STI Statistics

SEXUALLY TRANSMITTED INFECTIONS

NOVEMBER 12, 2024

National Overview of STIs in 2023

ABOUT

Sexually Transmitted Infections Surveillance, 2023 provides the latest data on trends for three nationally notifiable sexually transmitted infections (STIs): chlamydia, gonorrhea, and syphilis, including congenital syphilis. This overview summarizes the national STI surveillance data presented in this report.

Findings

COLLAPSE ALL —

In 2023, over 2.4 million cases of syphilis, gonorrhea, and chlamydia were diagnosed and reported. This includes over 209,000 cases of syphilis, over 600,000 cases of gonorrhea, and over 1.6 million cases of chlamydia. Importantly, the combined count includes 3,882 cases of congenital syphilis, including 279 congenital syphilis stillbirths and neonatal/infant deaths.

The number of STIs decreased 1.8% from 2022 to 2023, reflecting

- decreases in gonorrhea (7.2% decrease),
- stable trends in chlamydia (<1.0% change), and
- an increase in total syphilis (all stages and congenital syphilis combined) (1.0% increase).

Disparities in STIs —

As in past years, there were significant disparities in reported STIs. In 2023, almost half (48.2%) of reported cases of chlamydia, gonorrhea, and syphilis (all stages) were among adolescents and young adults aged 15–24 years. Additionally, gay, bisexual and other men who have sex with men (MSM) are disproportionally impacted by STIs, including gonorrhea and primary and secondary (P&S) syphilis, and co-infection with HIV is common; in 2023, 37.2% of MSM with P&S syphilis were men diagnosed with HIV. In 2023, 32.4% of all cases of chlamydia, gonorrhea, and P&S syphilis were among non-Hispanic Black or African American persons, even though they made up only 12.6% of the US population. Rates of both P&S syphilis and congenital syphilis were highest among American Indian or Alaska Native persons in 2023.

It is important to note that these disparities are unlikely to be fully explained by differences in sexual behavior and may reflect differential access to quality sexual health care, as well as differences in sexual network characteristics. For example, in communities with higher prevalence of STIs, with each sexual encounter, people face a greater chance of encountering an infected partner than those in lower prevalence settings do, regardless of similar sexual behavior patterns. Acknowledging inequities in STI rates as well as their root causes is a critical first step toward empowering affected groups and the public health community to collaborate in addressing systemic inequities in the burden of disease — with the goal of minimizing the health impact of STIs on individuals and populations.

Syphilis —

In 2023, 209,253 cases of syphilis (all stages including congenital syphilis) were reported which is the greatest number of cases reported since 1950 and an increase of 1.0% since 2022. There were:

- 53,007 cases of P&S syphilis (10.2% decrease compared to 2022),
- 53,573 cases of early non-primary non-secondary syphilis (5.9% decrease compared to 2022),
- 98,791 cases of unknown duration or late syphilis (12.8% increase compared to 2022), and
- 3,882 cases of congenital syphilis (3.0% increase compared to 2022).

Although the number of reported cases of syphilis (all stages) increased 1.0% when comparing 2023 to 2022, the rate of reported cases of syphilis per 100,000 persons was relatively stable (<1% change, 61.1 to 61.3 per 100,000); however, trends varied by stage of syphilis. From 2022 to 2023, the rate of P&S syphilis decreased 10.7%, which is the first substantial decrease in P&S syphilis since 2001. Rates of P&S syphilis decreased among men and women, most age groups, and all race/Hispanic ethnicities, and decreased in 41 states and the District of Columbia.

Concurrently, rates of unknown duration or late syphilis increased 12.2% (from 26.3 to 29.5 per 100,000). Cases of syphilis staged for surveillance as unknown duration or late syphilis reflect diagnoses that likely occurred after the infectious period (i.e., more than a year earlier) and are often identified through routine screening. Recent increases in cases staged as unknown duration or late syphilis may, in part, reflect delayed diagnosis of infections occurring during the COVID-19 pandemic when STI prevention and care services were disrupted.

