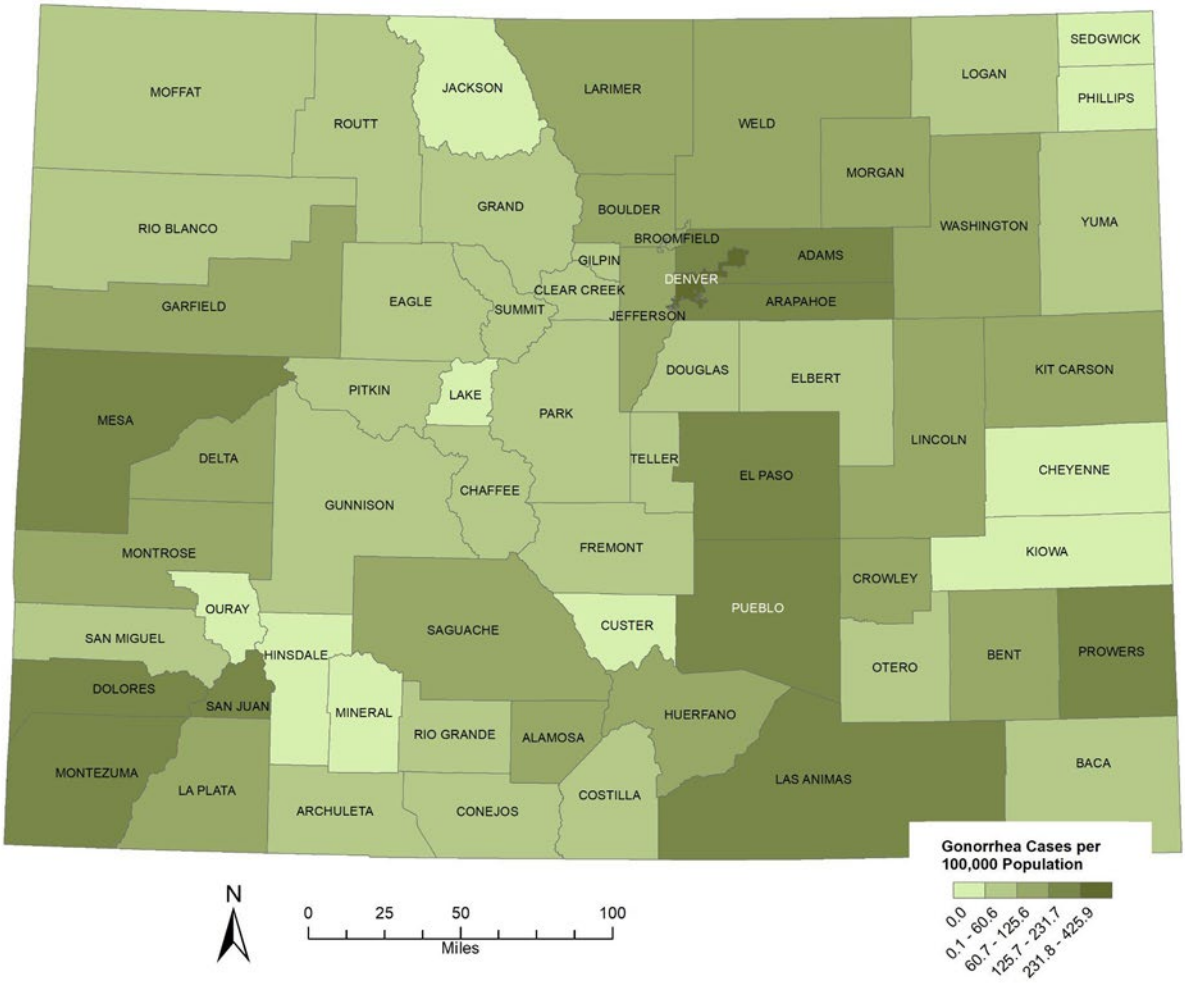
Figure G.2: Reported Gonorrhea Cases and Rates of Reported Cases by Sex and Age Group, Colorado, 2020



Racial and ethnic minorities continued to be disproportionately affected by STIs. As seen with chlamydia, Non-Hispanic Black/African Americans represented 4.7% of Colorado's population, but represented 17.3% of reported gonorrhea cases in 2020. Please note, race/ethnicity data is not complete (see limitations section). In 2020, 28.9% of gonorrhea cases reported had an unknown race/ethnicity. Therefore, the racial and ethnicity data should be interpreted with caution (**Table 1** in the appendix).

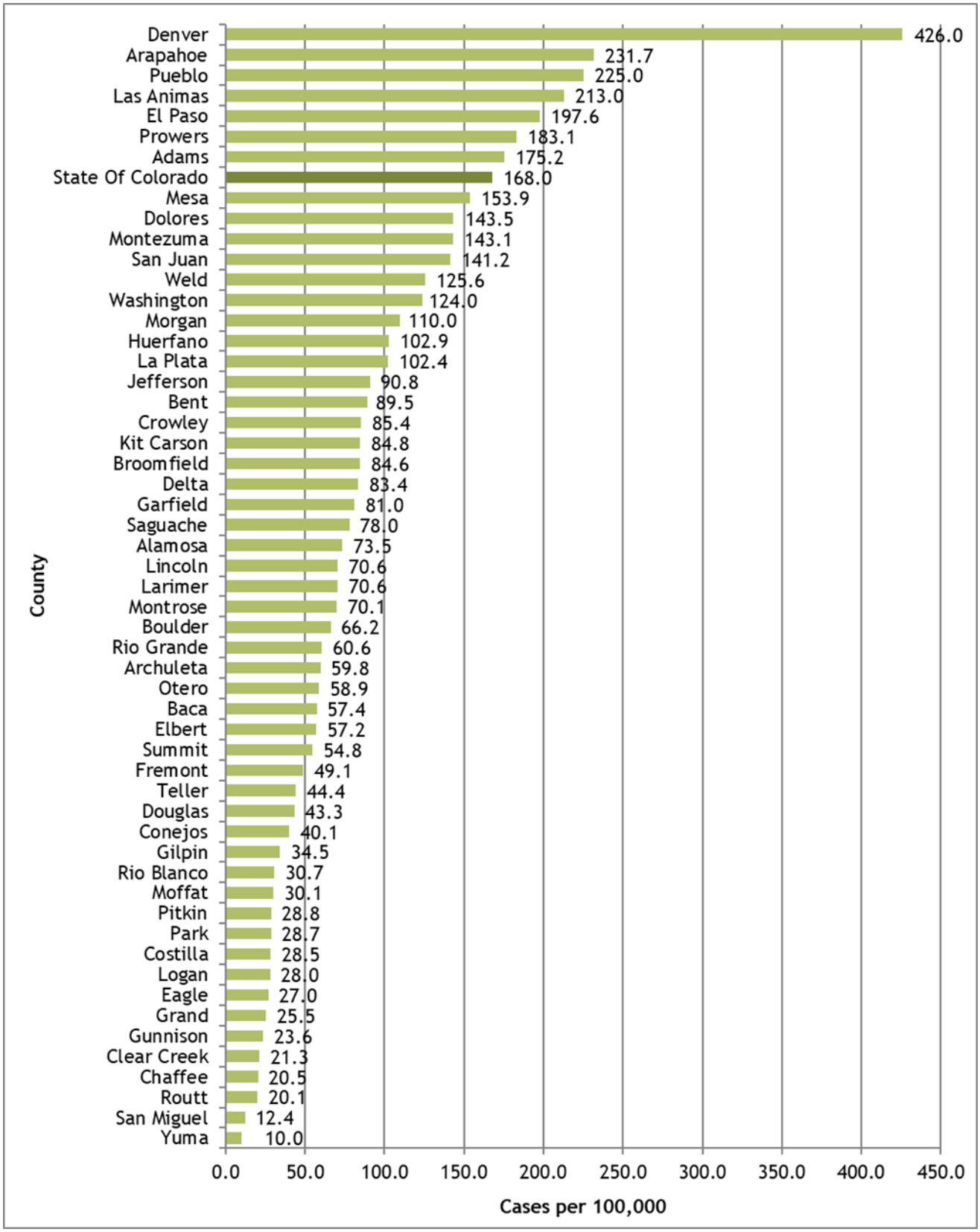
Figure G.3 and **Figure G.4** describe the geographical distribution of gonorrhea rates in Colorado at the county level. The map shows gonorrhea cases were not as widespread as chlamydia. Ten counties did not report any gonorrhea cases in 2020. All of these counties are rural. A large proportion, 62.5%, of all cases was reported in just three counties; Denver, El Paso, and Arapahoe, with Denver County accounting for 31.7% of reported cases. Denver, Pueblo, and Arapahoe had the highest rates of gonorrhea.

Figure G.3: Rates of Reported Gonorrhea Cases by County Map, Colorado, 2020



High rates do not necessarily mean high case counts; for further details, see Figure G.4 and Table 2.

Figure G.4: Rates of Reported Gonorrhea Cases by County Chart, Colorado, 2020



Antimicrobial Resistant Gonorrhea

Since 2016, CDPHE has participated in the CDC funded Epidemiology and Laboratory Capacity (ELC) Grant: Strengthening the US Response to Resistant Gonorrhea (SURRG) in partnership with the Public Health Institute at Denver Health. The SURRG project began with three goals: enhance domestic gonorrhea surveillance and infrastructure, build capacity for rapid detection and response to resistant gonorrhea through increased culturing and local antibiotic susceptibility testing, and rapid field investigation to stop the spread of resistant infections. The project also aims to gain a better understanding of the epidemiological factors contributing to resistant gonorrhea. SURRG jurisdictions collect and analyze data to help guide national recommendations for the public health response to resistant gonorrhea.[8] In December 2020, CDC gonorrhea treatment guidelines changed to eliminate dual treatment in uncomplicated gonorrhea cases. Treatment guidelines for gonorrhea infections are now weight-based and include a single dose of 500mg or 1g intramuscular ceftriaxone treatment.[9]

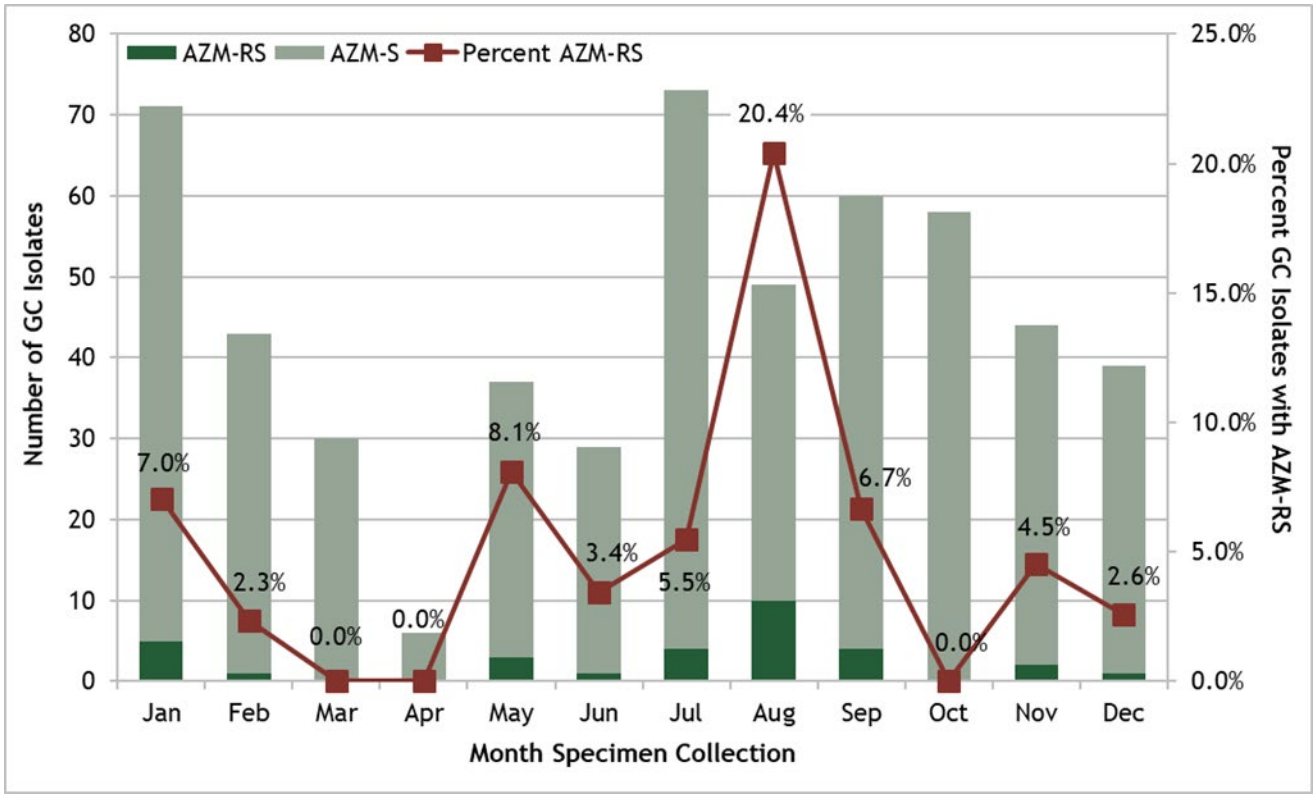
Antimicrobial susceptibility testing (AST) is performed locally through Etests on gonorrhea specimens collected from SURRG partnered clinics within the Public Health Institute at Denver Health in the Denver Metro Area. Reduced susceptibility (RS) is defined as azithromycin minimum inhibitory concentrations (MICs) ≥2 µg/mL (AZM-RS), ceftriaxone MICs ≥0.125 µg/mL (CRO-RS), or cefixime MICs ≥0.25 µg/mL (CFX-RS).[10] The MIC breakpoints for SURRG were based on Clinical and Laboratory Standards Institute (CLSI) criteria; however, breakpoints for ceftriaxone and cefixime are lower than the CLSI breakpoints and were selected to allow for detection of emerging resistance.

In 2020, CO SURRG performed AST on 539 culture-positive gonorrhea isolates for AZM, CRO, and CFX. There were 31 isolates (5.8%) identified to have reduced susceptibility to AZM. No isolates were identified as having reduced susceptibility to CFX or CRO in 2020. Cultures were collected from both genital and extragenital samples. Genital culture testing sites include urethral and endocervical samples from all genders. Extragenital culture testing sites include pharyngeal and rectal samples from all genders, when exposure is identified.

[8] https://www.cdc.gov/std/gonorrhea/arg/carb.htm
[9] St. Cyr S, Barbee L, Workowski KA, et al. Update to CDC's Treatment Guidelines for Gonococcal Infection, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1911–1916. DOI: http://dx.doi.org/10.15585/mmwr.mm6950a6external icon
[10] Schlanger K, Learner ER, Pham CD, et al. Strengthening the U.S. Response to Resistant Gonorrhea (SURRG): An overview of a multi-site program to enhance local response capacity for antibiotic-resistant Neisseria gonorrhoeae [published online August 31, 2021].

In **Figure ARGC.1**, the ratio of isolates with AZM-RS, distributed per month, is shown with the percentage of AZM-RS in positive cultures in red. A low of 0% of isolates having AZM-RS occurred in March, May, and October. A high AZM-RS isolate identification occurred in August with 20.4% of isolates having AZM-RS. When compared to 2019, CO SURRG saw a 20% decrease in Etests performed in 2020. This is likely due to the COVID-19 Pandemic (see limitation section).

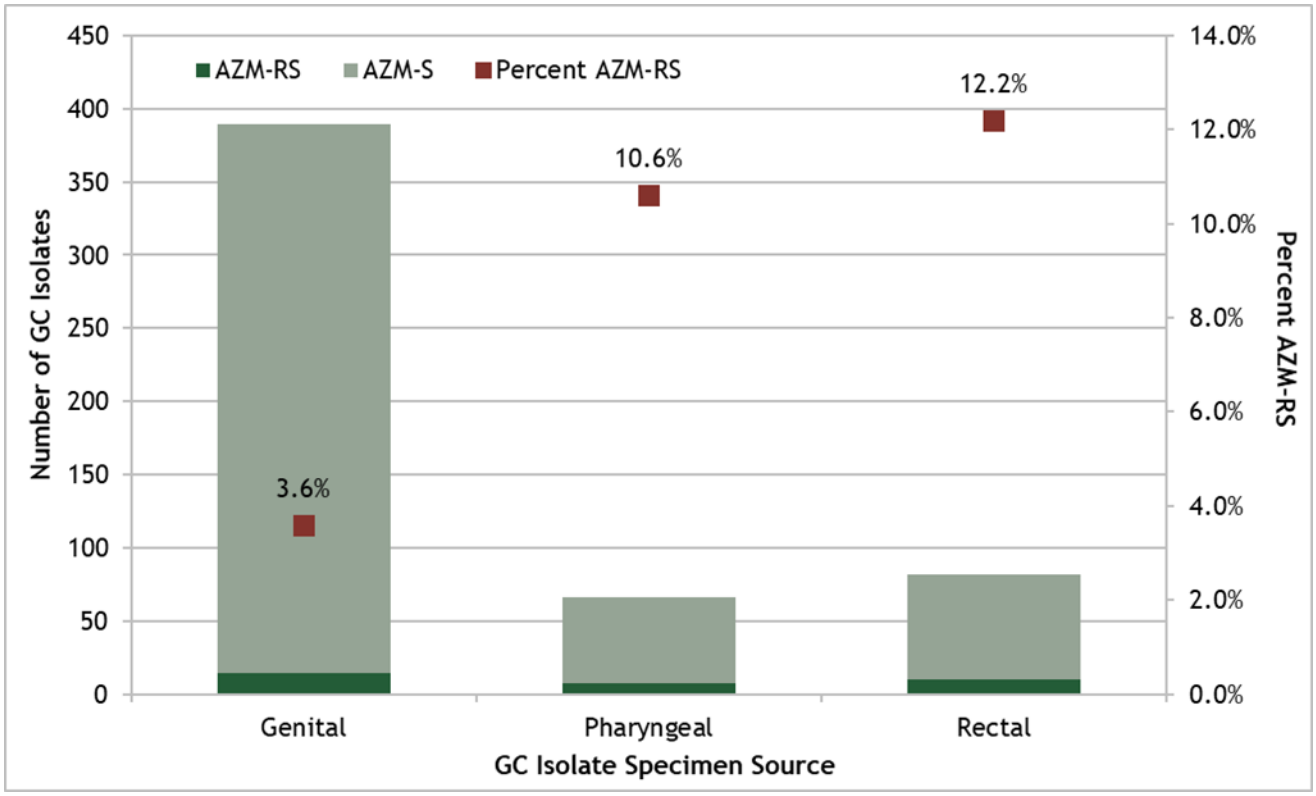
Figure ARGC.1: Gonorrhea Isolates with AZM-RS by Month, SURRG, Denver, Colorado, 2020



Total positive cultures per month are positive gonorrhea isolates Etest at Denver Health Labs from six clinic locations in the Colorado SURRG jurisdiction.

With increased gonorrhea rates in the US, the importance of extragenital gonorrhea testing has risen. As seen in **Figure ARGC.2**, 12.2% of rectal and 10.6% of pharyngeal gonorrhea isolates Etested in the Colorado SURRG jurisdiction showed reduced susceptibility to AZM in 2020. Genital testing is the most abundant site for gonorrhea antimicrobial susceptibility testing in 2020 with the lowest rate of AZM-RS (3.6%).

