

Sexually Transmitted Diseases in California

2021 Executive Summary

OVERALL SUMMARY

In this summary we describe sexually transmitted infections (STI) over time and geography in California. The report is intended to inform the design and implementation of interventions intended to reduce STI and HIV transmission and improve sexual and reproductive health.

In 2021, all bacterial STI morbidity in California (chlamydia, gonorrhea, and syphilis) increased compared to 2020.¹ Striking disparities in STI burden persisted, with the highest STI rates continuing to occur among young people (aged 15-24 years), Black/African Americans, and gay and bisexual men and other persons who have male to male sexual contact (GBMMS). People with bacterial STIs are at higher risk for related adverse health outcomes such as infertility, ocular, otic, and neurosyphilis, and multi-drug resistant gonorrhea. Exposure to syphilis in utero can lead to congenital syphilis which can cause stillbirth or other severe complications in infants.

Chlamydia trachomatis (CT) remains the most common reportable STI in California. Although CT rates were relatively stable throughout California until 2013, by 2019 they were 1.4 times higher than they were in 2013, before decreasing due to COVID-19 in 2020. While CT rates increased from 2020 to 2021, the 2021 CT rates have not yet returned to pre-COVID levels. In California in 2021 the highest rates of CT were among young females, who are at risk of serious reproductive health outcomes such as pelvic inflammatory disease and infertility from CT. From 2020 to 2021, the CT rate increased 6.4% among females and 10.6% among males. Statewide, disproportionately more CT occurred among adolescent and young adult Black/African American females. The CT rates in these populations were approximately 1.4 and 1.1 times higher when compared to their respective state averages.

The number of gonorrhea (GC) cases increased throughout California; 16.8 percent more GC infections were reported in 2021 compared with 2020. Additionally, GC rates continue to increase compared to pre-COVID rates. San Francisco continued to have notably higher rates of GC compared to elsewhere in the state; GC rates in San Francisco increased 30.6 percent from 2020 to 2021. Statewide, between 2020 and

¹ Tables: [STD Data All Tables, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-All-Tables_2021.xlsx), Table All-1:

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-All-Tables_2021.xlsx

Slides: [All STDs Summary, Slides, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-All-Slides_2021.pptx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-All-Slides_2021.pptx

2021, the GC rate among males increased 20.6 percent, compared to an 11.5 percent increase among females. Among females, GC rates were highest in 20-to-24-year-olds. Among males, rates were highest among 20-29-year-olds. Racial disparities in GC burden persisted with GC rates among Black/African Americans 2.6 times higher than the statewide rate and 4 times higher than the next highest group, Hispanic/Latino Californians. Among gonococcal culture isolates that were tested in the Gonococcal Isolate Surveillance Project (GISP), there were none that triggered alerts for ceftriaxone or cefixime. Alert cutoff values are determined by CDC and indicate that an isolate may have decreased susceptibility to a given antibiotic.

Total early syphilis (TES) cases (primary, secondary, and early non-primary non-secondary) increased in most regions of California. Overall, there was a 13.2 percent increase in TES cases in 2021 compared to 2020. Additionally, TES rates have continued to increase compared to pre-COVID rates. San Francisco continued to have significantly higher TES rates than other regions. GBMMSC accounted for 51 percent of all TES cases in California. The number of ES cases among females of reproductive age (ages 15-44) increased 28.8 percent from 2020 to 2021. Racial disparities in TES rates persisted in CA; the TES rate among Black/African Americans in 2021 was nearly two and a half times higher than the statewide rate. Individuals who identified as transgender women were at increased risk for TES compared to other gender identities.

The number of infants born with CS in California increased for the ninth consecutive year, increasing by 9.3 percent compared to 2020. There were 528 CS cases, including 49 stillbirths or neonatal deaths, in 2021. This was the most CS cases reported in California since 1991 when 651 were reported.

Based on 2021 U.S. Centers for Disease Control and Prevention (CDC) data on STI rates in the United States and the District of Columbia, California had the 23rd highest chlamydia rate (per 100,000 population), 18th highest gonorrhea rate, 10th highest primary and secondary syphilis rate, and 11th highest rate of congenital syphilis (per 100,000 live births).