In 2023, MSM accounted for one-third (32.7%) of all P&S syphilis cases, and 57.5% of P&S syphilis cases among men with known sex of sex partners. From 2022 to 2023, the number of P&S syphilis cases among MSM decreased 13.4%, representing the first substantial decrease in P&S syphilis among MSM in over 15 years. Decreases were observed among both HIV-negative MSM (8.5% decrease) and HIV-infected MSM (11.4% decrease).

Congenital syphilis —

In 2023, 3,882 cases of congenital syphilis were reported, including 279 congenital syphilis-related stillbirths and neonatal/infant deaths. This is the largest number of cases of congenital syphilis since 1992. The national congenital syphilis rate of 105.8 cases per 100,000 live births in 2023 represents a 3.0% increase relative to 2022. Although the majority of congenital syphilis cases were reported from a few states, in 2023, almost all jurisdictions (48 states and the District of Columbia) reported at least one case of congenital syphilis. From 2022 to 2023, rates of congenital syphilis increased in most race/Hispanic ethnicities and in 30 states.

Because perinatal transmission can occur during any stage of syphilis, increases in congenital syphilis often mirror increases in syphilis among reproductive aged women. From 2022 to 2023, the rate of syphilis (all stages) increased 6.8% among women aged 15–44 years, with increasing rates in 39 states and the District of Columbia.

Gonorrhea —

In 2023, a total of 601,319 cases of gonorrhea were reported, making it the second most common nationally notifiable STI in the United States for that year. After reaching a historic low in 2009, rates of reported gonorrhea increased through 2021; however, the overall rate of gonorrhea decreased 9.2% from 2021 to 2022 and then decreased 7.7% from 2022 to 2023. From 2022 to 2023, rates decreased among men and women, most age groups, and most race/Hispanic ethnicities, and decreases were observed in 40 states. Decreases were most pronounced among women (14.1% decrease), reflecting substantial decreases among women aged 20 to 24 years (14.6% decrease) and aged 25 to 29 years (19.2% decrease), as well as among women diagnosed in non-sexually transmitted disease (STD) clinic settings (13.0% decrease). Because gonococcal infections can be asymptomatic, trends in case reports are influenced by both changes in incidence and screening coverage; recent declines in rates of reported gonorrhea may reflect declines in new infections, as well as reduced screening.

Since 2013, rates of reported gonorrhea have been higher among men compared to women, likely reflecting cases identified in both MSM and men who have sex with women only. Although there are limited data available on sexual behaviors of persons reported with gonorrhea at the national level, enhanced data from jurisdictions participating in a sentinel surveillance system, the STI Surveillance Network (SSuN), suggest that approximately half of gonorrhea cases occurred among MSM in 2023; however, this proportion varied across jurisdictions participating in SSuN.

Chlamydia —

In 2023, a total of 1,648,568 cases of *Chlamydia trachomatis* infection were reported, making it the most common nationally notifiable STI in the United States for that year. The rate of reported chlamydia in 2023 (492.2 per 100,000) was similar to the rate in 2021 (495.0 per 100,000). From 2022 to 2023, the rate of reported chlamydia increased among men (1.3%) and decreased among women (1.7%). Rates of reported chlamydia remain highest among adolescents and young adults and in 2023, 55.8% of all cases of chlamydia were reported among persons aged 15–24 years.

As chlamydial infections are usually asymptomatic, case rates are heavily influenced by screening coverage. During the COVID-19 pandemic, many health care clinics limited in-person visits to patients with symptoms or closed entirely, and preventive health care visits where STI screening usually happens, such as annual reproductive health visits for young women decreased. During 2020, the number of chlamydia cases decreased substantially, likely reflecting disruptions in STI-related care during the initial shelter in place orders. Although rates have increased since 2020, the national rate of reported chlamydia in 2023 is still lower than the rate in 2019, suggesting that reductions in chlamydia screening coverage may persist.