Figure ARGC.2: Percent Gonorrhea Isolates with AZM-RS by Specimen Source in Colorado SURRG, 2020

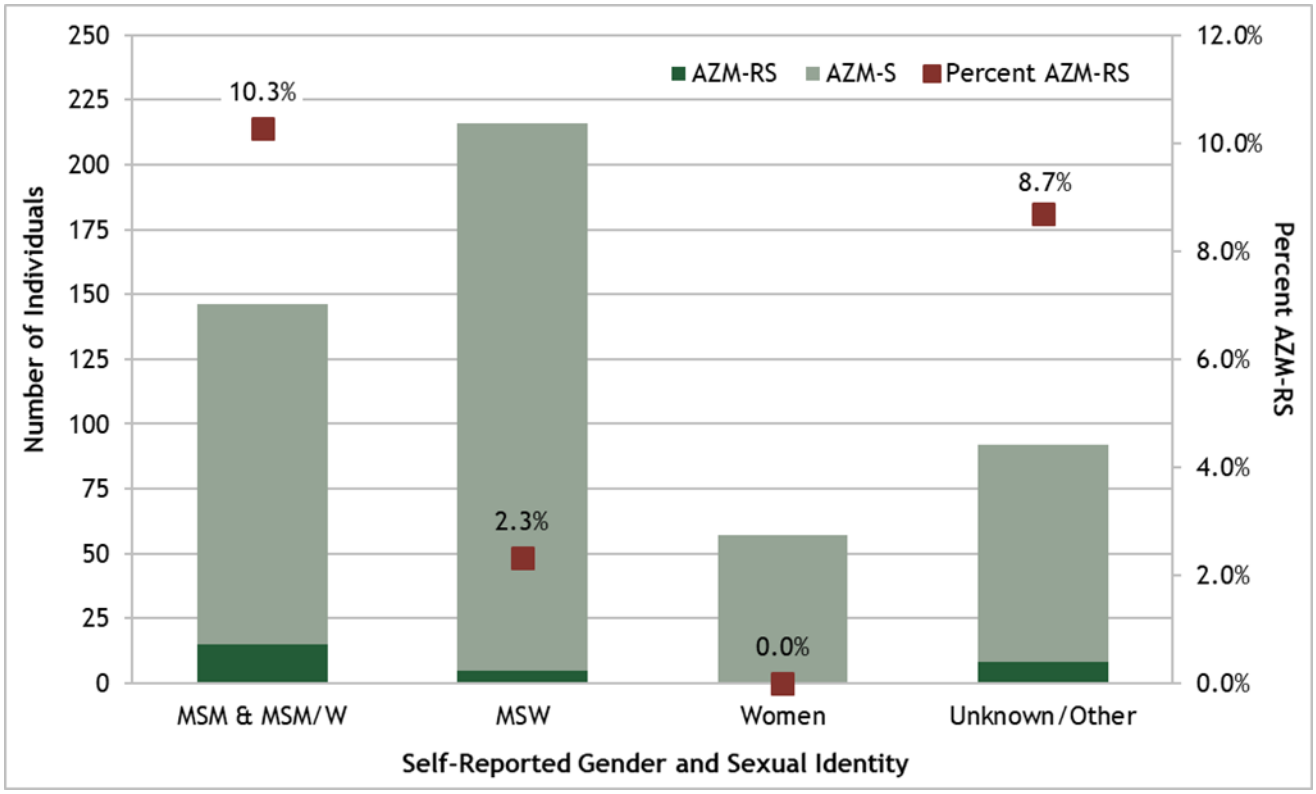


Genital site culture data includes urethral and endocervical testing sites. Extragenital site culture testing shown here only includes pharyngeal and rectal samples.

Gender identity is self-reported and sexual identity is determined through gender identity and reported gender of sex partners. In 2020, men accounted for 87.7% of the Colorado SURRG isolates that underwent AST. Gender identity is self-reported and sexual identity is determined through gender identity and reported gender of sex partners. Of those who had a self-reported gender identity as Men in 2020, Men who have sex with Women (MSW) were the largest portion of individuals tested at the six SURRG sites (42.3%); this is the first year where MSW were the majority of the population in SURRG. Historically, Men who have sex with Men (MSM) and Men who have sex with Men and Women (MSM/W) have accounted for the largest proportion of the population. MSM and MSM/W account for the majority of individuals with GC isolates identified to have AZM-RS in the Denver Metro Area (71.4%).

In **Figure ARGC.3**, percent of individuals identified to have GC isolates with AZM-RS are shown categorized by gender and sexual identities. As indicated above, 10.3% of the individuals who were identified as MSM or MSM/W had GC isolates with AZM-RS. There were no women identified with having GC isolates indicating AZM-RS in 2020. However, women only accounted for 11.2% of the Colorado SURRG population in 2020. The true burden of ARGC on women in Denver is unknown.

Figure ARGC.3: Percent AZM-RS in Individuals with GC Isolates that Underwent AST by Self-Reported Gender and Sexual Identity, SURRG, Denver, Colorado, 2020

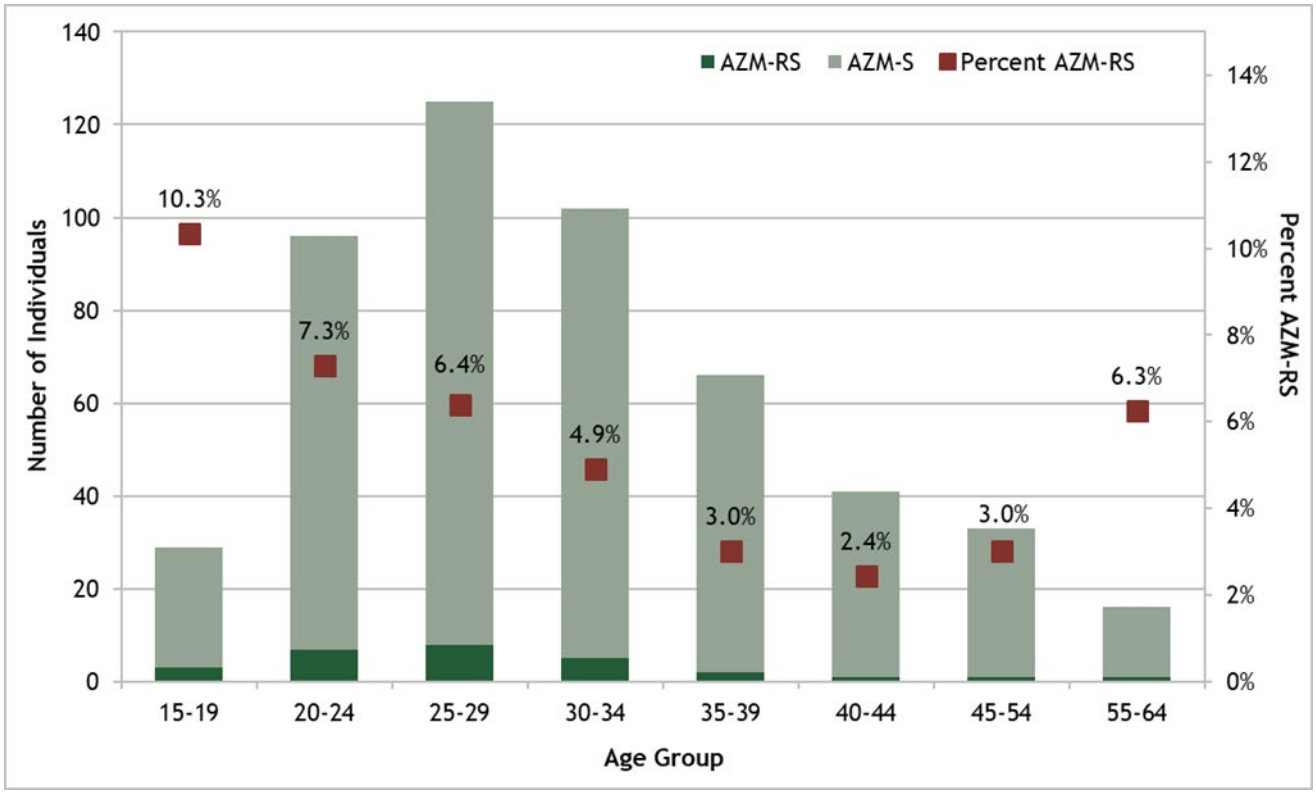


Sexual identity is created from self-reported gender identity and self-reported gender of sex partners. Unknown cases may include men with unknown gender of sex partners and transgender/nonbinary individuals. Individual data includes persons diagnosed with one or more gonorrhea isolates with reduced susceptibility to AZM at the same clinical visit. There were 3 individuals with multisite infections diagnosed at the same clinic visit in 2020.

The largest proportion of individuals in the Colorado SURRG study in 2020 occurred in those between the ages of 20 and 34 years, accounting for 63.2% of the population. This age group also accounted for the majority of individuals identified as having GC isolates with AZM-RS (71.4%).

Figure ARGC.4 depicts the age group distribution of individuals with one or more gonorrhea isolates that underwent AST in the Colorado SURRG sites in 2020. The highest occurrence of GC isolates indicating AZM-RS occurred in those 15 to 19 years old (10.3%). The mean age at specimen collection date was 31.5 years with a range of 16 to 74 years of age. Those 65 years and older are not shown due to low case count.

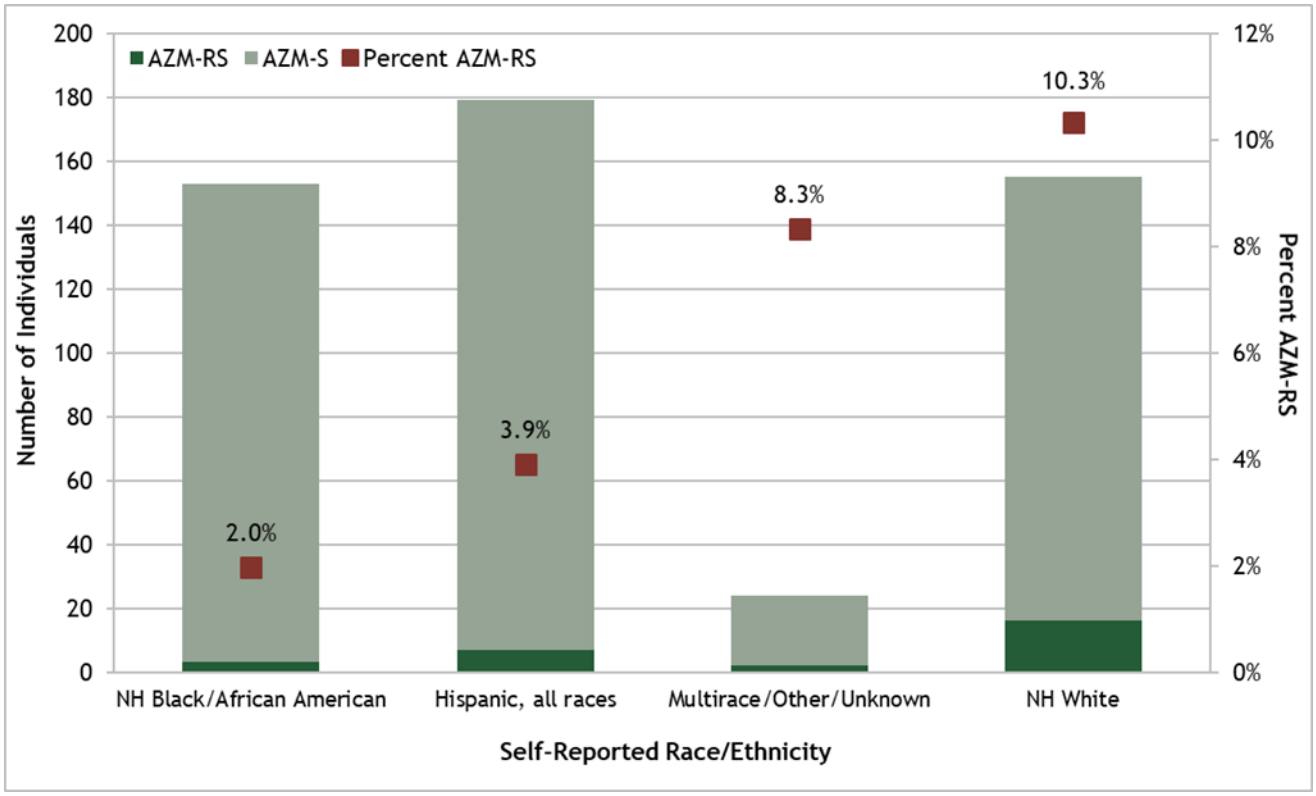
Figure ARGC.4: Percent AZM-RS by Age in Individuals with GC Isolates that Underwent AST, SURRG, Denver, Colorado, 2020



Individual data includes persons diagnosed with one or more gonorrhea isolates with reduced susceptibility to AZM at the same clinical visit. There were 3 individuals with multisite infections diagnosed at the same clinic visit in 2020.

Figure ARGC.5 depicts the Colorado SURRG population by reported race and ethnicity in 2020. Those who identified as Hispanic (all races) accounted for 35.0% of the SURRG population, but had a relatively low proportion of individuals identified to have GC isolates with AZM-RS (3.9%). Those who identified as Non-Hispanic White accounted for 30.3% of the Colorado SURRG population and had the highest percent of individuals with GC isolates indicating AZM-RS (10.3%). Those who identify as Non-Hispanic Black accounted for 29.9% of the population, but had the lowest proportion of individuals with GC isolates indicating AZM-RS (2.0%). The percent of individuals with GC isolates indicating AZM-RS categorized as Multirace/Other/Unknown should be taken with caution, as this is a very small sample and too generalized to draw definitive conclusions.

Figure ARGC.5: Percent AZM-RS by Race/Ethnicity in Individuals with GC Isolates that Underwent AST, SURRG, Denver, Colorado, 2020



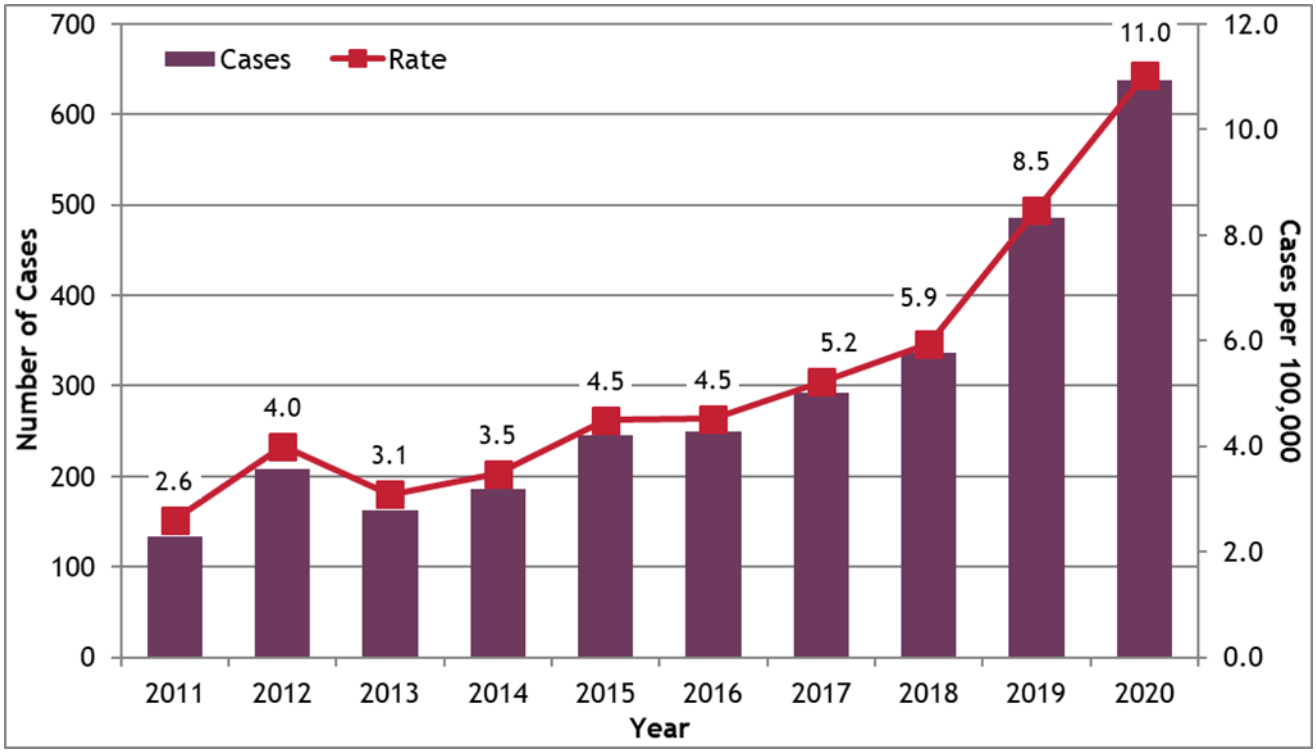
NH: Non-Hispanic. Multirace/Other/Unknown includes Non-Hispanic Asian/Pacific Islanders, and Indigenous/Alaskan Native due to small numbers, in total only accounting for 4.7% of the Colorado SURRG population in 2020. Individual data includes persons diagnosed with one or more gonorrhea isolates with reduced susceptibility to AZM at the same clinical visit. There were 3 individuals with multisite infections diagnosed at the same clinic visit in 2020.

Primary and Secondary Syphilis

There were 637 cases of primary and secondary syphilis, the most infectious stages of the disease, diagnosed and reported in Colorado in 2020, corresponding to a rate of 11.0 per 100,000. This is an increase in the rate of 30.0% from 2019 and 143.6% from 2016 as shown in **Figure PS.1,** and a historic high for Colorado. Nationwide, 41,655 cases (12.7 per 100,000) were reported in 2020. This is a 6.8% increase in cases from 2019 (38,992) and a 50.0% increase from 2016 (27,814).[11]

The reported cases in Colorado were primarily among men (84.5%). A majority of all cases were among Non-Hispanic White males, representing 43.6%. Additionally, 50.1% of all cases were among men who have sex with men (MSM). In 2020, 19.9% of primary and secondary syphilis diagnoses were co-infected with HIV; i.e. the percent of syphilis cases that were reported among people living with HIV (both previously diagnosed with HIV or diagnosed with HIV at the same time as the syphilis diagnosis), and 31.3% of those who reported MSM risk were living with HIV. Nationwide, MSM are also disproportionately impacted by primary and secondary syphilis, making up 53% of primary and secondary syphilis cases. However, the increase in cases among this group has slowed nationwide, and there was a 2.2% decrease in cases among this group from 2019 to 2020.[12]

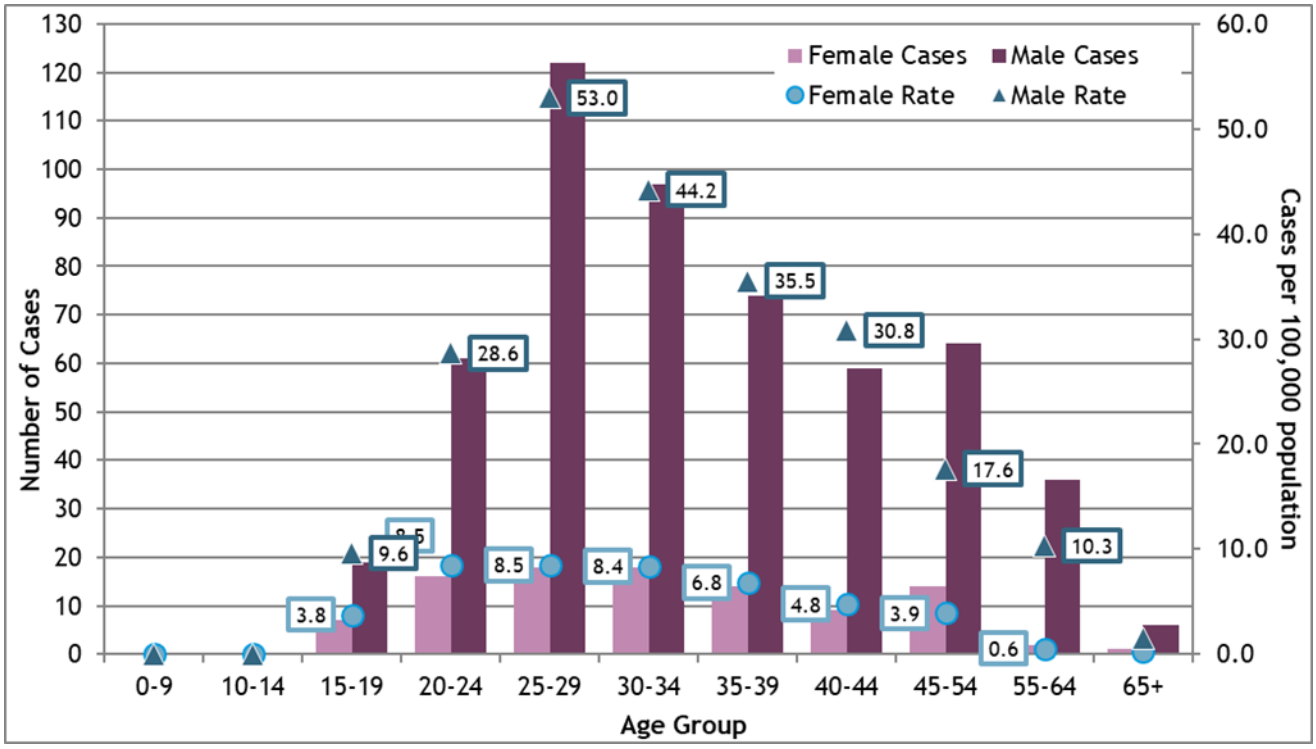
Figure PS.1: Reported Primary & Secondary Syphilis Cases and Rates of Reported Cases, Colorado, 2011-2020



[11] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm
[12] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm

Figure PS.2 shows age and sex case counts for primary and secondary syphilis diagnosed and reported in 2020. The mean age at diagnosis was 35.4 with a range of 15 to 71 years of age. The highest rates were reported among 25-29-year-old males whose rate was 53.0 cases per 100,000. In 2020, 19.2% of the cases occurred among 25-29-year-old males followed by 30-34-year-old males at 15.2% of all reported primary and secondary syphilis cases.