KEY FINDINGS

Chlamydia trachomatis (CT) remains the most frequently reported STI in California.²

- There were 190,806 CT cases reported in 2021 (484.7 per 100,000 population), 7.7 percent more cases than were reported in 2020 (177,233; 448.2 per 100,000), and 19.6 percent fewer cases than in 2019 (237,442; 600.7 per 100,000).
- There were 14 counties with higher chlamydia rates than the overall state rate (484.7 cases / 100,000 persons): San Francisco (725.1), Kings (675.1), Kern (658.9), Fresno (636.4), Tulare (617.1), San Bernardino (572.1), Los Angeles (570.0), Madera (556.0), San Diego (550.1), San Joaquin (538.3), Solano (519.1), Butte (515.0), Monterey (500.6), and Riverside (494.3) counties.
- The female CT rate was 1.5 times the male CT rate.
- After decreasing in 2020, female CT rates increased 6.4 percent statewide from 2020 to 2021.
- Both male and female CT rates were highest among 20-24-year-olds.
- CT rates among 15–19-year-old Black/African American females remained high and were 2.1 times higher than the statewide CT rate, and 3.1 times higher than the next highest race/ethnicity stratification, Hispanic/Latino Californians.
- After decreasing from 2019 to 2020, male CT rates increased 10.6 percent statewide in 2021.
- Observed differences in CT rates by gender may reflect true disparities in the burden of CT, or more frequent use of reproductive healthcare services by females. Changes in chlamydia rates among males may reflect either changes in transmission or screening, with increases possibly reflecting increases in rectal screening for CT among GBMMSC.
- **Programmatic priorities for chlamydia prevention include increasing screening of young females to prevent reproductive health complications, and screening of GBMMSC, including for rectal infections that can increase the risk of HIV transmission.³**

² Tables: [Chlamydia Data Tables, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Chlamydia-Tables_2021.xlsx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Chlamydia-Tables_2021.xlsx

Slides: [Chlamydia Slides, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Chlamydia-Slides_2021.pptx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Chlamydia-Slides_2021.pptx

³ Programmatic priorities are in-line with national recommendations and standard STD prevention strategies.

Gonorrhea (GC) rates increased throughout most of California.⁴

- There were 90,890 GC cases (230.9 per 100,000 population) reported in 2021, a 16.8 percent increase in the number of cases reported compared to 2020 (77,794; 196.7 per 100,000) and a 12.8 percent increase compared to 2019 (80,576; 203.8 per 100,000).
- There were 10 counties with higher gonorrhea rates than the overall state rate (230.9 cases / 100,000 persons): San Francisco (616.9), Los Angeles (310.1), Sacramento (279.2), Fresno (266.8), San Bernardino (255.3), Lake (248.2), Kern (246.8), Mendocino (244.5), San Diego (241.3), and Butte (231.7).
- The number of GC cases in males increased by 20.1 percent since 2020.
- Among cases randomly sampled for enhanced gonorrhea surveillance in 2021, GBMMSC accounted for 56.8 percent of male gonorrhea cases (among those that reported the gender(s) of their sex partner(s)). Reasons for the increasing GC rates in men are not yet clear but may include increased transmission as well as increases in the frequency of pharyngeal and rectal screening among GBMMSC. Over half of the reported GBMMSC GC cases were associated with only pharyngeal or rectal sites of infection and may not have been otherwise identified by urine-based screening.
- Among GC cases randomly sampled for enhanced interviews in 2021, 26.3 percent of GBMMSC cases with known HIV status were HIV-positive. Among interviewed GBMMSC cases who were HIV-negative, 63 percent reported having received HIV pre-exposure prophylaxis medication (PrEP). Ongoing HIV testing for GC cases can facilitate opportunities for HIV PrEP, if the case is HIV-negative, or linkage to care if HIV-positive. These efforts may ultimately reduce HIV transmission in these communities.
- The number of female GC cases increased by 11.0 percent in 2021 compared with 2020. The highest age-specific GC rate among females was in those who were 20-29-years-old.
- Disparities in GC rates by race/ethnicity continued in California; the rate of GC among Black/African Americans was 2.6 times higher than the statewide GC rate.
- GISP monitoring of trends in antibiotic susceptibility indicated that there were no gonococcal isolates with an alert value for cephalosporins (ceftriaxone or cefixime) in 2021. Among the 674 isolates tested in 2021, 44 (6.5 percent) had an alert value for azithromycin. Although lower in 2021 than 2020, the proportion

⁴ Tables: [Gonorrhea Data Tables, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Gonorrhea-Tables_2021.xlsx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Gonorrhea-Tables_2021.xlsx