SOURCES

CONTENT SOURCE:

National Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention; About Division of STD Prevention

SOURCES

- National Academies of Sciences, Engineering, and Medicine 2021. Sexually Transmitted Infections: Adopting a Sexual Health Paradigm. Washington, DC: The National Academies Press. https://doi.org/10.17226/25955

STI Statistics

SEXUALLY TRANSMITTED INFECTIONS

NOVEMBER 12, 2024

Slides from STI Surveillance, 2023

ABOUT

Sexually Transmitted Infections Surveillance, 2023 provides the latest data on trends for three nationally notifiable sexually transmitted infections (STIs): chlamydia, gonorrhea, and syphilis, including congenital syphilis. These slide decks contain figures displaying trends. The zip file provides the underlying data points. Sub-decks are provided to identify slides for specific STIs and populations.

Files

All Slides from STI Surveillance, 2023 PPT	Download
Syphilis Slides from STI Surveillance, 2023 PPT	Download
Congenital Syphilis Slides from STI Surveillance, 2023 PPT	Download
Gonorrhea Slides from STI Surveillance, 2023 PPT	Download
Chlamydia Slides from STI Surveillance, 2023 PPT	Download
Adolescents and Young Adults Slides from STI Surveillance, 2023 PPT	Download
Racial and Ethnic Minorities Slides from STI Surveillance, 2023 PPT	Download
Sexual and Gender Minorities Slides from STI Surveillance, 2023 PPT	Download
Women and Infants Slides from STI Surveillance, 2023 PPT	Download
Data points from STI Surveillance, 2023 ZIP	Download

SOURCES

CONTENT SOURCE:

National Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention; About Division of STD Prevention

NOVEMBER 12, 2024

Technical Notes from STI Surveillance, 2023

ABOUT

Sexually Transmitted Infections Surveillance, 2023 provides the latest data on trends for three nationally notifiable sexually transmitted infections (STIs): chlamydia, gonorrhea, and syphilis, including congenital syphilis. These technical notes provide information on the data sources and methodology used in this annual STI Surveillance Report.

2023

COLLAPSE ALL —

Sexually Transmitted Infections Surveillance, 2023 presents trends in nationally notifiable sexually transmitted infections (STIs) in the United States through 2023. This annual publication is intended as a reference document for policy makers, program managers, health planners, researchers, and others who are concerned with the public health implications of these diseases. The figures and tables in this report supersede those in earlier publications of these data. The surveillance data in this report are based on case notification data provided to the Centers for Disease Control and Prevention (CDC) through the National Notifiable Diseases Surveillance System (NNDSS) and data collected through projects and programs that monitor STIs in various settings, including the STI Surveillance Network (SSuN).

This report provides trends in nationally notifiable STIs for which there are federally funded control programs: syphilis, including congenital syphilis, gonorrhea, and chlamydia. It is important to note that these data reflect only a portion of STIs occurring in the US population. Over 30 pathogens can be sexually transmitted, including common STIs, such as herpes simplex virus, which causes genital herpes, and human papillomavirus, which can lead to genital warts and cervical cancer. Additionally, STIs are often asymptomatic and may not be diagnosed. Published estimates of the burden of STIs in the United States, including estimated prevalence, incidence, and cost, can be found in the April 2021 special issue of the journal *Sexually Transmitted Diseases,* available here: https://journals.lww.com/stdjournal/pages/collectiondetails.aspx?TopicalCollectionId=4

Disruptions in STI-related prevention and care activities related to the US response to the COVID-19 pandemic had a pronounced impact on trends in STI surveillance data; therefore, trends for STI surveillance data collected during the pandemic and presented in *Sexually Transmitted Infections Surveillance, 2023* should be interpreted cautiously. For more information, see Impact of COVID-19 on STIs.