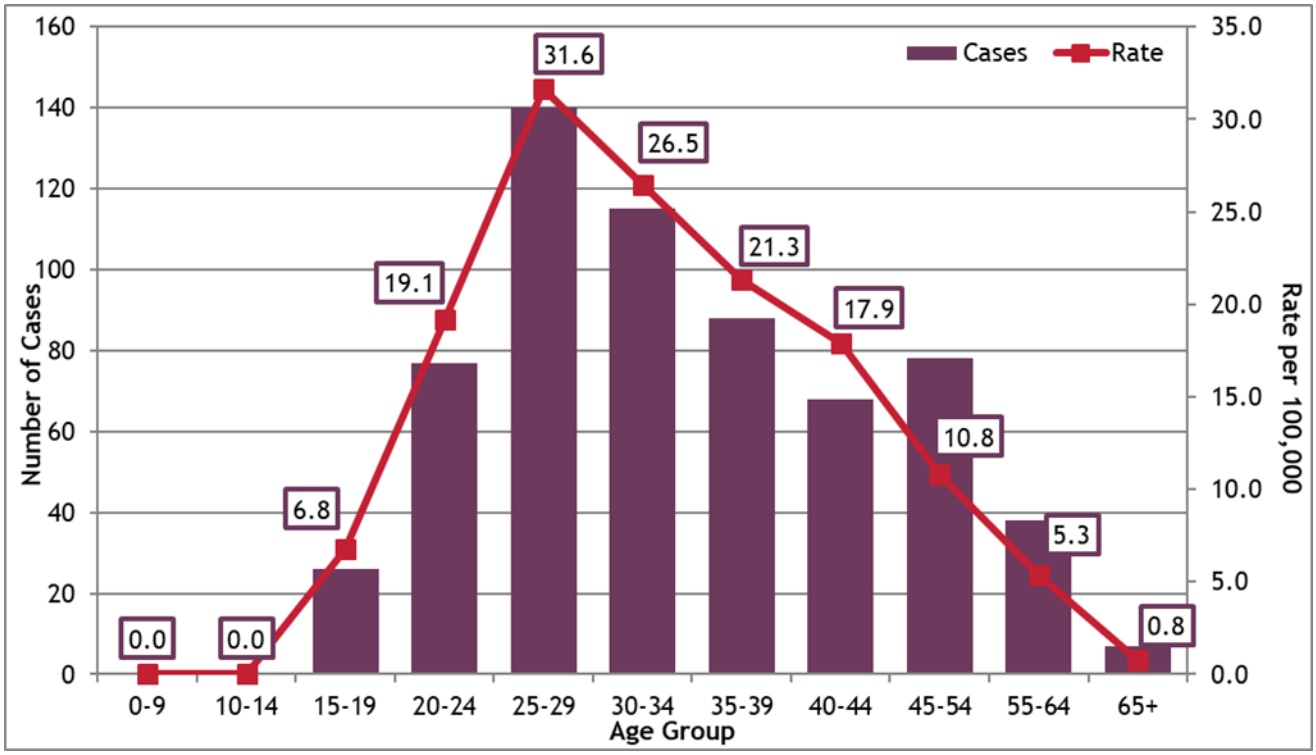
Figure PS.2: Reported Primary & Secondary Syphilis Cases and Rates of Reported Cases by Sex and Age Group, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.

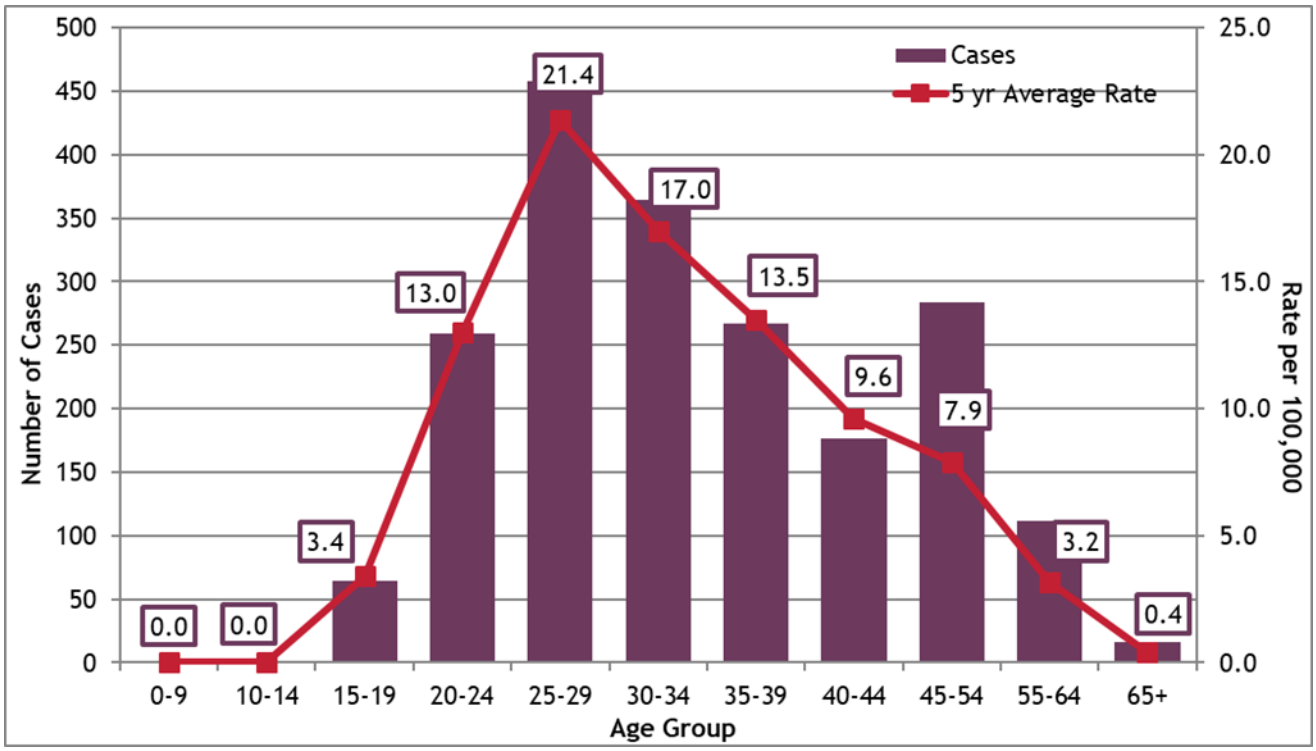
Figure PS.3 and **Figure PS.4** below depict age group case counts and rates for primary and secondary syphilis. Since numbers from one year are small, the five-year average rate in **Figure PS.4** helps to stabilize the rate and thus produces a more accurate representation of the distribution.

Figure PS.3: Reported Primary and Secondary Syphilis Cases and Rates of Reported Cases by Age Group, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.

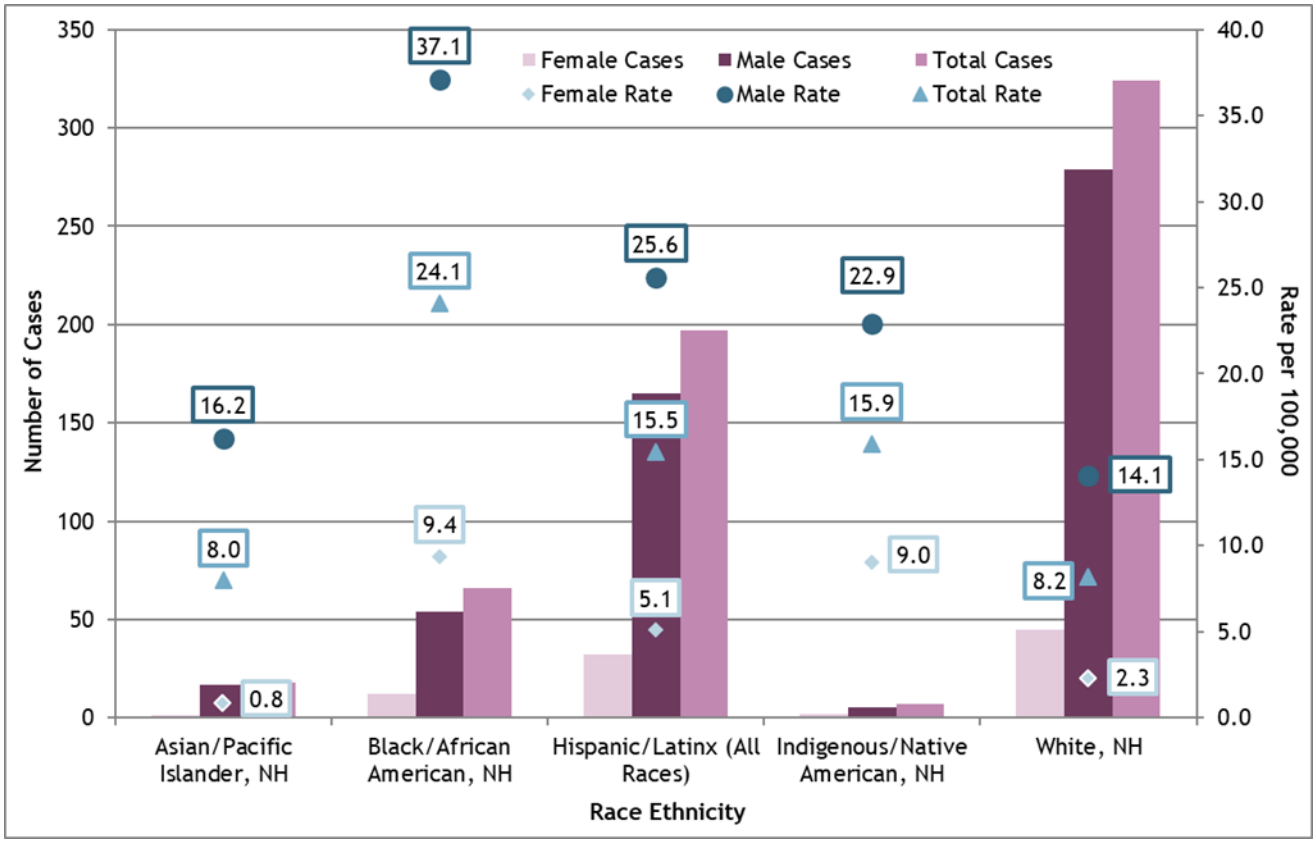
Figure PS.4: Reported Primary & Secondary Syphilis Cases and Rates of Reported Cases by Age Group, Colorado, 2016-2020



More stable than the one-year rate from Figure PS.3

Figure PS.5 shows that the highest rate of primary and secondary syphilis was seen among Non-Hispanic Black/African American males, 37.1 100,000 in 2020. Hispanic/Latino males and Non-Hispanic Indigenous/Native American males had the next highest rates in 2020, at 25.6 and 22.9 per 100,000, respectively. Non-Hispanic Whites accounted for the majority of the primary and secondary syphilis cases, 50.9%; however, their rate per 100,000 was 8.2 per 100,000, which is only higher than the NH Asian/Pacific Islander rate.

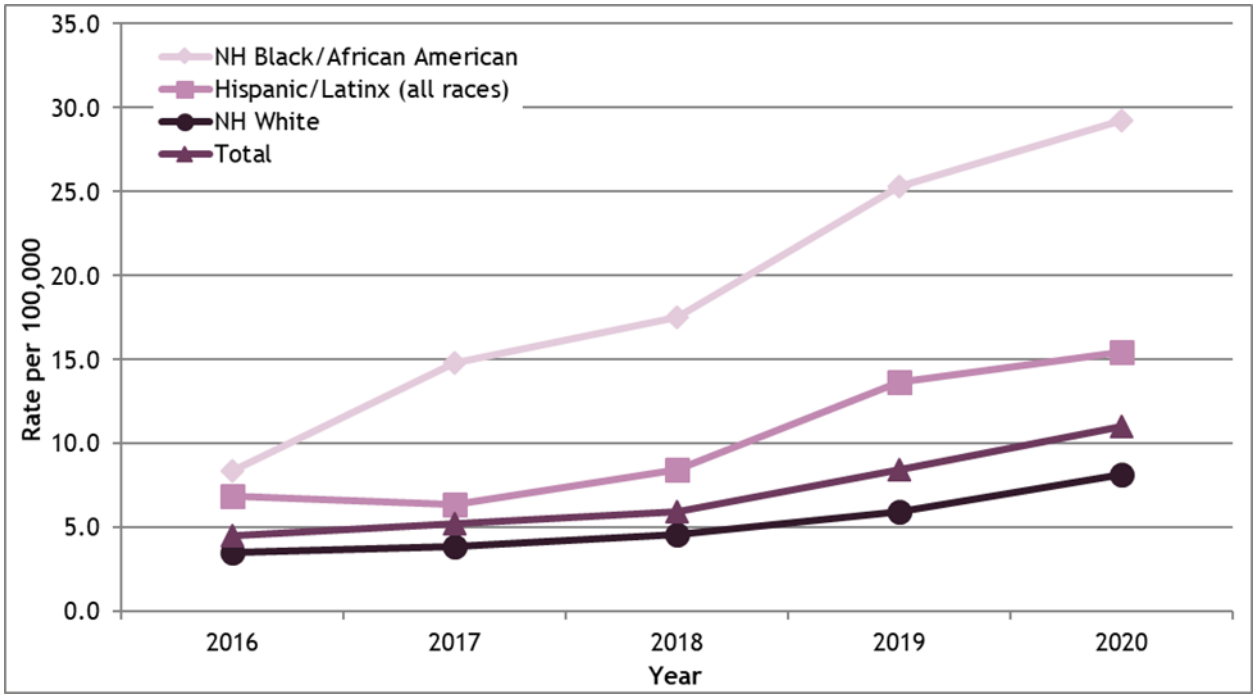
Figure PS.5: Rates of Reported Primary & Secondary Syphilis Cases by Race/Ethnicity and Sex, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.
NH: Non-Hispanic.

Figure PS.6 shows the five-year trend in rates for Non-Hispanic Whites, Non-Hispanic Black/African Americans and Hispanics/Latinx of all races. Other races were not displayed due to small numbers (25 or less in 2020). All three showed an increasing trend from 2016-2020. Non-Hispanic Black/African Americans had the highest rate of primary and secondary syphilis per 100,000 people and saw the sharpest increase from 2018-2020.

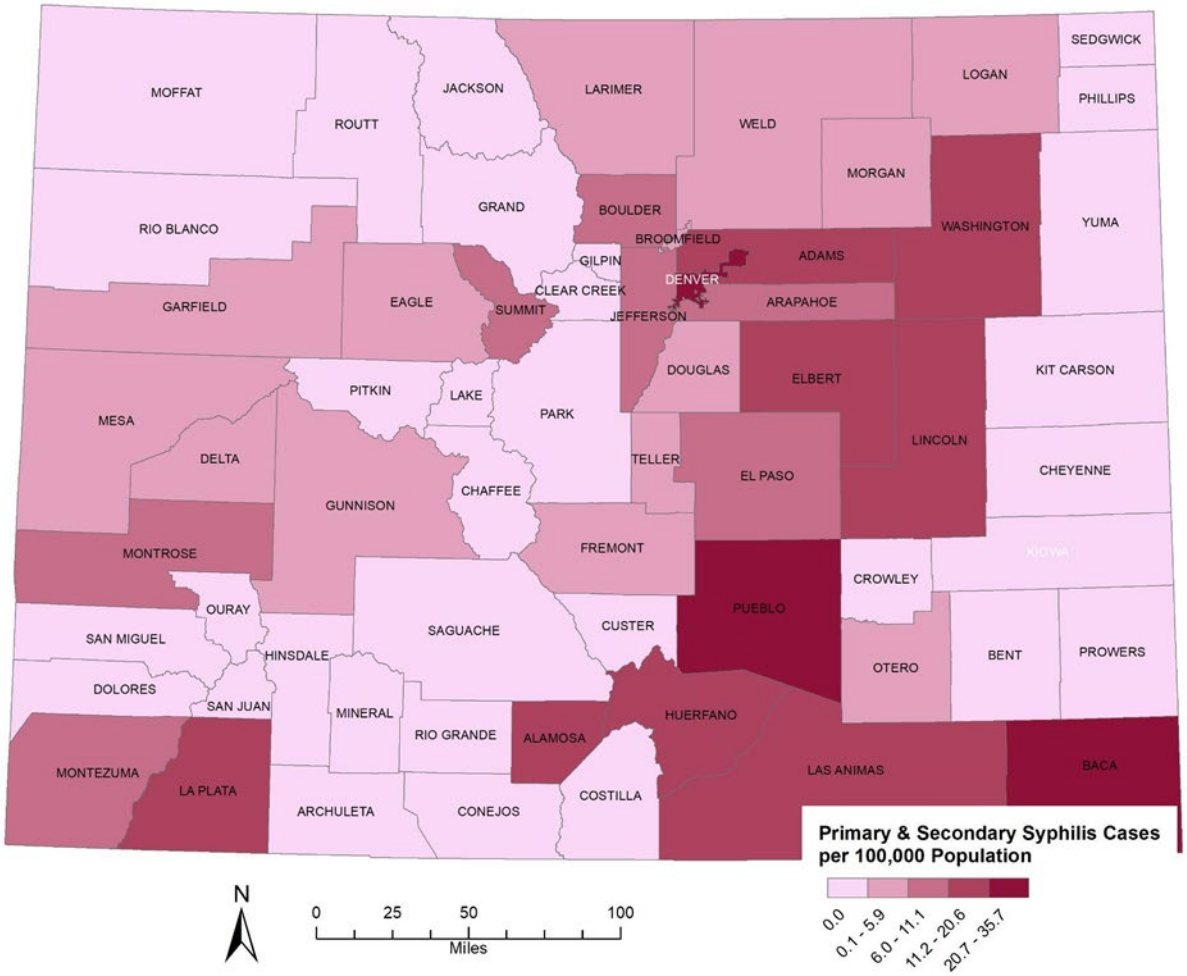
Figure PS.6: Rates of Reported Primary & Secondary Syphilis Cases by Race/Ethnicity, Colorado, 2016-2020



Note: these rates use small numbers and should be interpreted with caution.
NH: Non-Hispanic

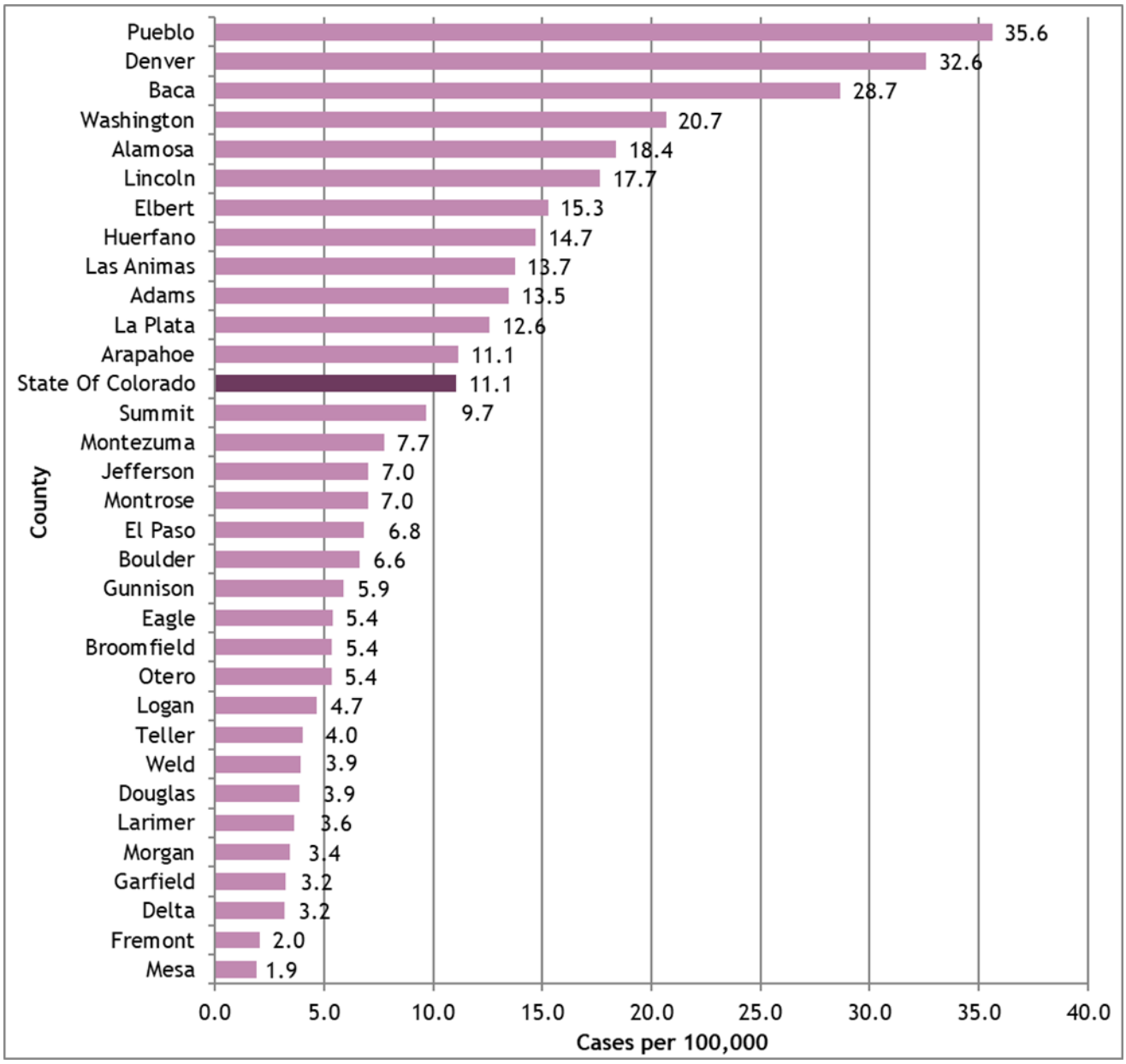
Figure PS.7 and **Figure PS.8** describe the geographical distribution of primary and secondary syphilis rates in Colorado at the county level. The map shows primary and secondary syphilis has been diagnosed in 32 of 64 counties with Denver County reporting the highest proportion of cases, 36.7% in 2020. The highest rates were in Pueblo, Denver, and Baca counties with a rate of 35.6, 32.6, and 28.7, respectively, (**Figure PS.8**). However, the Baca rate was produced from five or fewer cases and is not reliable. Use caution when interpreting some of these rates as the county may have a small population and small case numbers.