Slides: [Gonorrhea Slides, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Gonorrhea-Slides_2021.pptx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Gonorrhea-Slides_2021.pptx

of GISP isolates with an alert value for azithromycin has increased since 2012, however azithromycin is no longer a recommended treatment regimen for GC due to increasing gonococcal drug resistance to the drug.⁵

- **Programmatic priorities for gonorrhea prevention include screening and treatment of young females to prevent reproductive health complications, screening of GBMMSC for rectal and throat infections that may increase the risk of HIV transmission, preventing disseminated gonococcal infection (DGI), and ensuring timely and adequate treatment of all gonococcal infections. High rates of gonorrhea among GBMMSC provide opportunities for linkage to HIV care for HIV coinfecting cases and linkage to HIV PrEP for HIV-negative cases.**
- **Healthcare provider adherence to recommended treatment regimens⁶ are essential to the prevention of the emergence of gonococcal antimicrobial resistance.⁷**

Total early syphilis (TES), which includes primary, secondary, and early non-primary non-secondary stages, increased in 2021 in most of California.⁸

- There were 17,302 TES cases (43.9 per 100,000) reported to CDPH in 2021, a 13.2 percent increase in the number of TES cases reported to CDPH compared to 2020 (15,279; 38.6 per 100,000) and a 4.2 percent increase compared to 2019 (16,611; 42.0 per 100,000).
- There were 14 counties with TES rates that were higher than the overall state rate (43.9 cases / 100,000 population): San Francisco (147.2), Lake (129.3), Yuba (80.4), Stanislaus (68.3), Sutter (67.0), Los Angeles (62.7), Butte (61.6), Tehama (60.7), Kern (59.8), Shasta (53.3), Siskiyou (48.0), San Joaquin (45.8), Sacramento (45.6), and Fresno (44.1).
- GBMMSC accounted for 51 percent of all TES cases.
- Among GBMMSC TES cases whose HIV status was known at the time of investigation, 52.5 percent were HIV-positive. The proportion of HIV-negative

⁵ Workowski KA, Bachmann LH, Chan PA, Johnston CM, Muzny CA, Park I, Reno H, Zenilman JM, Bolan GA. Sexually Transmitted Infections Treatment Guidelines, 2021. MMWR Recomm Rep. 2021 Jul 23;70(4):1-187. doi: 10.15585/mmwr.rr7004a1. PMID: 34292926; PMCID: PMC8344968.

⁶ <https://www.cdc.gov/std/treatment-guidelines/default.htm>

⁷ Programmatic priorities are in-line with national recommendations and standard STD prevention strategies.

⁸ Tables: [Syphilis Data Tables, 2021](#):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Syphilis-Tables_2021.xlsx

Slides: [Syphilis Slides, 2021](#):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-Syphilis-Slides_2021.pptx

GBMMSC TES cases who reported receiving HIV PrEP remained at 51 percent in the California Project Area in 2021.

- Transgender women were at increased risk for TES in 2021 (400.8 cases / 100,000 persons), a rate that was nearly six times higher than cisgender males (68.8), and 22 times higher than transgender men (17.9) and cisgender women (17.3)
- In 2021, the rate of TES among GBMMSC who were living with HIV (4210.8 per 100,000) was more than 11 times higher than the rate of TES among GBMMSC who were HIV-negative (379.1), and more than 150 times higher than males who were not GBMMSC (25.3) and more than 200 times higher than females (19.3).
- Among both males and females, TES rates were highest among Californians who were 25-34 years old.
- There were 3,277 TES cases among females of reproductive age (15-44 years old) reported to CDPH in 2021, a 28.8 percent increase from 2020 and a 107.4 percent increase since 2017.
- Disparities in TES rates by race/ethnicity persist in California: TES rates were about two and a half times higher among Black/African American males (160.5 per 100,000) and females (48.7) compared to the statewide TES rate for males (68.6) and females (19.3).
- Potential increases in ocular syphilis, a serious manifestation of syphilis, were described nationally and in California in early 2015.⁹ Since then, surveillance data suggest that about one percent of all syphilis cases have had symptoms consistent with ocular syphilis.¹⁰ Additionally, the proportion of all syphilis cases that were consistent with neurosyphilis from 2010-2021 was consistently 2-3 percent each year.
- **Programmatic priorities for syphilis include increasing screening and treatment in settings that serve high priority populations (HIV care, community-based organizations serving GBMMSC and gender diverse populations, emergency departments, jails, drug treatment programs, and mobile outreach programs serving people experiencing homelessness), as well as improving linkage to HIV care or HIV PrEP for syphilis cases**