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Rachel Wingard

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National Notifiable Diseases Surveillance System (NNDSS)

Four STIs are nationally notifiable conditions: chlamydia, gonorrhea, syphilis, and chancroid. STI control programs in state, local, and territorial health departments (also referred to as jurisdictions) collect case reports for these conditions using case definitions developed by the Council of State and Territorial Epidemiologists (CSTE) and CDC. Health departments voluntarily provide STI case notification data to CDC through NNDSS. CDC uses the data for national surveillance, disseminating data and key findings. HIV, which can be sexually transmitted, is also a nationally notifiable condition; national data for trends in diagnosed HIV are available here: https://www.cdc.gov/hiv-data/nhss/hiv-diagnoses-deaths-prevalence.html

National data collection for gonorrhea, syphilis, and chancroid began in 1941 and the three STIs became nationally notifiable in 1944. Data collection for chlamydia began in 1984 and chlamydia was made nationally notifiable in 1995; however, chlamydia was not reportable in all 50 states and the District of Columbia until 2000. For more information on nationally notifiable conditions, refer to the NNDSS website: https://www.cdc.gov/nndss/about/index.html

Reporting Formats

NNDSS STI case notification data presented in this report are compiled from electronic data received through the National Electronic Telecommunications System for Surveillance (NETSS) and via Health level 7 (HL7) messaging using National Electronic Disease Surveillance System (NEDSS) standards. Additionally, select jurisdictions provide congenital syphilis cases via REDCap and a few jurisdictions (e.g., territories) provide data using standardized hard copy reporting forms. STI case notification data sent to CDC through August 12, 2024 are included in this report.

Prior to 2003, the following hard copy forms were used to provide NNDSS STI data to CDC:

FORM CDC 73.998: *Monthly Surveillance Report of Early Syphilis*. This monthly hard copy reporting form was used during 1984–2002 to report summary data for primary and secondary (P&S) syphilis and early latent syphilis by county and state.

FORM CDC 73.688: *Sexually Transmitted Disease Morbidity Report*. This quarterly hard copy reporting form was used during 1963–2002 to report summary data for all stages of syphilis, congenital syphilis, gonorrhea, chancroid, chlamydia, and other STIs by sex and source of report (private versus public) for all 50 states, the District of Columbia, 64 selected cities, and territories of the United States. Chlamydia became a nationally notifiable condition in 1995 and the form was modified to support reporting of chlamydia that year. Congenital syphilis was dropped from this aggregate form in 1995 to encourage use of the congenital syphilis case-specific CDC 73.126 form that was introduced in 1983.

FORM CDC 73.2638: *Report of Civilian Cases of Primary & Secondary Syphilis, Gonorrhea, and Chlamydia by Reporting Source, Sex, Race/Ethnicity, and Age Group*. This annual hard copy form was used during 1981–2002 to report summary data for P&S syphilis, gonorrhea, and chlamydia by age, race, sex, and source of report (private versus public) for all 50 states, seven large cities (Baltimore, Chicago, New York City, Los Angeles, Philadelphia, San Francisco, and the District of Columbia), and territories of the United States. When chlamydia became a nationally notifiable condition in 1995, the form was modified to support reporting of chlamydia.

FORM CDC 73.126: *Congenital Syphilis (CS) Case Investigation and Reporting*. This case-specific hard copy form was first used in 1983 and was revised in 1990 and in 2013 to align with changes to the congenital syphilis case definition; minor revisions were also made in 2010. It continues to form the basis of the congenital syphilis REDCap form used by some jurisdictions.

As of December 31, 2003, all 50 states and the District of Columbia converted from summary hard copy reporting to electronic submission of line-listed (i.e., case-specific) data for chlamydia, gonorrhea, syphilis, and chancroid through NETSS. Puerto Rico converted to electronic reporting in 2006 for all STIs, excluding congenital syphilis. American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the US Virgin Islands continue to report STD data through summary hard copy forms. In 2023, 15 jurisdictions (Alabama, Alaska, Connecticut, Idaho, Indiana, Kentucky, Maryland, Michigan, North Carolina, Oregon, Rhode Island, South Carolina, Utah, Virginia, and Wisconsin) provided STI and congenital syphilis case notification data to CDC via HL7 messaging. In 2023, Iowa provided STI case notification data to CDC via HL7 messaging. In 2023, Tennessee provided congenital syphilis case notification data to CDC via HL7 messaging. In 2023, 22 states and two US territories provided congenital syphilis data through REDCap.