Figure PS.7: Rates of Reported Primary & Secondary Syphilis Cases by County Map, Colorado, 2020



High rates do not necessarily mean high case counts; for further details, see Figure PS.8 and Table 2.

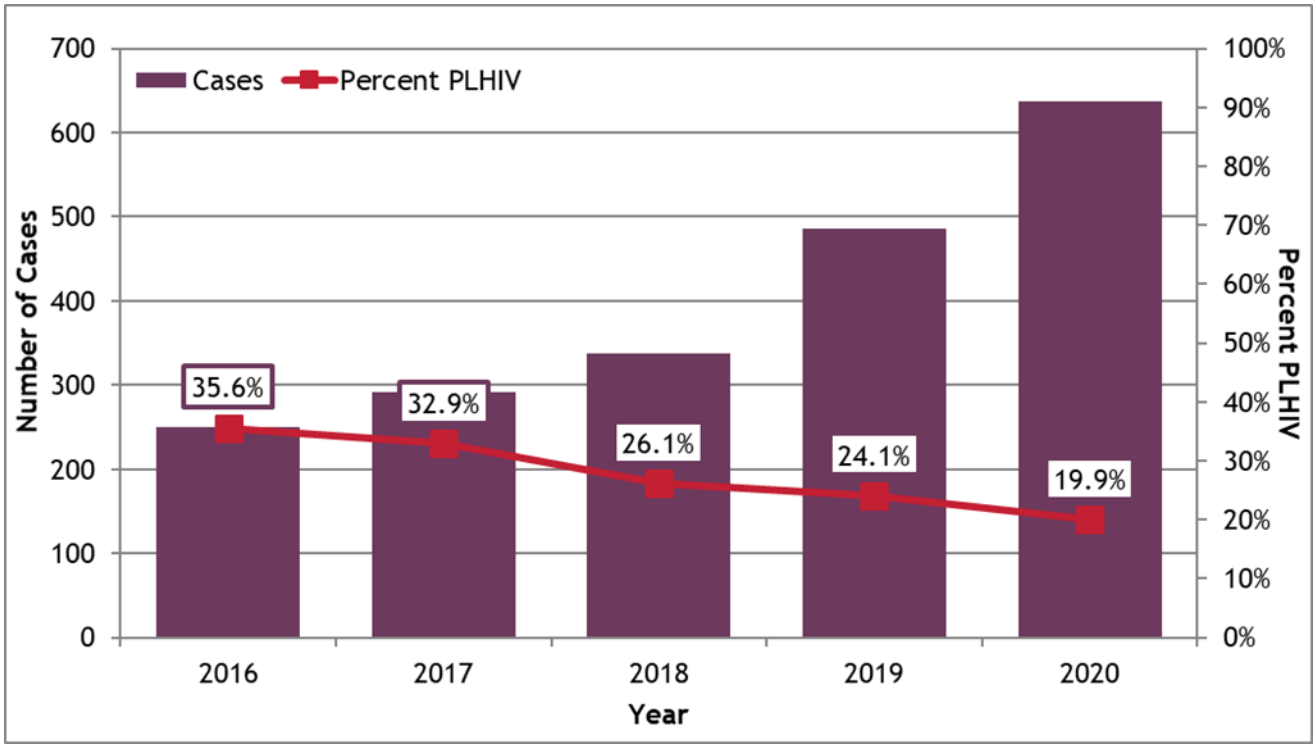
Figure PS.8: Rates of Reported Primary & Secondary Syphilis Cases by County Chart, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution. For details see Table 2.

Figure PS.9 shows the rate of primary and secondary syphilis living with HIV; i.e. the percent of syphilis cases that were reported among people living with HIV (both previously diagnosed with HIV or diagnosed with HIV at the same time as the syphilis diagnosis), for 2016-2020. The rate has ranged from 35.6% in 2016 to 19.9% in 2020 producing a downward trend. The five-year average rate for primary and secondary syphilis living with HIV was 25.8%.

Figure PS.9: Reported Primary & Secondary Syphilis Cases and Percent Living with HIV by Year of Diagnosis, Colorado, 2016-2020



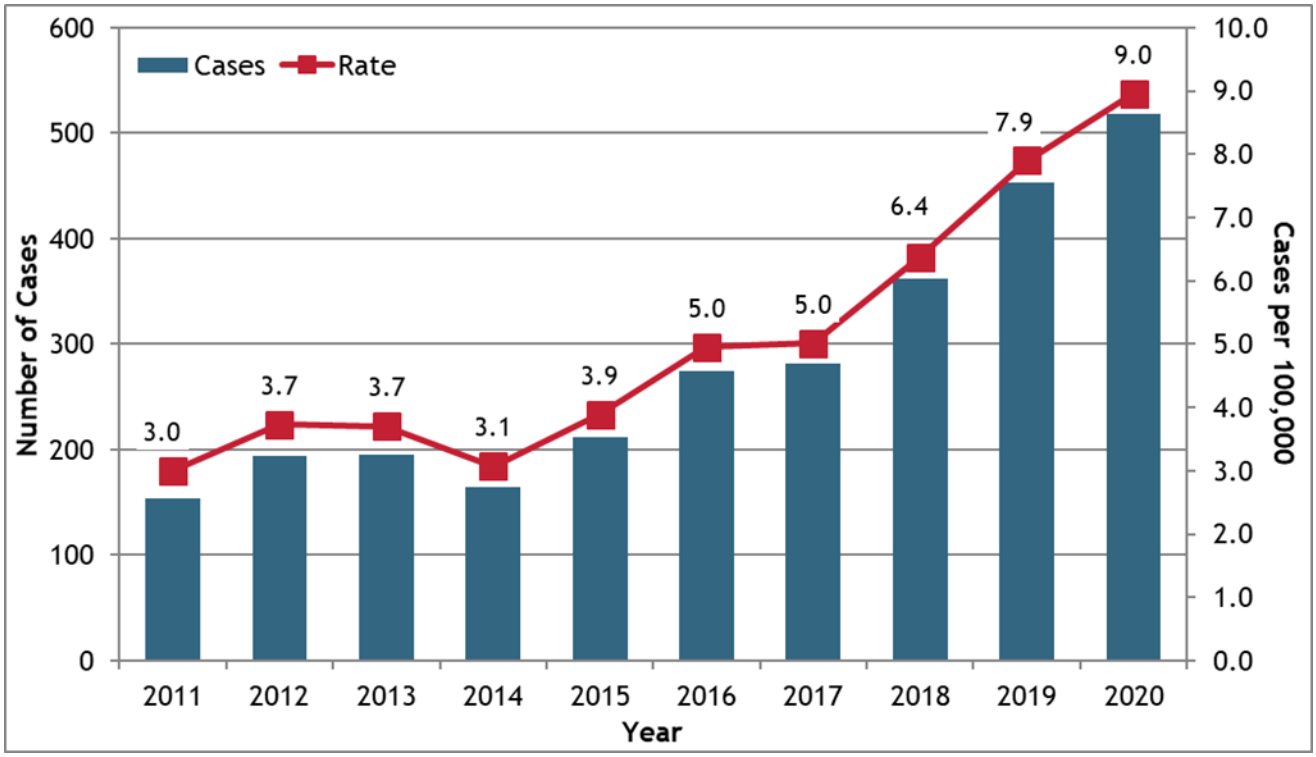
PLHIV = People Living with HIV

Non-Primary, Non-Secondary Latent Syphilis

Non-primary, non-secondary latent syphilis is latent syphilis (no visible signs or symptoms, previously referred to as early latent syphilis) in which the infection occurred within the past 12 months. There were 518 cases of non-primary, non-secondary latent syphilis diagnosed and reported in 2020, and the rate was 9.0 per 100,000. The rate increased by 13.4% from 2019 and 80.8% from 2016 as shown in **Figure EL.1**. Similar to primary/secondary syphilis and gonorrhea, this is an all-time high for Colorado.

Nationwide, 43,145 (13.1 per 100,000) cases of non-primary, non-secondary latent syphilis were diagnosed and reported to the CDC in 2020, which is a 3.5% increase in cases since 2019 (41,655) and a 49.2% increase since 2016. Compared to the increases in the United States overall, the increases in cases in Colorado from 2019 to 2020 and 2016 to 2020 were 2.8 and 1.26 times greater, respectively.[13]

Figure EL.1: Reported Non-Primary, Non-Secondary Latent Syphilis Cases and Rates of Reported Cases, Colorado, 2011-2020

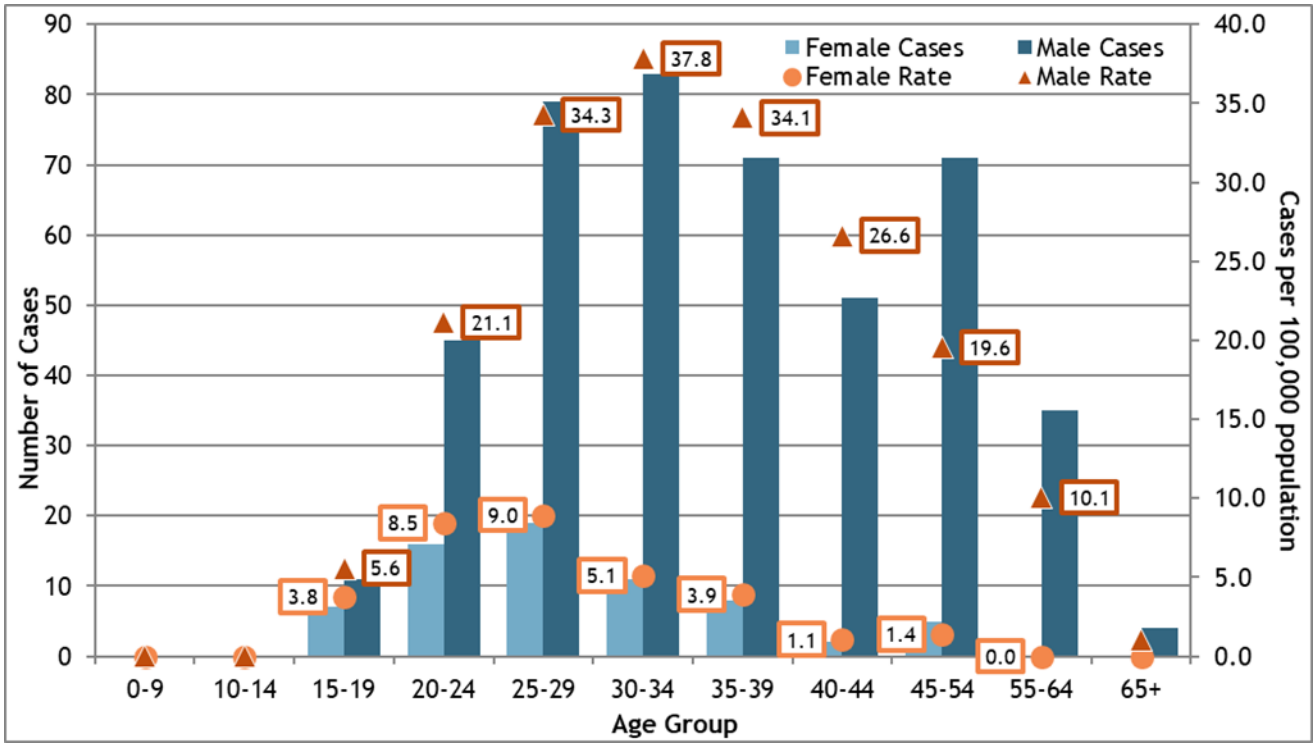


Non-Hispanic White males represent 43.1% of reported non-primary, non-secondary latent cases. Additionally, 42.1% of cases were among MSM. In 2020, 27.0% of non-primary, non-secondary latent syphilis diagnoses were living with HIV; i.e. percent of syphilis cases that were reported among people living with HIV (both previously diagnosed with HIV or diagnosed with HIV at the same time as the syphilis diagnosis), and 51.4% of those who reported MSM risk were living with HIV.

[13] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm

Figure EL.2 shows age and sex case counts for non-primary, non-secondary latent syphilis diagnosed in 2020. The mean age at diagnosis was 36.3 with a range of 15 to 67 years of age. The highest rates were reported among 30-34-year-old males. In 2020, 16.0% of the cases occurred among 30-34 year old males; followed by 25-29 year old males which accounted for 15.3% of cases.

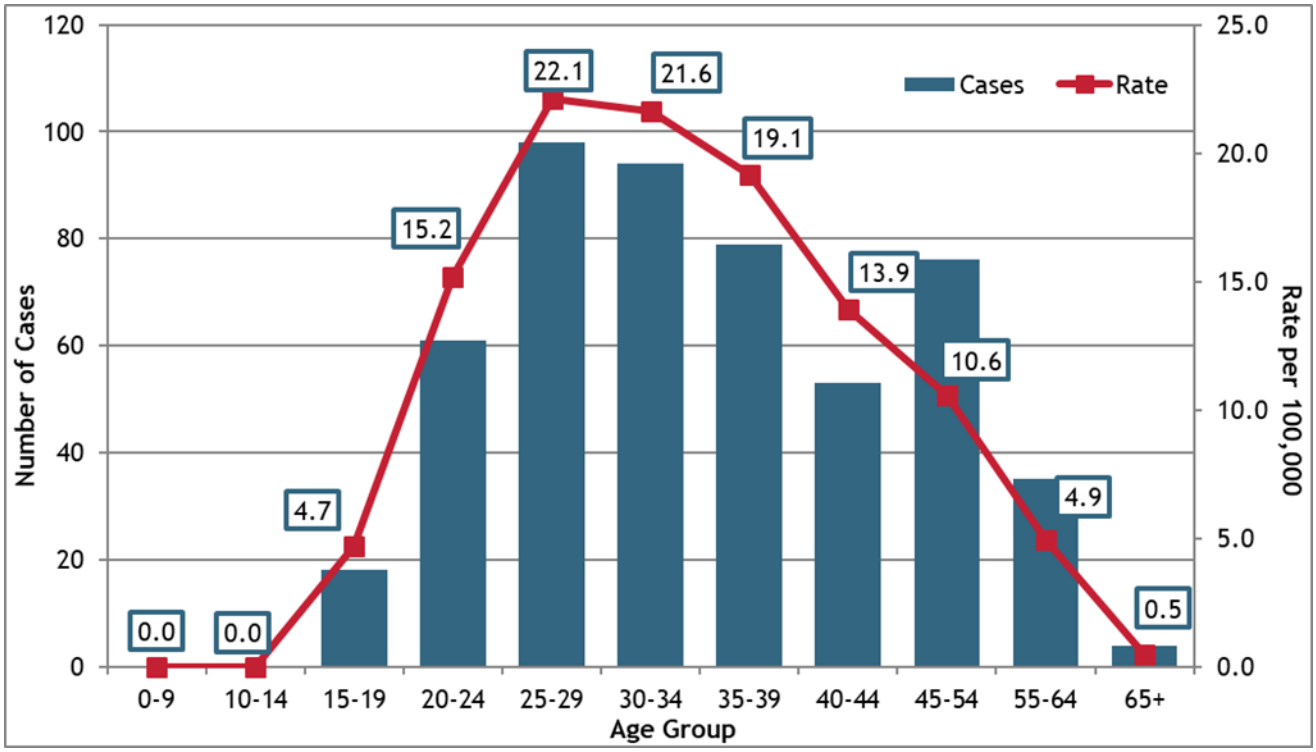
Figure EL.2: Reported Non-Primary, Non-Secondary Latent Syphilis Cases and Rates of Reported Cases by Sex and Age Group, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.

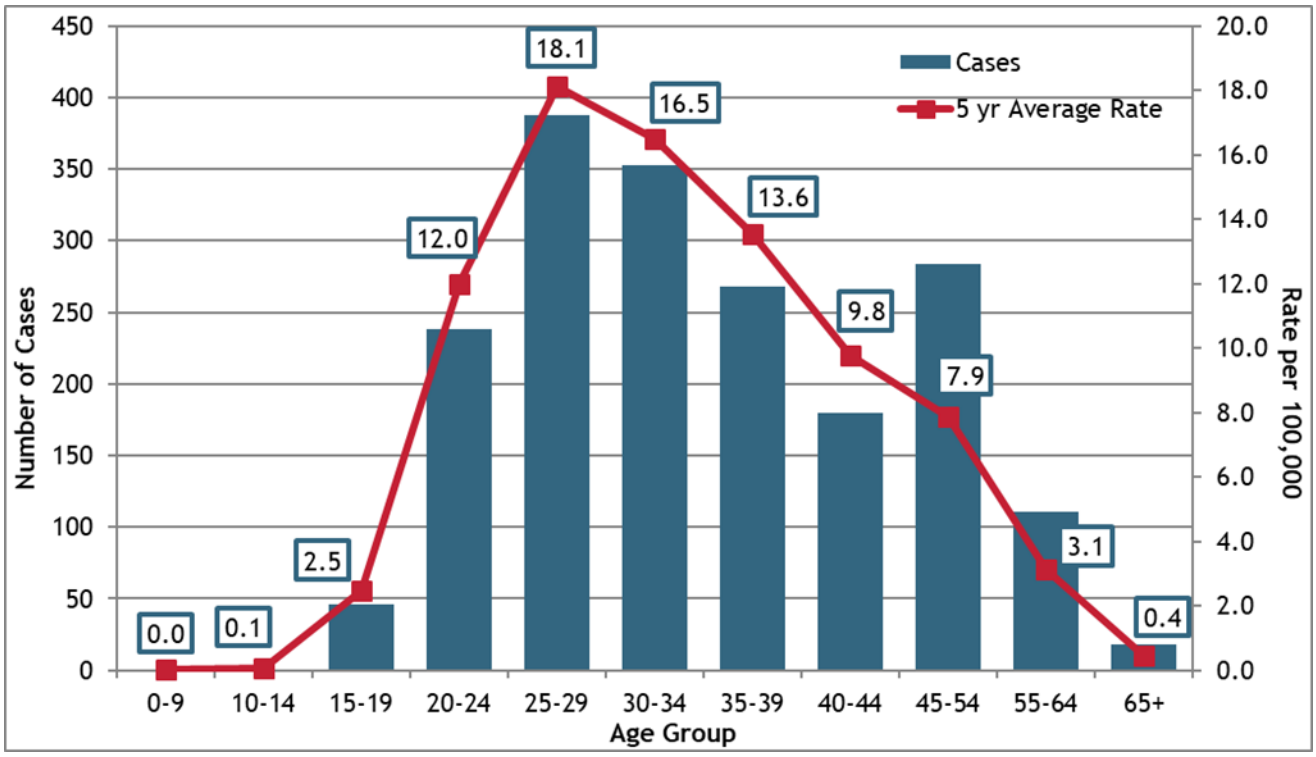
Figure EL.3 and **Figure EL.4** below depict age group case counts and rates for non-primary, non-secondary latent syphilis. This five-year average rate helps to stabilize the rate and thus produces a more accurate representation of the rate.