⁹ Woolston S, Cohen SE, Fanfair RN et al. [A Cluster of Ocular Syphilis Cases — Seattle, Washington, and San Francisco, California, 2014–2015. Morbid Mortal Wkly Rpt 2015; 64\(40\):1150-1.](http://www.cdc.gov/Mmwr/preview/mmwrhtml/mm6440a6.htm)
<http://www.cdc.gov/Mmwr/preview/mmwrhtml/mm6440a6.htm>

¹⁰ Oliver SE, Aubin M, Atwell L, Matthias J, Cope A, Mobley V, Goode A, Minnerly S, Stoltey J, Bauer HM, Hennessy RR, DiOrio D, Fanfair RN, Peterman TA, Markowitz L. Ocular Syphilis - Eight Jurisdictions, United States, 2014-2015. MMWR Morb Mortal Wkly Rep. 2016 Nov 4;65(43):1185-1188.

depending on their HIV status, and ensuring timely, adequate treatment and partner services are provided and accessible to all Californians.¹¹

Congenital syphilis (CS) increased for the seventh consecutive year.¹²

- In 2021 there were 528 cases of congenital syphilis in California (120.9 cases per 100,000 live births), a 9.3 percent increase in the number of cases since 2020 and an 83.3 percent increase since 2017. This was most CS cases reported in California since 1991.
- After decreasing from 44 syphilitic stillbirth or neonatal deaths in 2019 to 31 in 2020, the number of reported syphilitic stillbirths/neonatal deaths increased to 49 in 2021.
- According to the U.S. CDC, California had the 11th highest congenital syphilis rate of all states in 2021. Thirty-seven (60.7%) of California's 61 local health jurisdictions reported at least one case of congenital syphilis in 2021. Los Angeles, San Bernardino, Riverside, Kern, Fresno, and San Diego counties had the most congenital syphilis cases in the state.
- Although most mothers of CS cases reported Hispanic ethnicity (272 (51.5%)), the highest rate of CS was among Black/African American Californians (309.5 per 100,000 live births) which was nearly three times the statewide CS rate (120.9 cases per 100,000 live births).
- Maternal risk factors associated with CS in California include a lack of or late prenatal care, substance use (specifically methamphetamine and injection drug use), experiencing homelessness, a previous history of syphilis, and incarceration in the previous twelve months.
- **Programmatic priorities for congenital syphilis prevention include syphilis testing, treatment, and contact tracing among pregnant people and people who can become pregnant, including among people experiencing homelessness, people who are incarcerated, and other populations that face obstacles in obtaining healthcare.**
- **Other priorities include policies that support implementation of routine, opt-out screening and treatment for syphilis and HIV as well as linkages to HIV care or HIV PrEP in settings which serve people at high risk for syphilis who may not otherwise be accessing healthcare. These settings include**

¹¹ Programmatic priorities are in-line with national recommendations and standard STD prevention strategies.

¹² Tables: [Congenital Syphilis Data Tables, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-CS-Tables_2021.xlsx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-CS-Tables_2021.xlsx

Slides: [Congenital Syphilis Slides, 2021](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-CS-Slides_2021.pptx):

https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Data-CS-Slides_2021.pptx

but are not limited to emergency departments, jails, drug treatment programs, and mobile outreach programs that serve people experiencing homelessness.

- Efforts to identify opportunities to engage other sectors that improve health outcomes and enable access to healthcare—such as housing, behavioral health, prenatal care, and correctional health—to prevent congenital syphilis are essential.¹³

Guidance for Navigating the STD Annual Report

The 2021 STD Annual Report enables access to STI surveillance data in a variety of formats. It is comprised of the Executive Summary, Technical Notes, STI tables, and a set of slides. Information is organized by “all STDs” and “specific STDs” on the [STD Data page](#) available at the following hyperlink:

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/STD-Data.aspx>. This report includes 2021 as well as previous years’ data on STIs and related services. These data supersede previously published data and comply with data de-identification criteria set forth in the California Department of Health Care Services [Data De-identification Guidelines \(DDG\)](#) (<https://www.dhcs.ca.gov/dataandstats/Documents/DHCS-DDG-V2.0-120116.pdf>).

¹³ Programmatic priorities are in-line with national recommendations and standard STD prevention strategies.