Reporting Practices

Although most state and local STI programs adhere to the case definitions collaboratively developed by CSTE and CDC for nationally notifiable STIs, differences in policies and systems for collecting surveillance data may exist. Thus, comparisons of case numbers and rates

between jurisdictions should be interpreted with caution. However, because case definitions and surveillance activities within a given area remain relatively stable over time, trends over time should be minimally affected by these differences.

In December of 2021, there was a network security incident at the Maryland Department of Health which prevented them from finalizing their 2021 STI case notification data to CDC. As a result, 2021 STI case notification data from Maryland are incomplete. Although 2021 STI case notification data for Maryland are included in national and regional data displayed in tables and figures, 2021 case data from Maryland have been suppressed for tables and figures displaying state-level or county-level data. In 2022, Connecticut adopted nine planning regions as county-equivalent geographic units; as STI case notification data were not available in the new county-equivalent units for 2022, data for Connecticut have been suppressed in figures displaying county and county-equivalent data. In September of 2023, Tennessee transitioned STI surveillance information systems which may have impacted the overall case counts. Caution should be applied in interpretation of these data.

Chlamydia and Gonorrhea Reporting

Trends in rates of reported cases of chlamydia and gonorrhea are influenced by changes in incidence of infection, as well as changes in diagnostic, screening, and reporting practices. As both chlamydial and gonococcal infections can be asymptomatic, the number of infections identified and reported can increase as more people are screened—even when incidence is flat or decreasing. Beginning in 2000, the expanded use of more sensitive diagnostic tests (e.g., nucleic acid amplification tests) likely increased the number of infections identified and reported independently of increases in incidence. Additionally, expanded testing at extragenital (rectal and pharyngeal) anatomic sites likely increased the number of infections identified. Further, the increased use of electronic laboratory reporting over the last decade or so also likely increased the proportion of diagnosed infections reported. Although chlamydia has been a nationally notifiable condition since 1994, it was not until 2000 that all 50 states and the District of Columbia required reporting of chlamydia cases. National chlamydia case rates prior to 2000 reflect incomplete reporting. Consequently, increasing case rates over time may reflect more complete reporting, as well as increases in incidence of infection, screening coverage, and use of more sensitive tests. Likewise, decreases in case rates may suggest decreases in incidence of infection or screening coverage.

Beginning in 2020, the COVID-19 pandemic likely affected multiple aspects of chlamydia and gonorrhea case reporting, including reduced screening and delayed reporting. The impact of these disruptions likely continued in 2023. As a result, chlamydia and gonorrhea surveillance data collected during the COVID-19 pandemic should be interpreted cautiously. For more information, see Impact of COVID-19 on STIs.

Syphilis Reporting

Case notifications for non-congenital syphilis are displayed in this report by surveillance stage of disease based on current CSTE case definitions. The majority of tables and figures present trends in primary and secondary syphilis, which reflect incident infections; however, trends are also presented for other syphilis stages, along with trends in "syphilis (all stages)" (all stages of non-congenital syphilis) and trends in "total syphilis" (all stages of non-congenital syphilis and congenital syphilis, including syphilitic stillbirths).