Figure EL.3: Reported Non-Primary, Non-Secondary Latent Syphilis Cases and Rates of Reported Cases by Age Group, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.

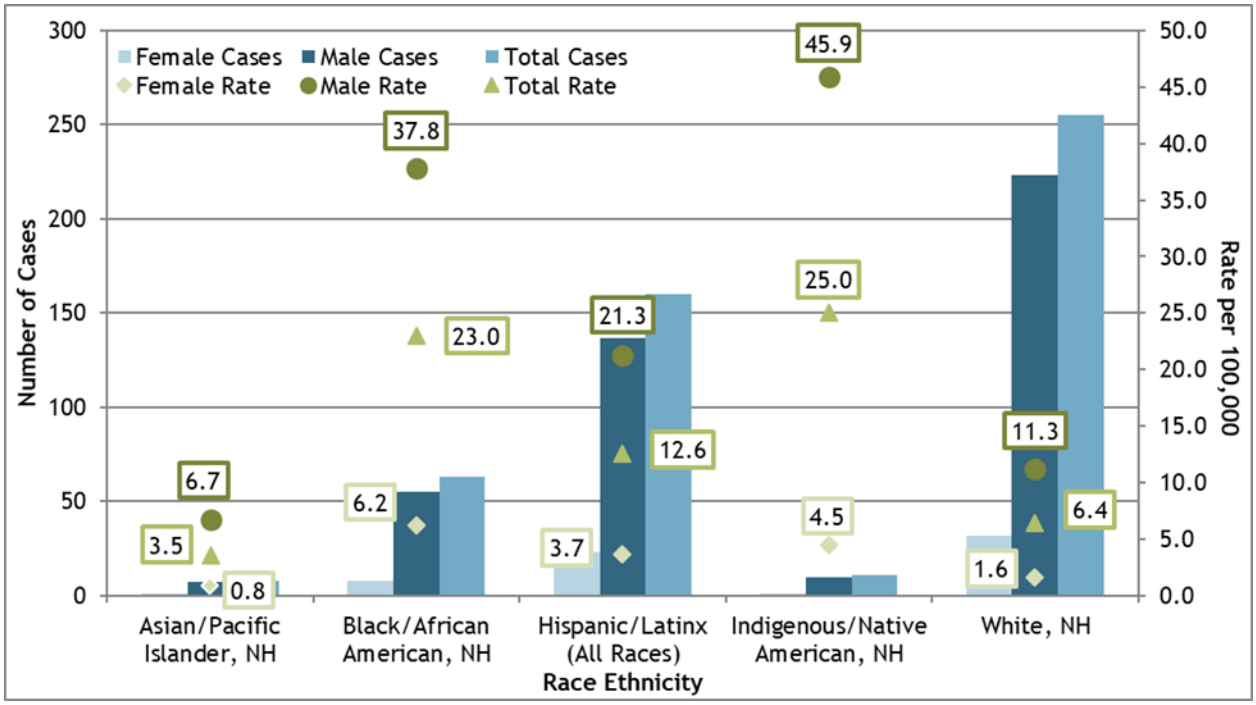
Figure EL.4: Reported Non-Primary, Non-Secondary Latent Syphilis Cases and Rates of Reported Cases by Age Group, Colorado, 2016-2020



More stable than the one-year rate from Figure EL.3

Figure EL.5 shows that trend rate of non-primary, non-secondary latent syphilis cases across race/ethnicity among males follows the total trend (among males and females combined), with Non-Hispanic Indigenous/Native American having the highest rate followed by Black/African Americans, Hispanic/Latinx, NH White, and NH Asian/Pacific Islanders. In females, the trend is similar except the highest rate is among Indigenous/Native Americans and second highest among Black/African Americans. However, it should be noted that the NH White population is more than 90 times greater than the NH Indigenous/Native American population. Additionally, while the lowest rates among NH White and NH Asian/Pacific Islander rates are similar, the NH White population is 17.6 times greater than the NH Asian/Pacific Islander population. Across all races, male cases range from 5 to 10 times greater than the female rate. While the rates for males also vary greatly by race, ranging from 6.7 per 100,000 in NH Asian/Pacific Islanders to 45.9 in NH Indigenous/Native Americans, the female rate across races has less variation and ranges from 0.8 in NH Asian/Pacific Islander to 6.2 in NH Black/African Americans.

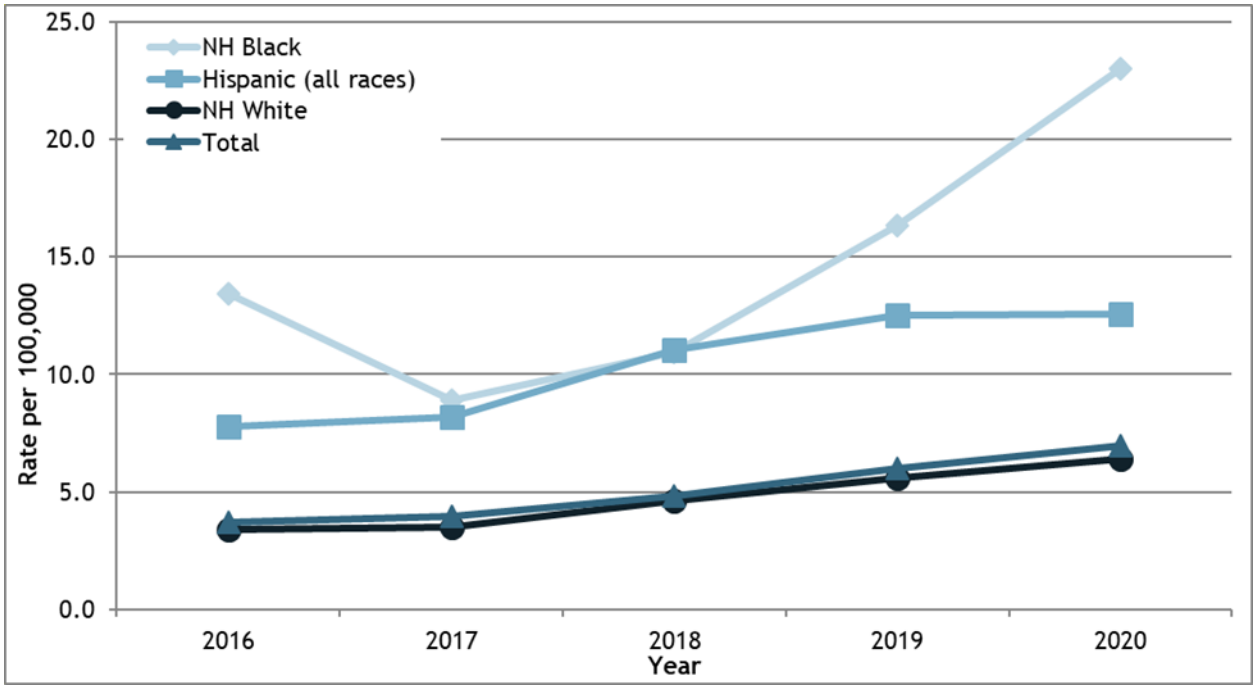
Figure EL.5: Rates of Non-Primary, Non-Secondary Latent Syphilis Cases by Race/Ethnicity and Sex, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.
NH: Non-Hispanic.

As shown in **Figure EL.6**, the rate of Non-Primary, Non-Secondary Latent Syphilis has been sharply increasing among the NH Black/African American population since 2017. The second highest ranking population, the Hispanic/Latinx population, also saw a rise in rates from 2017-2018 which leveled off, while the NH White population has remained relatively stable at the lowest rate since 2016. As previously noted, the NH White rate is almost 15 times greater than the NH Black/African American rate and over 3 times greater than the Hispanic rate. Other races were not displayed due to small case counts.

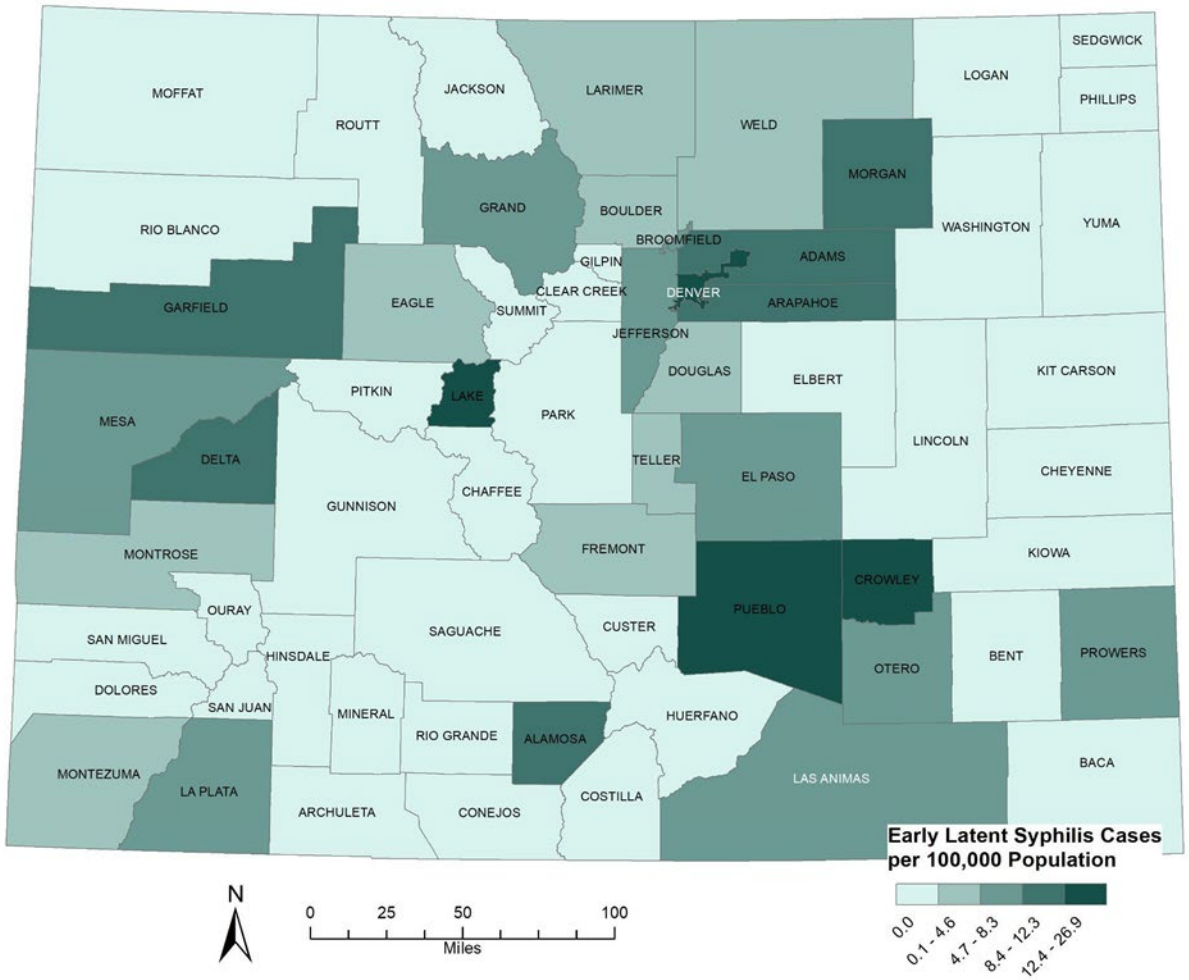
Figure EL.6: Rates of Non-Primary, Non-Secondary Latent Syphilis Cases by Race/Ethnicity, Colorado, 2016-2020



NH: Non-Hispanic.

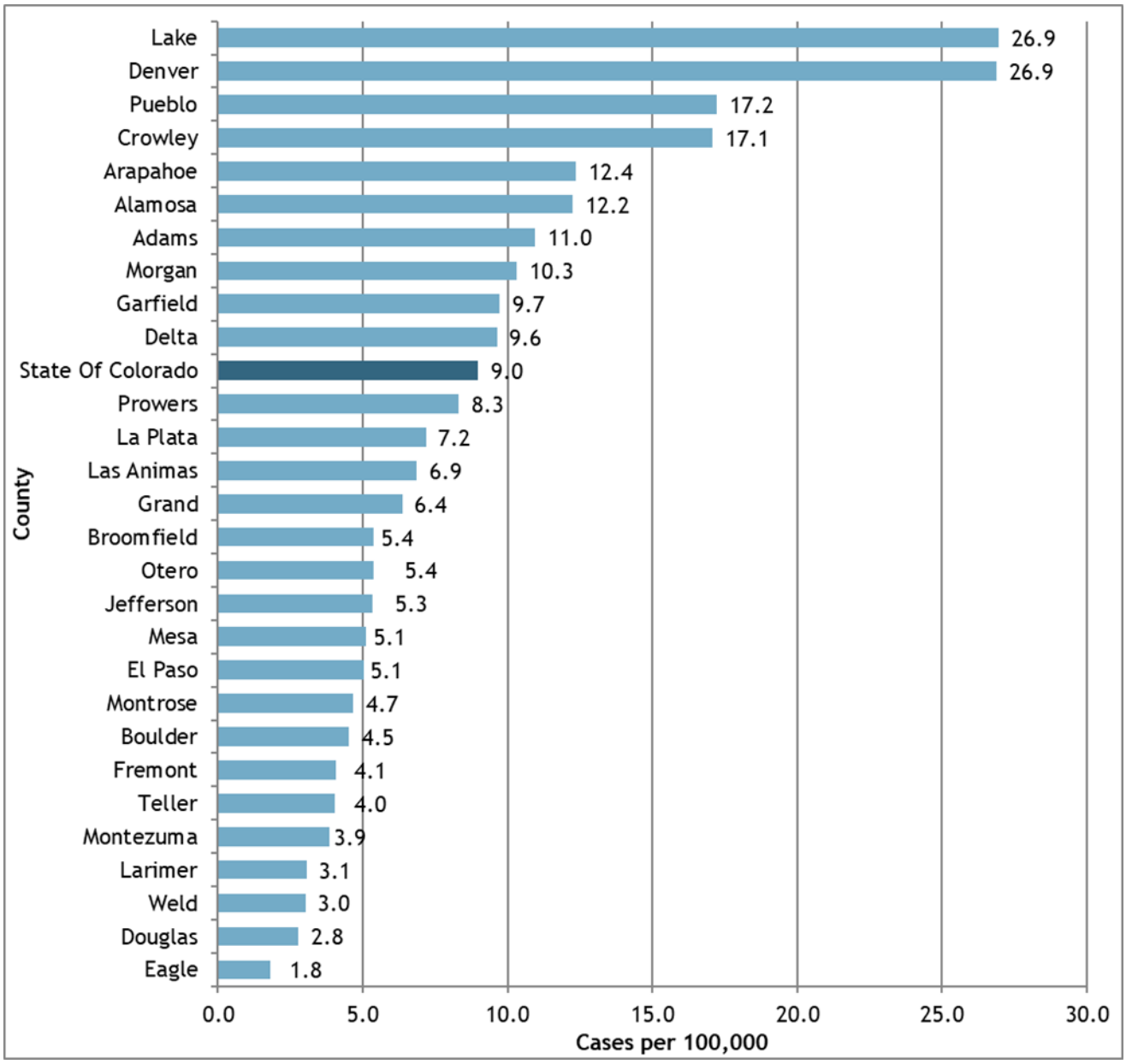
Figure EL.7 and **Figure EL.8** describe the geographical distribution of non-primary, non-secondary latent syphilis rates in Colorado at the county level. The map shows non-primary, non-secondary latent syphilis cases have been diagnosed in residents of 28 of 64 counties, with Denver County reporting the highest proportion and one of the highest rates of reported cases, 37.3% and 26.9 per 100,000 population in 2020. This represents a slight decrease in rate and proportion from 2019, when Denver County accounted for 45.7% of non-primary, non-secondary latent syphilis and the rate was 28.4 per 100,000 people. Although Lake County also had a rate of 26.9 per 100,000 people, rates were produced from five or fewer cases and are not reliable. The next highest rates were in Pueblo and Crowley counties (**Figure EL.8**). As seen with Lake County, Crowley County rates were produced from five or fewer cases and are not reliable. Use caution when interpreting some of these rates as the county may have a small population and small case numbers.

Figure EL.7: Rates of Non-Primary, Non-Secondary Latent Syphilis Cases by County Map, Colorado, 2020



High rates do not necessarily mean high case counts; for further details, see Figure EL.8 and Table 2.

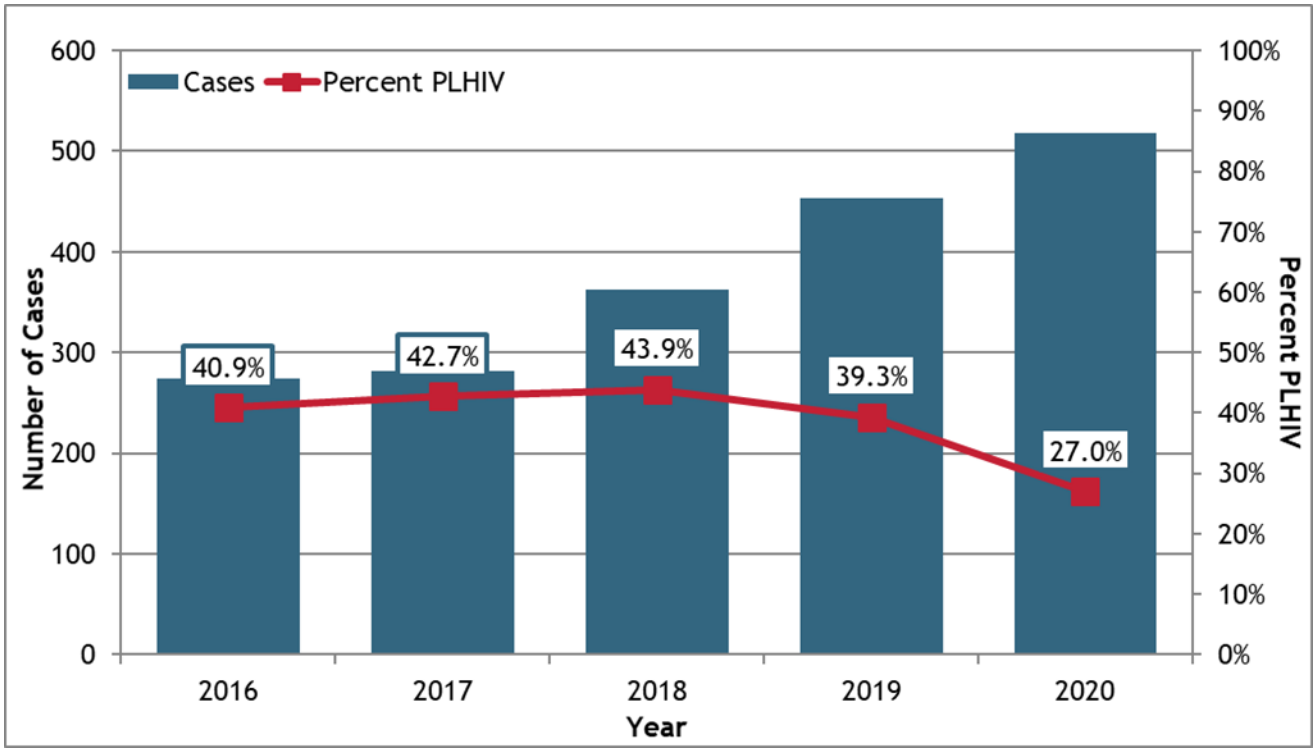
Figure EL.8: Rates of Non-Primary, Non-Secondary Latent Syphilis Cases by County Chart, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution. For details, see Table 2.

Figure EL.9 shows the rate of non-primary, non-secondary latent syphilis living with HIV; i.e. the percent of syphilis cases that were reported among people living with HIV (both previously diagnosed with HIV or diagnosed with HIV at the same time as the syphilis diagnosis), for 2016-2020. The five-year average rate for non-primary, non-secondary latent syphilis living with HIV was 37.6%.

Figure EL.9: Non-Primary, Non-Secondary Latent Syphilis Reported Cases and Percent Living with HIV by Year of Diagnosis, Colorado, 2016-2020



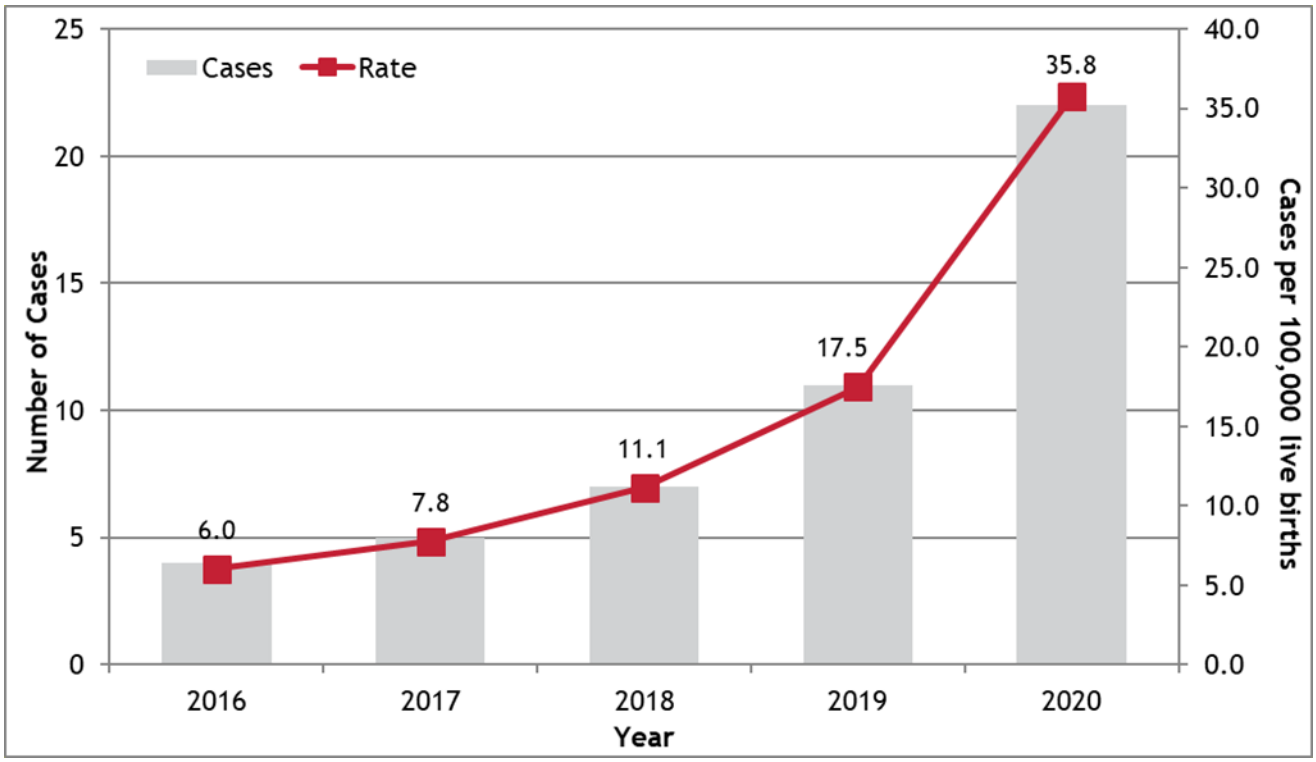
PLHIV = People Living with HIV

Congenital Syphilis

All congenital syphilis reports that meet the current case definition for "probable" or "confirmed" are considered congenital syphilis cases.

There were 22 cases of congenital syphilis reported in Colorado in 2020, and the rate was 35.8 per 100,000 live births.[14] In 2020, there were a total of 2,148 congenital syphilis cases (57.3 per 100,000 live births) reported in the United States to the CDC.[15] The increase in the rate in Colorado went from 57.7% from 2018-2019 to 104.6% from 2019-2020, compared to the 15% increase from 2018-2019 and a 43% increase from 2019-2020 seen in the United States.

Figure CS.1: Reported Congenital Syphilis Cases and Rates of Reported Cases, Colorado, 2016-2020



[14] Live birth data from the Colorado Health Information Dataset (COHID) managed by CDPHE. http://www.cohid.dphe.state.co.us/

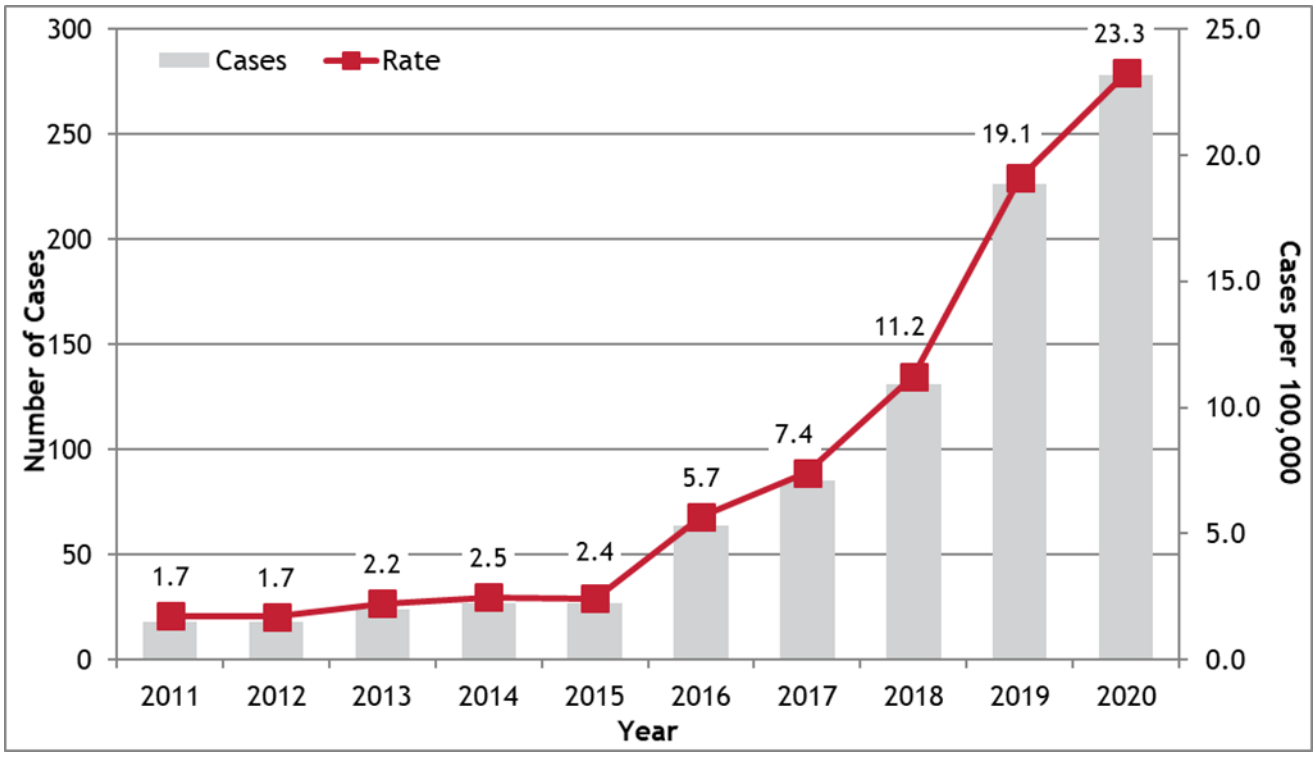
[15] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm

Syphilis Among Women of Reproductive Age

Trends for congenital syphilis mirror trends for syphilis of all stages among women of reproductive age (WRA), which is defined as 15-44 years of age. For the years 2011 to 2015, this particular cohort had stable numbers of reported cases. In 2016, however, the number of cases more than doubled compared to the previous year as seen below in **Figure CS.2.** Following 2016, the rate has continued to increase, with 278 diagnosed and reported cases of syphilis among WRA in 2020, corresponding to a rate of 23.3 per 100,000 - 309% greater than the rate in 2016 and 22% greater than the rate in 2019.

A similar trend has been seen in the United States, where 5,726 cases of primary and secondary syphilis among WRA were reported to the CDC in 2020, which is a 24% increase from 2019.[16]

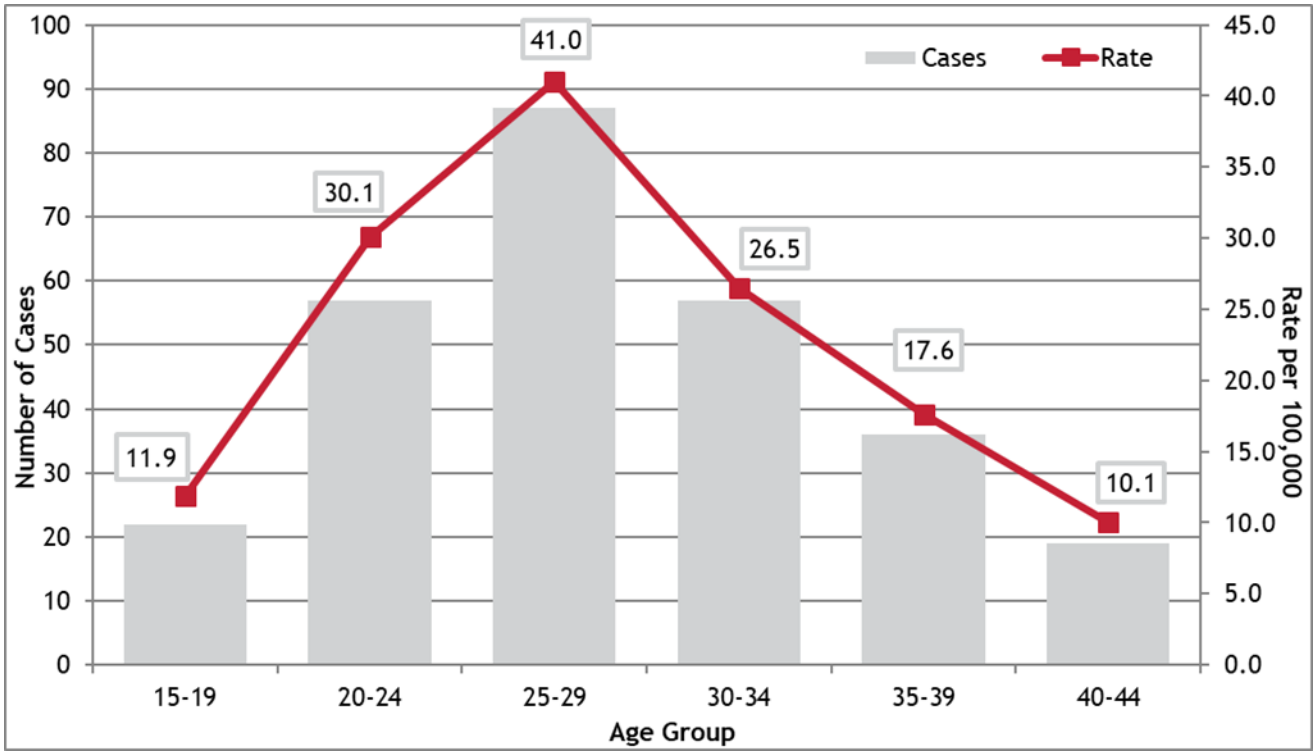
Figure CS.2: Reported Syphilis Cases Among Women of Reproductive Age and Rates of Reported Cases, Colorado, 2011-2020



[16] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2020.* Atlanta: U.S. Department of Health and Human Services; 2022.://www.cdc.gov/std/statistics/2020/tables/1.htm

Figure CS.3 shows age group case counts for syphilis among women of reproductive age diagnosed in 2020. The mean age at diagnosis was 29.1 with a range of 16 to 44 years of age. Among all women of reproductive age, the highest rate of 41.0 per 100,000 was reported among 25-29 year olds.

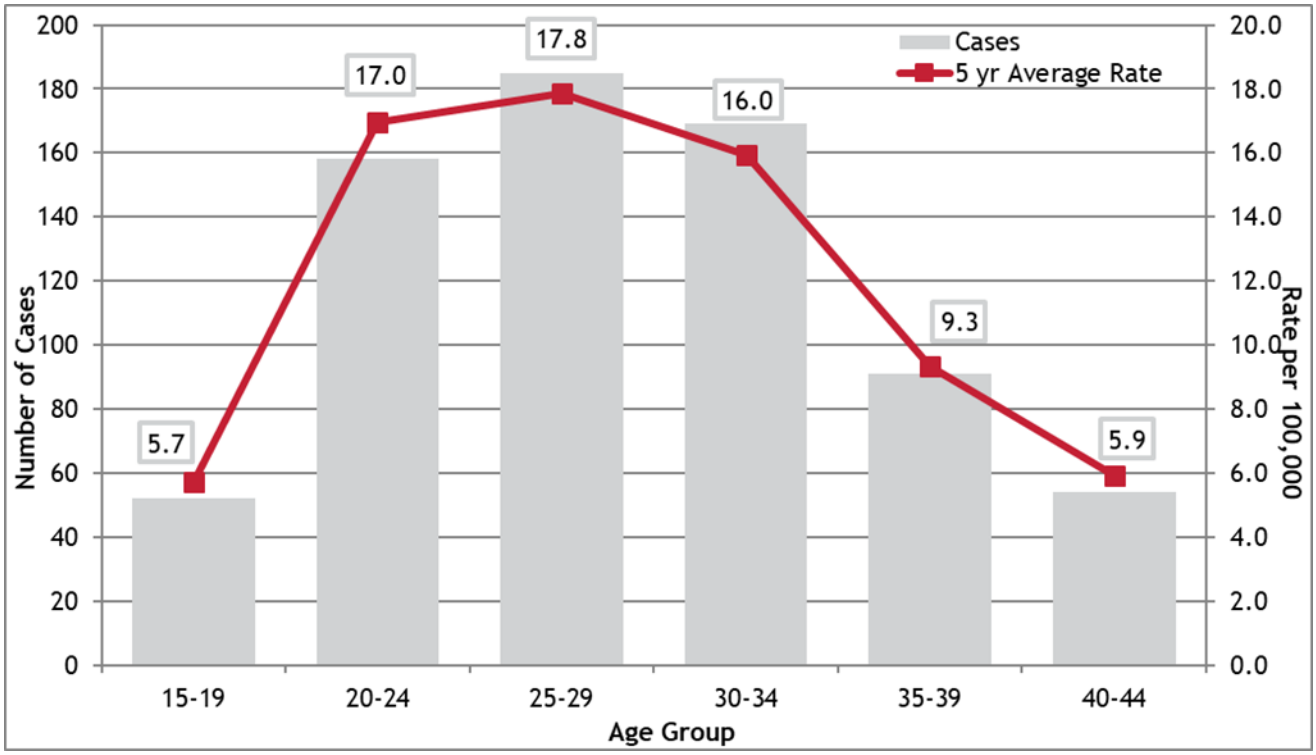
Figure CS.3: Reported Syphilis Cases Among Women of Reproductive Age and Rates of Reported Cases by Age Group, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.

Figure CS.4 depicts age group case counts and rates for syphilis among women of reproductive age diagnosed in 2016-2020. This five-year average rate helps to stabilize the rate and thus produces a more accurate representation of the condition.

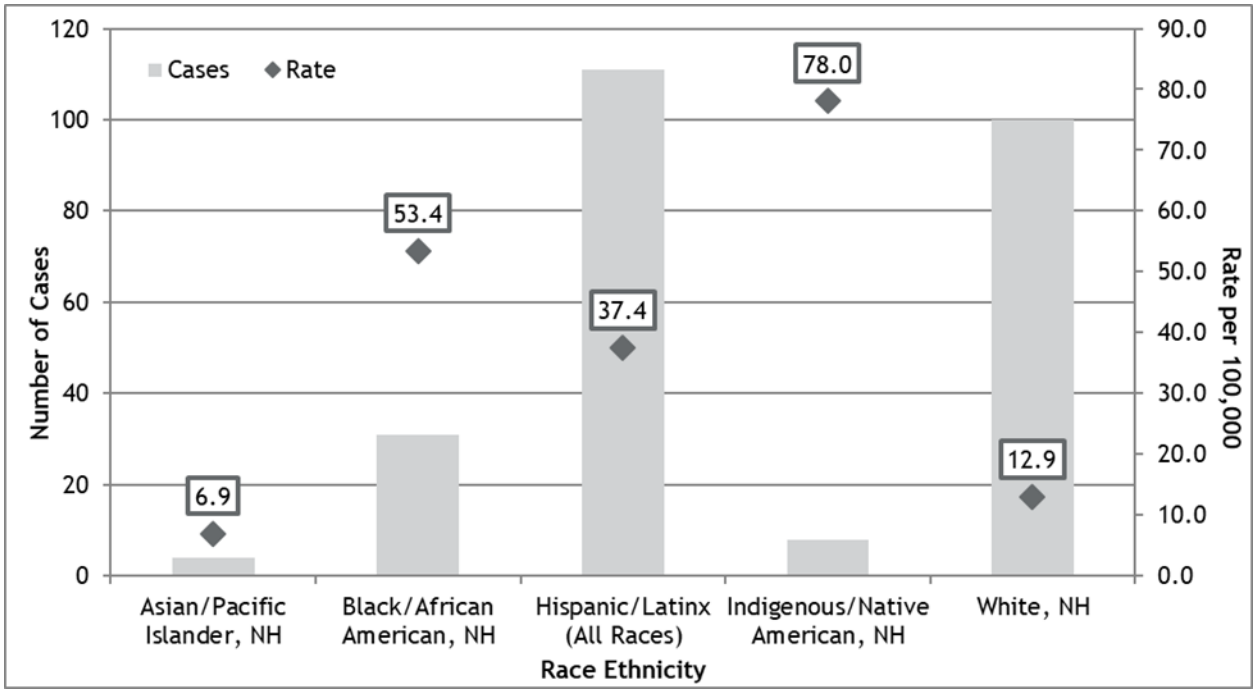
Figure CS.4: Reported Syphilis Cases Among Women of Reproductive Age and Rates of Reported Cases by Age Group, Colorado, 2016-2020



More stable than the one-year rate from Figure CS.3

Figure CS.5 shows the highest rate of syphilis among WRA is seen among NH Indigenous/Native Americans. However, this group also had close to the lowest number of cases (8 compared to 4 in the NH Asian/Pacific Islander group) and accounted for only 2.9% of total cases among WRA. While the NH Indigenous/Native American population had almost the same amount of cases as the NH Asian/Pacific Islander population, the rate among NH Indigenous/Native Americans is 11.3 times greater than the rate among NH Asian/Pacific Islanders due to differences in population. In contrast, while NH Whites had the second lowest rate, they accounted for the second highest proportion of cases (36.0% compared to 39.9% in Hispanic/Latinx).

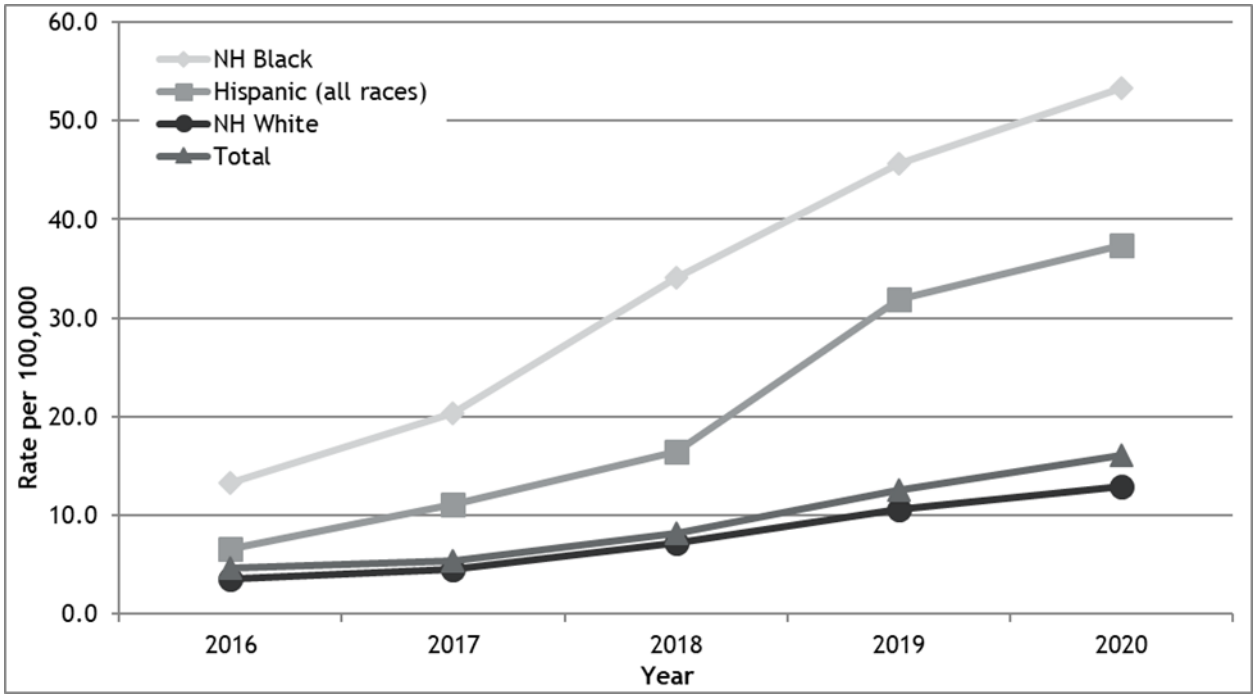
Figure CS.5: Reported Syphilis Cases Among Women of Reproductive Age and Rates of Reported Cases by Race/Ethnicity, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution.
NH: Non-Hispanic.

Figure CS.6 displays the five-year trend in rates for NH Black/African Americans, Hispanics/Latinx of all races, and NH Whites, with other races not being displayed due to small case counts. All three races shown have seen increasing rates over the past 5 years. While the rate among the NH White population has been steadily increasing since 2016, the Hispanic population experienced the sharpest increase from 2018-2019 and increased by 128% from 2018-2020, and the rate among the NH Black population increased by 16.8% and 56.5% compared to 2019 and 2018, respectively.

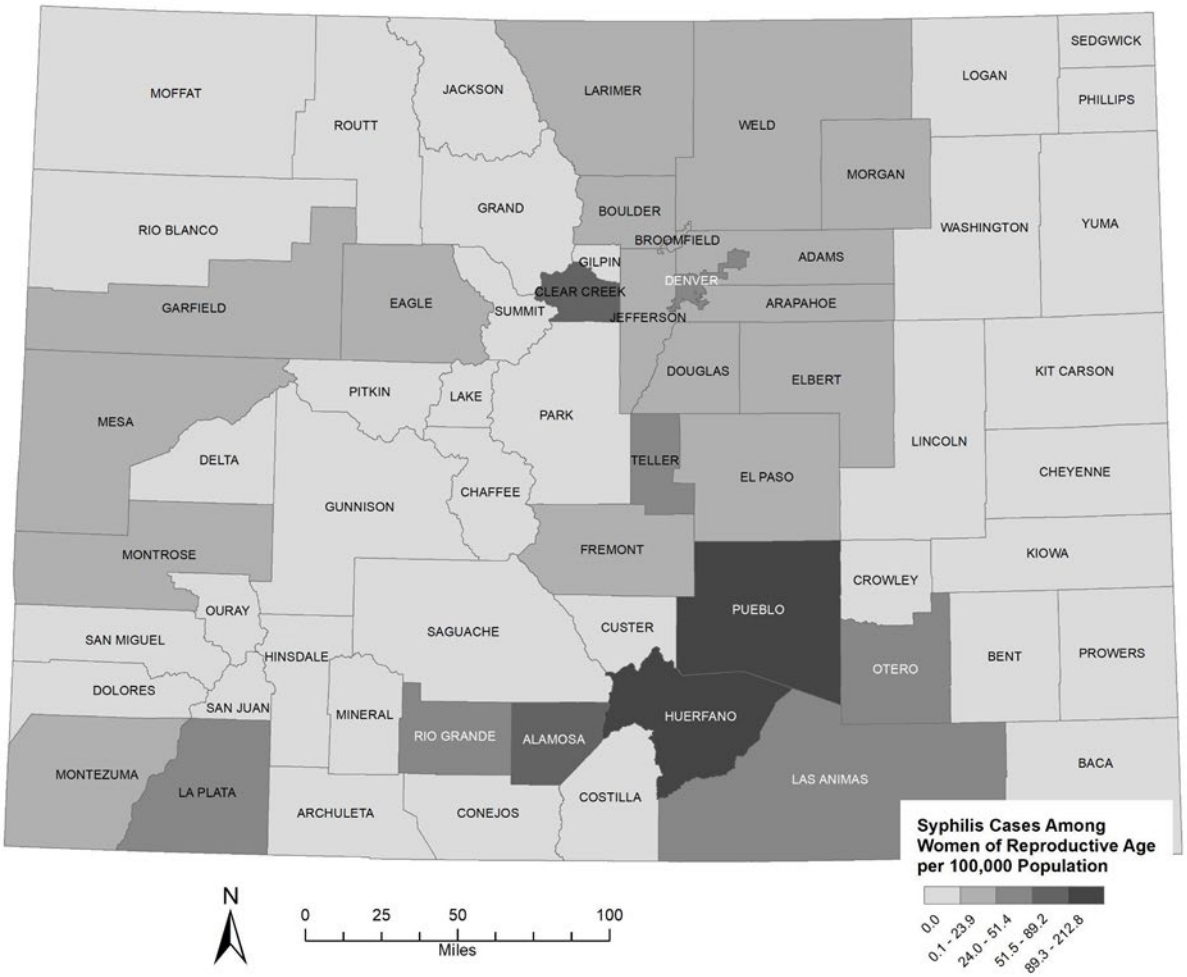
Figure CS.6: Rates of Reported Syphilis Cases Among Women of Reproductive Age by Race/Ethnicity, Colorado, 2016-2020



Note: these rates use small numbers and should be interpreted with caution.
NH: Non-Hispanic.

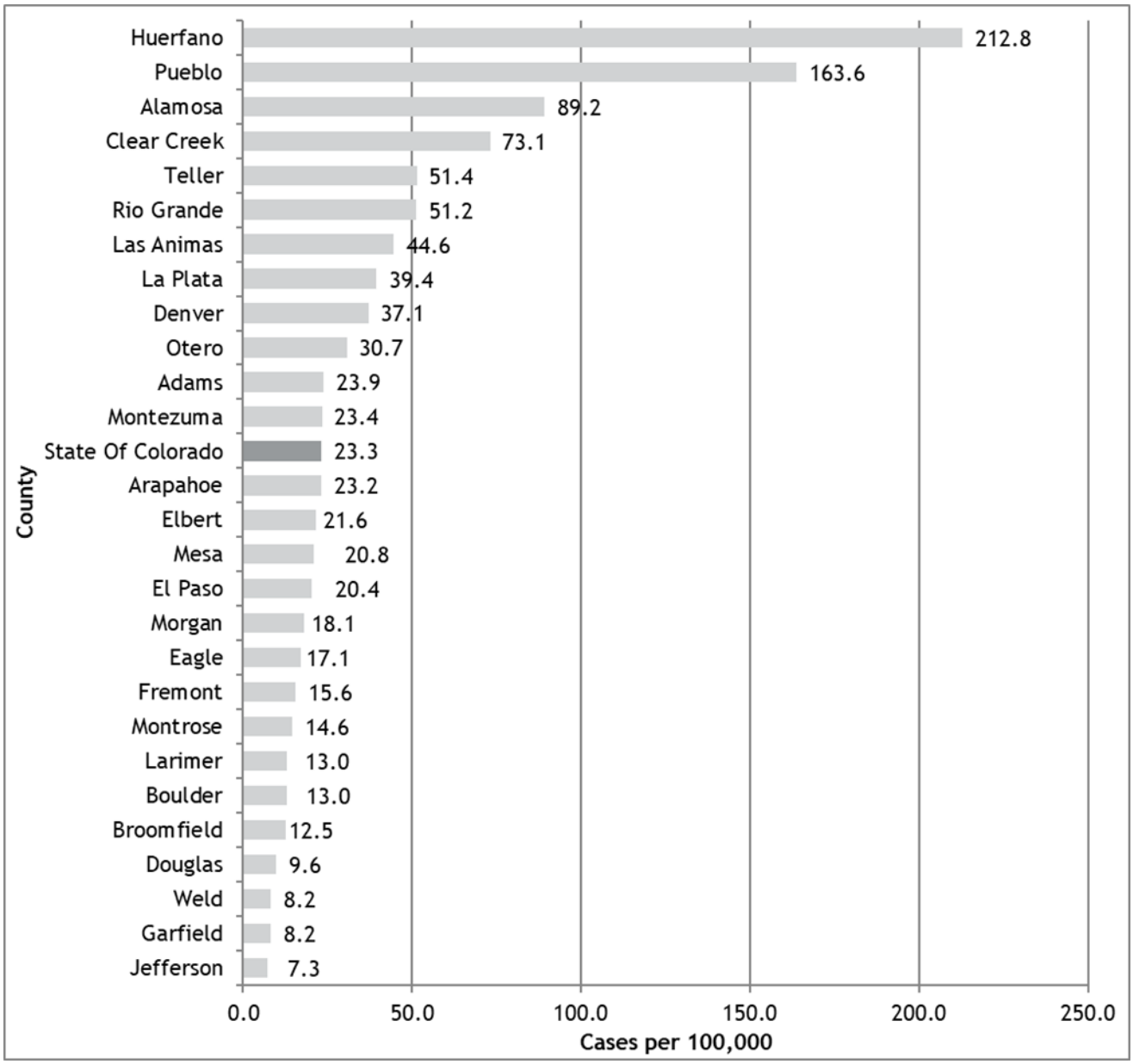
Figure CS.7 and **Figure CS.8** describe the geographical distribution of syphilis rates among women of reproductive age in Colorado at the county level. The chart shows syphilis cases have been diagnosed in residents of 28 of 64 counties, with Denver County reporting the highest proportion (23.0%) in 2020. The three highest rates were in Huerfano, Pueblo, and Alamosa counties (**Figure CS.8**) however, the rates for Huerfano and Alamosa Counties were produced from small case counts of five or fewer and are not reliable. Use caution when interpreting some of these rates as the county may have a small population and small case numbers.

Figure CS.7: Rates of Reported Syphilis Cases Among Women of Reproductive Age by County Map, Colorado, 2020



High rates do not necessarily mean high case counts; for further details, see Figure CS.8 and Table 7.

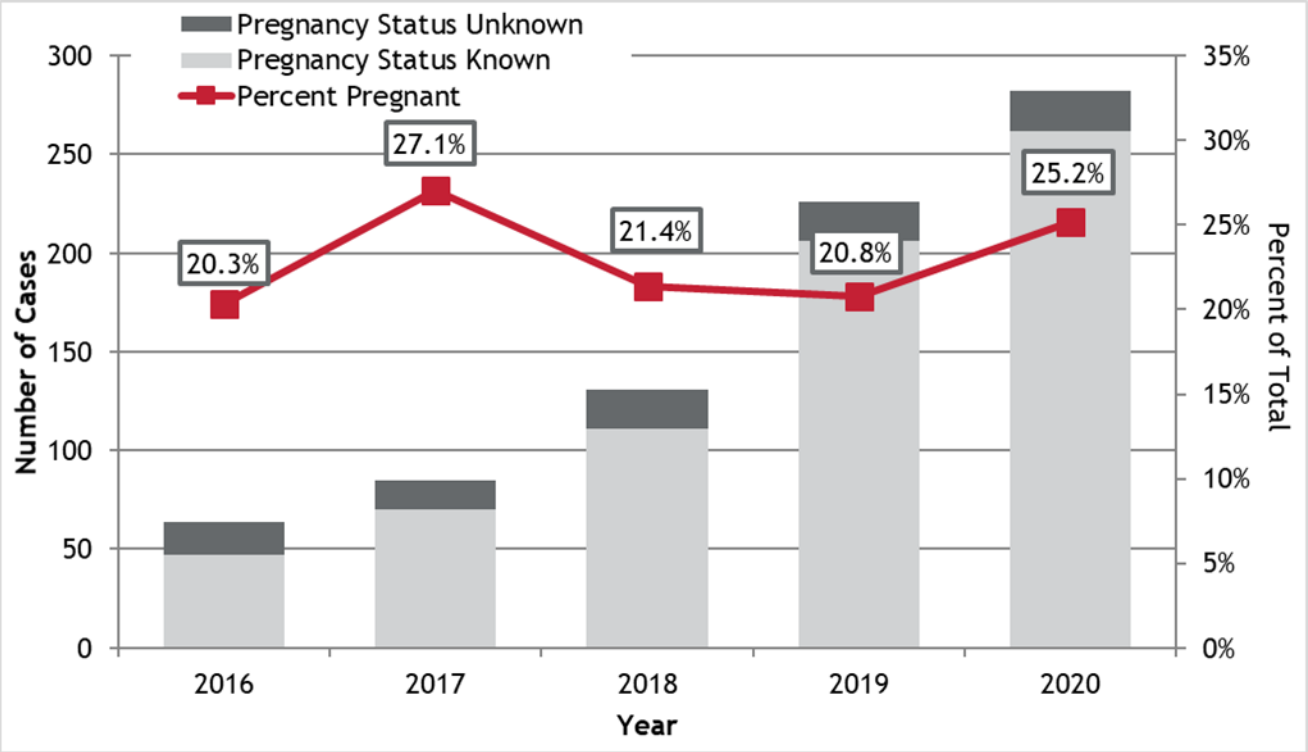
Figure CS.8: Rates of Reported Syphilis Cases Among Women of Reproductive Age by County Chart, Colorado, 2020



Note: these rates use small numbers and should be interpreted with caution. For details, see Table 7.

Figure CS.9 shows the rate of pregnancy and syphilis among women of reproductive age for 2016-2020 reported to CDPHE. The five-year average was 23.1%. In 2020, 70 (25.2% of the total reported cases) women were pregnant at the time of their syphilis diagnosis.

Figure CS.9: Reported Syphilis Cases Among Women of Reproductive Age and Percent Pregnant by Year of Diagnosis, Colorado, 2016-2020



Data Tables

Table 1: Reported Chlamydia, Gonorrhea and Early Syphilis Cases and Rates of Reported Cases by Demographic Characteristics, 2020

		Chlamydia			Gonorrhea			Primary & Secondary Syphilis			Early Latent Syphilis		
	2020 Population ^	Cases	%	Rate†	Cases	%	Rate†	Cases	%	Rate†	Cases	%	Rate†
Total	5,783,136	26,136	100.0	451.9	9,686	100.0	167.5	637	100.0	11.0	518	100.0	9.0
Gender													
Female	2,893,883	9,560	36.6	330.4	5,754	59.4	198.8	538	84.5	18.6	450	86.9	15.6
Male	2,889,253	16,576	63.4	573.7	3,932	40.6	136.1	99	15.5	3.4	68	13.1	2.4
Race/Ethnicity													
Asian/PI, NH	225,916	364	1.4	161.1	111	1.1	49.1	18	2.8	8.0	8	1.5	3.5
Black/African American, NH	273,673	2,475	9.5	904.4	1,674	17.3	611.7	66	10.4	24.1	63	12.2	23.0
Hispanic/Latinx (all races)	1,272,748	6,122	23.4	481.0	2,364	24.4	185.7	197	30.9	15.5	160	30.9	12.6
Indigenous/Native American, NH	43,952	210	0.8	477.8	115	1.2	261.6	7	1.1	15.9	11	2.1	25.0
Other/Unknown	---	10,237	39.2	---	2,985	30.8	---	25	3.9	---	21	4.1	---
White, NH	3,966,847	6,728	25.7	169.6	2,437	25.2	61.4	324	50.9	8.2	255	49.2	6.4
Age Group													
0 to 9	661,486	11	0.0	1.7	3	0.0	0.5	0	0.0	0.0	0	0.0	0.0
10 to 14	363,386	142	0.5	39.1	45	0.5	12.4	0	0.0	0.0	0	0.0	0.0
15 to 19	382,510	6,425	24.6	1679.7	1,380	14.2	360.8	26	4.1	6.8	18	3.5	4.7
20 to 24	402,107	9,226	35.3	2294.4	2,251	23.2	559.8	77	12.1	19.1	61	11.8	15.2
25 to 29	442,615	4,728	18.1	1068.2	1,937	20.0	437.6	140	22.0	31.6	98	18.9	22.1
30 to 34	434,672	2,664	10.2	612.9	1,562	16.1	359.4	115	18.1	26.5	94	18.1	21.6
35 to 39	412,742	1,338	5.1	324.2	1,074	11.1	260.2	88	13.8	21.3	79	15.3	19.1
40 to 44	380,242	741	2.8	194.9	632	6.5	166.2	68	10.7	17.9	53	10.2	13.9
45 to 54	719,368	606	2.3	84.2	580	6.0	80.6	78	12.2	10.8	76	14.7	10.6
55 to 64	711,565	219	0.8	30.8	194	2.0	27.3	38	6.0	5.3	35	6.8	4.9
65+	872,443	36	0.1	4.1	28	0.3	3.2	7	1.1	0.8	4	0.8	0.5
Unknown	---	0	0.0	---	0	0.0	---	0	0.0	---	0	0.0	---

^ 2020 estimate from Colorado State Demography Office

† Rate per 100,000

Table 2: Reported Chlamydia, Gonorrhea and Early Syphilis Cases and Rate of Reported Cases with Ranking by County & Health Statistics Region (HSR), 2020

		Chlamydia				Gonorrhea				Primary & Secondary Syphilis				Early Latent Syphilis			
	2020 Population^	Cases	Rate†	County Rank‡	HSR Rank*	Cases	Rate†	County Rank‡	HSR Rank*	Cases	Rate†	County Rank‡	HSR Rank*	Cases	Rate†	County Rank‡	HSR Rank*
Region 1:	**72,277**	**207**	**286.4**	---	**13**	**45**	**62.3**	---	**13**	**3**	**4.2**	---	**14**	**3**	**4.2**	**---**	**15**
Logan	21,410	64	298.9	21	---	6	28.0	46	---	1	4.7	23	---	0	0.0	29	---
Morgan	29,089	109	374.7	15	---	32	110.0	14	---	1	3.4	28	---	3	10.3	8	---
Phillips	4,529	12	265.0	26	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Sedgwick	2,414	1	41.4	62	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Washington	4,837	7	144.7	49	---	6	124.0	13	---	1	20.7	4	---	0	0.0	29	---
Yuma	9,998	14	140.0	52	---	1	10.0	54	---	0	0.0	33	---	0	0.0	29	---
Region 2: Larimer	**359,702**	**1,221**	**339.4**	**18**	**10**	**254**	**70.6**	**27**	**11**	**13**	**3.6**	**27**	**17**	**11**	**3.1**	**25**	**16**
Region 3: Douglas	**360,016**	**755**	**209.7**	**40**	**18**	**156**	**43.3**	**38**	**18**	**14**	**3.9**	**26**	**16**	**10**	**2.8**	**27**	**18**
Region 4: El Paso	**731,632**	**4,164**	**569.1**	**4**	**3**	**1,446**	**197.6**	**5**	**4**	**50**	**6.8**	**17**	**9**	**37**	**5.1**	**19**	**9**
Region 5:	**40,695**	**68**	**167.1**	---	**20**	**25**	**61.4**	---	**14**	**5**	**12.3**	---	**4**	**0**	**0.0**	**---**	**20**
Cheyenne	1,752	1	57.1	61	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Elbert	26,204	43	164.1	47	---	15	57.2	34	---	4	15.3	7	---	0	0.0	29	---
Kit Carson	7,077	14	197.8	42	---	6	84.8	20	---	0	0.0	33	---	0	0.0	29	---
Lincoln	5,662	10	176.6	45	---	4	70.6	26	---	1	17.7	6	---	0	0.0	29	---
Region 6:	**68,437**	**259**	**378.5**	---	**9**	**83**	**121.3**	---	**8**	**5**	**7.3**	---	**7**	**4**	**5.8**	**---**	**5**
Baca	3,487	1	28.7	63	---	2	57.4	33	---	1	28.7	3	---	0	0.0	29	---
Bent	5,584	14	250.7	31	---	5	89.5	18	---	0	0.0	33	---	0	0.0	29	---
Crowley	5,854	5	85.4	57	---	5	85.4	19	---	0	0.0	33	---	1	17.1	4	---
Huerfano	6,804	15	220.5	37	---	7	102.9	15	---	1	14.7	8	---	0	0.0	29	---
Kiowa	1,466	1	68.2	60	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Las Animas	14,557	77	529.0	7	---	31	213.0	4	---	2	13.7	9	---	1	6.9	13	---
Otero	18,669	78	417.8	9	---	11	58.9	32	---	1	5.4	22	---	1	5.4	16	---
Prowers	12,016	68	565.9	5	---	22	183.1	6	---	0	0.0	33	---	1	8.3	11	---
Region 7: Pueblo	**168,445**	**1,006**	**597.2**	**3**	**2**	**379**	**225.0**	**3**	**3**	**60**	**35.6**	**1**	**1**	**29**	**17.2**	**3**	**2**
Region 8:	**46,131**	**204**	**442.2**	---	**6**	**28**	**60.7**	---	**15**	**3**	**6.5**	---	**10**	**2**	**4.3**	**---**	**14**
Alamosa	16,329	103	630.8	2	---	12	73.5	25	---	3	18.4	5	---	2	12.2	6	---
Conejos	7,480	29	387.7	13	---	3	40.1	39	---	0	0.0	33	---	0	0.0	29	---
Costilla	3,503	10	285.5	23	---	1	28.5	45	---	0	0.0	33	---	0	0.0	29	---
Mineral	863	2	231.7	36	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Rio Grande	11,543	46	398.5	12	---	7	60.6	30	---	0	0.0	33	---	0	0.0	29	---
Saguache	6,413	14	218.3	38	---	5	78.0	24	---	0	0.0	33	---	0	0.0	29	---
Region 9:	**97,709**	**327**	**334.7**	---	**11**	**106**	**108.5**	---	**9**	**9**	**9.2**	---	**6**	**5**	**5.1**	**---**	**8**

Archuleta	13,389	29	216.6	39	---	8	59.8	31	---	0	0.0	33	---	0	0.0	29	---
Dolores	2,091	5	239.1	35	---	3	143.5	9	---	0	0.0	33	---	0	0.0	29	---
La Plata	55,662	205	368.3	16	---	57	102.4	16	---	7	12.6	11	---	4	7.2	12	---
Montezuma	25,859	88	340.3	17	---	37	143.1	10	---	2	7.7	14	---	1	3.9	24	---
San Juan	708	0	0.0	64	---	1	141.2	11	---	0	0.0	33	---	0	0.0	29	---
Region 10:	**104,650**	**270**	**258.0**	---	**14**	**61**	**58.3**	---	**16**	**5**	**4.8**	---	**12**	**5**	**4.8**	**---**	**11**
Delta	31,157	75	240.7	34	---	26	83.4	22	---	1	3.2	30	---	3	9.6	10	---
Gunnison	16,940	43	253.8	28	---	4	23.6	49	---	1	5.9	19	---	0	0.0	29	---
Hinsdale	793	2	252.2	29	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Montrose	42,799	128	299.1	20	---	30	70.1	28	---	3	7.0	16	---	2	4.7	20	---
Ouray	4,887	7	143.2	51	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
San Miguel	8,074	15	185.8	43	---	1	12.4	53	---	0	0.0	33	---	0	0.0	29	---
Region 11:	**46,035**	**92**	**199.8**	---	**19**	**11**	**23.9**	---	**21**	**0**	**0.0**	---	**21**	**0**	**0.0**	**---**	**20**
Jackson	1,388	2	144.1	50	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Moffat	13,284	23	173.1	46	---	4	30.1	42	---	0	0.0	33	---	0	0.0	29	---
Rio Blanco	6,525	5	76.6	58	---	2	30.7	41	---	0	0.0	33	---	0	0.0	29	---
Routt	24,838	62	249.6	32	---	5	20.1	52	---	0	0.0	33	---	0	0.0	29	---
Region 12:	**181,485**	**459**	**252.9**	---	**15**	**91**	**50.1**	---	**17**	**8**	**4.4**	---	**9**	**8**	**4.4**	**---**	**13**
Eagle	55,652	140	251.6	30	---	15	27.0	47	---	3	5.4	20	---	1	1.8	28	---
Garfield	61,711	174	282.0	24	---	50	81.0	23	---	2	3.2	29	---	6	9.7	9	---
Grand	15,702	25	159.2	48	---	4	25.5	48	---	0	0.0	33	---	1	6.4	14	---
Pitkin	17,381	35	201.4	41	---	5	28.8	43	---	0	0.0	33	---	0	0.0	29	---
Summit	31,039	85	273.8	25	---	17	54.8	35	---	3	9.7	13	---	0	0.0	29	---
Region 13:	**80,569**	**199**	**247.0**	---	**17**	**28**	**34.8**	---	**20**	**1**	**1.2**	---	**20**	**4**	**5.0**	**---**	**10**
Chaffee	19,540	21	107.5	54	---	4	20.5	51	---	0	0.0	33	---	0	0.0	29	---
Custer	4,723	5	105.9	55	---	0	0.0	55	---	0	0.0	33	---	0	0.0	29	---
Fremont	48,882	142	290.5	22	---	24	49.1	36	---	1	2.0	31	---	2	4.1	22	---
Lake	7,424	31	417.6	10	---	0	0.0	55	---	0	0.0	33	---	2	26.9	1	---
Region 14: Adams	**520,058**	**2,626**	**504.9**	**8**	**5**	**911**	**175.2**	**7**	**5**	**70**	**13.5**	**10**	**3**	**57**	**11.0**	**7**	**4**
Region 15: Arapahoe	**655,048**	**3,522**	**537.7**	**6**	**4**	**1,518**	**231.7**	**2**	**2**	**73**	**11.1**	**12**	**5**	**81**	**12.4**	**5**	**3**
Region 16:	**405,326**	**1,311**	**323.4**	---	**12**	**282**	**69.6**	---	**12**	**26**	**6.4**	---	**11**	**19**	**4.7**	**---**	**12**
Boulder	330,850	1,120	338.5	19	---	219	66.2	29	---	22	6.6	18	---	15	4.5	21	---
Broomfield	74,476	191	256.5	27	---	63	84.6	21	---	4	5.4	21	---	4	5.4	15	---
Region 17:	**57,410**	**83**	**144.6**	---	**21**	**20**	**34.8**	---	**19**	**1**	**1.7**	---	**19**	**1**	**1.7**	**---**	**19**
Clear Creek	9,387	7	74.6	59	---	2	21.3	50	---	0	0.0	33	---	0	0.0	29	---
Gilpin	5,804	6	103.4	56	---	2	34.5	40	---	0	0.0	33	---	0	0.0	29	---
Park	17,443	24	137.6	53	---	5	28.7	44	---	0	0.0	33	---	0	0.0	29	---
Teller	24,776	46	185.7	44	---	11	44.4	37	---	1	4.0	24	---	1	4.0	23	---
Region 18: Weld	**331,183**	**1,371**	**414.0**	**11**	**7**	**416**	**125.6**	**12**	**7**	**13**	**3.9**	**25**	**15**	**10**	**3.0**	**26**	**17**
Region 19: Mesa	**155,904**	**599**	**384.2**	**14**	**8**	**240**	**153.9**	**8**	**6**	**3**	**1.9**	**32**	**18**	**8**	**5.1**	**18**	**7**
Region 20: Denver	**717,645**	**5,944**	**828.3**	**1**	**1**	**3,057**	**426.0**	**1**	**1**	**234**	**32.6**	**2**	**2**	**193**	**26.9**	**2**	**1**

Region 21: Jefferson	**582,779**	**1,448**	**248.5**	**33**	**16**	**529**	**90.8**	**17**	**10**	**41**	**7.0**	**15**	**8**	**31**	**5.3**	**17**	**6**
Unknown	---	**1**	**---**	---	---	**0**	**---**	---	---	**0**	**---**	---	---	**0**	---	---	---
STATEWIDE TOTAL	**5,783,136**	**26,136**	**451.9**	---	---	**9,686**	**167.5**	---	---	**637**	**11.0**	---	---	**518**	**9.0**	---	---

^2020 SDO Population Estimate

†Rate per 100,000 population

‡Counties ranked by STI rate per 100,000 population

***Health Statistics Regions ranked by STI rate per 100,000 population**

Table 3: Reported Chlamydia Cases and Rates of Reported Cases by Demographic Characteristics and Sex, 2020

	Chlamydia											
	Female				Male				Total			
	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†
Total	2,889,253	16,576	100.0	573.7	2,893,883	9,560	100.0	330.4	5,783,136	26,136	100.0	451.9
Race/Ethnicity												
Asian/PI, NH	121,272	243	1.5	200.4	104,644	121	1.3	115.6	225,916	364	1.4	161.1
Black/African American, NH	128,227	1,285	7.8	1,002.1	145,446	1,190	12.4	818.2	273,673	2,475	9.5	904.4
Hispanic/Latinx (all races)	628,824	4,323	26.1	687.5	643,924	1,799	18.8	279.4	1,272,748	6,122	23.4	481.0
Indigenous/Native American, NH	22,142	152	0.9	686.5	21,810	58	0.6	265.9	43,952	210	0.8	477.8
Other/Unknown	---	6,423	38.7	---	---	3,814	39.9	---	---	10,237	39.2	---
White, NH	1,988,788	4,150	25.0	208.7	1,978,059	2,578	27.0	130.3	3,966,847	6,728	25.7	169.6
Age Group												
0 to 9	323,715	6	0.0	1.9	337,771	5	0.1	1.5	661,486	11	0.0	1.7
10 to 14	177,273	131	0.8	73.9	186,113	11	0.1	5.9	363,386	142	0.5	39.1
15 to 19	185,541	4,962	29.9	2,674.3	196,969	1,463	15.3	742.8	382,510	6,425	24.6	1,679.7
20 to 24	189,170	6,225	37.6	3,290.7	212,937	3,001	31.4	1,409.3	402,107	9,226	35.3	2,294.4
25 to 29	212,242	2,668	16.1	1,257.1	230,373	2,060	21.5	894.2	442,615	4,728	18.1	1,068.2
30 to 34	215,320	1,313	7.9	609.8	219,352	1,351	14.1	615.9	434,672	2,664	10.2	612.9
35 to 39	204,481	643	3.9	314.5	208,261	695	7.3	333.7	412,742	1,338	5.1	324.2
40 to 44	188,798	314	1.9	166.3	191,444	427	4.5	223.0	380,242	741	2.8	194.9
45 to 54	356,489	247	1.5	69.3	362,879	359	3.8	98.9	719,368	606	2.3	84.2
55 to 64	363,479	61	0.4	16.8	348,086	158	1.7	45.4	711,565	219	0.8	30.8
65+	472,745	6	0.0	1.3	399,698	30	0.3	7.5	872,443	36	0.1	4.1
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

^ 2020 estimate from Colorado State Demography Office
† Rate per 100,000

Table 4: Reported Gonorrhea Cases and Rates of Reported Cases by Demographic Characteristics and Sex, 2020

	Gonorrhea											
	Female				Male				Total			
	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†
Total	2,893,883	5,754	100.0	198.8	2,889,253	3,932	100.0	136.1	5,783,136	9,686	100.0	167.5
Race/Ethnicity												
Asian/PI, NH	104,644	57	1.0	54.5	121,272	54	1.4	44.5	225,916	111	1.1	49.1
Black/African American, NH	145,446	1,065	18.5	732.2	128,227	609	15.5	474.9	273,673	1,674	17.3	611.7
Hispanic/Latinx (all races)	643,924	1,264	22.0	196.3	628,824	1,100	28.0	174.9	1,272,748	2,364	24.4	185.7
Indigenous/Native American, NH	21,810	47	0.8	215.5	22,142	68	1.7	307.1	43,952	115	1.2	261.6
Other/Unknown	---	1,822	31.7	---	---	1,163	29.6	---	---	2,985	30.8	---
White, NH	1,978,059	1,499	26.1	75.8	1,988,788	938	23.9	47.2	3,966,847	2,437	25.2	61.4
Age Group												
0 to 9	337,771	0	0.0	0.0	323,715	3	0.1	0.9	661,486	3	0.0	0.5
10 to 14	186,113	4	0.1	2.1	177,273	41	1.0	23.1	363,386	45	0.5	12.4
15 to 19	196,969	505	8.8	256.4	185,541	875	22.3	471.6	382,510	1,380	14.2	360.8
20 to 24	212,937	1,172	20.4	550.4	189,170	1,079	27.4	570.4	402,107	2,251	23.2	559.8
25 to 29	230,373	1,245	21.6	540.4	212,242	692	17.6	326.0	442,615	1,937	20.0	437.6
30 to 34	219,352	1,034	18.0	471.4	215,320	528	13.4	245.2	434,672	1,562	16.1	359.4
35 to 39	208,261	732	12.7	351.5	204,481	342	8.7	167.3	412,742	1,074	11.1	260.2
40 to 44	191,444	448	7.8	234.0	188,798	184	4.7	97.5	380,242	632	6.5	166.2
45 to 54	362,879	428	7.4	117.9	356,489	152	3.9	42.6	719,368	580	6.0	80.6
55 to 64	348,086	162	2.8	46.5	363,479	32	0.8	8.8	711,565	194	2.0	27.3
65+	399,698	24	0.4	6.0	472,745	4	0.1	0.8	872,443	28	0.3	3.2
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

^ 2020 estimate from Colorado State Demography Office

† Rate per 100,000

Table 5: Reported Primary and Secondary Syphilis Cases and Rates of Reported Cases by Demographic Characteristics and Sex, 2020

	Primary & Secondary Syphilis											
	Female				Male				Total			
	2020 Population ^	Cases	%	Rate†	2020 Population ^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†
Total	2,893,883	538	100.0	18.6	2,889,253	99	100.0	3.4	5,783,136	637	100.0	11.0
Race/Ethnicity												
Asian/PI, NH	104,644	17	3.2	16.2	121,272	1	1.0	0.8	225,916	18	2.8	8.0
Black/African American, NH	145,446	54	10.0	37.1	128,227	12	12.1	9.4	273,673	66	10.4	24.1
Hispanic/Latinx (all races)	643,924	165	30.7	25.6	628,824	32	32.3	5.1	1,272,748	197	30.9	15.5
Indigenous/Native American, NH	21,810	5	0.9	22.9	22,142	2	2.0	9.0	43,952	7	1.1	15.9
Other/Unknown	---	18	3.3	---	---	7	7.1	---	---	25	3.9	---
White, NH	1,978,059	278	51.7	14.1	1,988,788	45	45.5	2.3	3,966,847	323	50.7	8.1
Age Group												
0 to 9	337,771	0	0.0	0.0	323,715	0	0.0	0.0	661,486	0	0.0	0.0
10 to 14	186,113	0	0.0	0.0	177,273	0	0.0	0.0	363,386	0	0.0	0.0
15 to 19	196,969	19	3.5	9.6	185,541	7	7.1	3.8	382,510	26	4.1	6.8
20 to 24	212,937	61	11.3	28.6	189,170	16	16.2	8.5	402,107	77	12.1	19.1
25 to 29	230,373	122	22.7	53.0	212,242	18	18.2	8.5	442,615	140	22.0	31.6
30 to 34	219,352	97	18.0	44.2	215,320	18	18.2	8.4	434,672	115	18.1	26.5
35 to 39	208,261	74	13.8	35.5	204,481	14	14.1	6.8	412,742	88	13.8	21.3
40 to 44	191,444	59	11.0	30.8	188,798	9	9.1	4.8	380,242	68	10.7	17.9
45 to 54	362,879	64	11.9	17.6	356,489	14	14.1	3.9	719,368	78	12.2	10.8
55 to 64	348,086	36	6.7	10.3	363,479	2	2.0	0.6	711,565	38	6.0	5.3
65+	399,698	6	1.1	1.5	472,745	1	1.0	0.2	872,443	7	1.1	0.8
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

^ 2020 estimate from Colorado State Demography Office
† Rate per 100,000

Table 6: Reported Non-Primary, Non-Secondary Latent Syphilis Cases and Rates of Reported Cases by Demographic Characteristics and Sex, 2020

	Early Latent Syphilis											
	Female				Male				Total			
	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†	2020 Population^	Cases	%	Rate†
Total	2,893,883	450	100.0	15.6	2,889,253	68	100.0	2.4	5,783,136	518	100.0	9.0
Race/Ethnicity												
Asian/PI, NH	104,644	7	1.6	6.7	121,272	1	1.5	0.8	225,916	8	1.5	3.5
Black/African American, NH	145,446	55	12.2	37.8	128,227	8	11.8	6.2	273,673	63	12.2	23.0
Hispanic/Latinx (all races)	643,924	137	30.4	21.3	628,824	23	33.8	3.7	1,272,748	160	30.9	12.6
Indigenous/Native American, NH	21,810	10	2.2	45.9	22,142	1	1.5	4.5	43,952	11	2.1	25.0
Other/Unknown	---	18	4.0	---	---	3	4.4	---	---	21	4.1	---
White, NH	1,978,059	223	49.6	11.3	1,988,788	32	47.1	1.6	3,966,847	255	49.2	6.4
Age Group												
0 to 9	337,771	0	0.0	0.0	323,715	0	0.0	0.0	661,486	0	0.0	0.0
10 to 14	186,113	0	0.0	0.0	177,273	0	0.0	0.0	363,386	0	0.0	0.0
15 to 19	196,969	11	2.4	5.6	185,541	7	10.3	3.8	382,510	18	3.5	4.7
20 to 24	212,937	45	10.0	21.1	189,170	16	23.5	8.5	402,107	61	11.8	15.2
25 to 29	230,373	79	17.6	34.3	212,242	19	27.9	9.0	442,615	98	18.9	22.1
30 to 34	219,352	83	18.4	37.8	215,320	11	16.2	5.1	434,672	94	18.1	21.6
35 to 39	208,261	71	15.8	34.1	204,481	8	11.8	3.9	412,742	79	15.3	19.1
40 to 44	191,444	51	11.3	26.6	188,798	2	2.9	1.1	380,242	53	10.2	13.9
45 to 54	362,879	71	15.8	19.6	356,489	5	7.4	1.4	719,368	76	14.7	10.6
55 to 64	348,086	35	7.8	10.1	363,479	0	0.0	0.0	711,565	35	6.8	4.9
65+	399,698	4	0.9	1.0	472,745	0	0.0	0.0	872,443	4	0.8	0.5
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

^ 2020 estimate from Colorado State Demography Office
† Rate per 100,000

Table 7: Reported Congenital Syphilis Cases and Syphilis Cases Among Women of Reproductive Age and Rates of Reported Cases by Demographic Characteristics, 2020

	Syphilis							
	Congenital Syphilis				Syphilis Among Women of Reproductive Age			
	2020 Live Births*	Cases	%	Rate†	2020 Population ^	Cases	%	Rate†
Total	61,496	22	100.0	35.8	1,195,552	278	100.0	23.3
Gender								
Female	31,518	12	54.5	38.1	---		---	---
Male	29,975	10	45.5	33.4	1,195,552	278	100.0	23.3
Race/Ethnicity								
Asian/PI, NH	2,944	0	0.0	0.0	57,602	4	1.4	6.9
Black/African American, NH	3,626	1	4.5	27.6	58,085	31	11.2	53.4
Hispanic/Latinx (all races)	18,353	11	50.0	59.9	296,600	111	39.9	37.4
Indigenous/Native American, NH	414	0	0.0	0.0	10,252	8	2.9	78.0
Other/Unknown	3,063	9	40.9	25.3	---	24	8.6	---
White, NH	35,555	1	4.5	32.6	773,013	100	36.0	12.9
Age Group								
15 to 19	---	---	---	---	185,541	22	7.9	11.9
20 to 24	---	---	---	---	189,170	57	20.5	30.1
25 to 29	---	---	---	---	212,242	87	31.3	41.0
30 to 34	---	---	---	---	215,320	57	20.5	26.5
35 to 39	---	---	---	---	204,481	36	12.9	17.6
40 to 44	---	---	---	---	188,798	19	6.8	10.1
Pregnancy Status								
Pregnant	---	---	---	---	---	70	25.2	---
Not Pregnant	---	---	---	---	---	192	69.1	---
Unknown	---	---	---	---	---	16	5.8	---
County of Residence								
Adams	6,566	4	18.2	60.9	117,009	28	10.1	23.9
Denver	8,515	4	18.2	47.0	172,664	64	23.0	37.1
El Paso	9,179	4	18.2	43.6	152,148	31	11.2	20.4
Pueblo	1,716	7	31.8	407.9	31,778	52	18.7	163.6
Mesa	1,523	1	4.5	65.7	28,802	6	2.2	20.8
Other Urban Counties‡	26,767	1	4.5	3.7	555,443	74	26.6	13.3
Rural Counties	7,228	3	13.6	41.5	137,708	23	8.3	16.7

* Live birth data from COHID. Race/Ethnicity based on maternal race/ethnicity
^ 2020 estimate from Colorado State Demography Office
† Rate per 100,000
‡ Includes Arapahoe, Boulder, Broomfield, Douglas, Jefferson, Larimer, and Weld Counties

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