The surveillance case definition for syphilis has changed over time. Since 2018, the category of "total syphilis" includes: primary, secondary, early non-primary non-secondary, unknown duration or late, congenital syphilis, and syphilitic stillbirth. However, in previous years, "total syphilis" has included different case classifications. For example, in the 1990 syphilis case definition, "total syphilis" or "all stages of syphilis" included: primary, secondary, latent, early latent, late latent, latent unknown duration, neurosyphilis, syphilitic stillbirth, and congenital syphilis. More information on syphilis case definition changes over time can be found at: https://ndc.services.cdc.gov/conditions/syphilis/

Congenital Syphilis Reporting

The congenital syphilis case definition has remained largely unchanged since 1989—when jurisdictions moved away from using the clinical Kaufman criteria for reporting congenital syphilis in favor of using a more sensitive definition of congenital syphilis that includes asymptomatic infants born to women with untreated or inadequately treated syphilis. By January 1, 1992, the new, more sensitive congenital syphilis case definition was fully implemented by all reporting areas.

Since 1995, congenital syphilis cases have been reported by the state and city/county of residence of the birth parent and by the reported race and Hispanic ethnicity of the birth parent. Congenital syphilis is usually diagnosed at birth but can be identified years later; therefore, cases are sent to CDC when they are reported to local public health officials and are assigned as morbidity based upon the infant's year of birth. Congenital syphilis data reported after publication of the annual STI surveillance report will appear in subsequent reports. The current and historical congenital syphilis case definitions can be found on CDC's NNDSS case definition website: https://ndc.services.cdc.gov/conditions/congenital-syphilis/

Missed prevention opportunities among birthing parents of infants with congenital syphilis are identified based on information reported to CDC related to syphilis testing and treatment and clinical findings in infants. To describe the primary missed prevention opportunity, each reported congenital syphilis case is assigned to one of six mutually exclusive categories across a three step cascade of care (testing, treatment and outcomes). The six categories are: 1) no documented testing or nontimely testing, 2) late identification of seroconversion during pregnancy (identified <30 days prior to delivery), 3) no treatment or nondocumented treatment, 4) inadequate treatment, 5) clinical evidence of congenital syphilis despite adequate maternal treatment, 6) insufficient data to identify a cause. For categorization purpose, congenital syphilis prevention opportunities are considered timely if they occurred ≥30 days before delivery. Adequate maternal treatment is defined as completion of a penicillin-based regimen recommended for the birth parent's stage of syphilis which was initiated ≥30 days before delivery. For a case of congenital syphilis to be categorized as resulting from no or nondocumented maternal treatment, a pregnant person would 1) need to have evidence of a diagnosis of syphilis during pregnancy with syphilis testing performed ≥30 days before

delivery and 2) have documentation of no treatment for syphilis, or have no documentation related to treatment. Those with inadequate treatment only received 1 dose when 3 doses were indicated based on maternal staging, received the doses at improper intervals, received the first dose of treatment <30 days before delivery, or were treated with a nonpenicillin–based regimen.

Race/Hispanic Ethnicity

In April 2008, the NETSS record layout for sending STI case notification data was updated to conform to the Office of Management and Budget's (OMB's) current government-wide standard for collection and reporting of race/Hispanic ethnicity data. The OMB standards were first issued in 1997. Cases are able to be reported with information on both race and Hispanic ethnicity. Categorization of race and Hispanic ethnicity in this report involves a stepwise process whereby case notifications with Hispanic ethnicity are first classified as Hispanic/Latino, regardless of the presence or absence of race data included with the case notification. Case notifications noted to be non-Hispanic or those with missing or unknown Hispanic ethnicity are considered non-Hispanic and categorized based on race. Among these cases without Hispanic ethnicity, case notifications that include more than one race are next categorized as Multiracial with remaining cases grouped into the corresponding single race category noted in the case notification. Since the publication of *Sexually Transmitted Disease Surveillance 2012*, most race/Hispanic ethnicity data presented in the report are displayed as: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander (NH/PI), White, and Multiracial.

Most reporting jurisdictions report in the current OMB standard race categories, including Multirace; however, in 2023, a small number of jurisdictions reported race using categories based on current OMB standards but were unable to report more than one race per person. For this report, all race/Hispanic ethnicity case notification data reported by jurisdictions are summarized in tables, figures, and interpretative text regardless of local compliance with the 1997 OMB standards. The few cases reported in the legacy 'Asian/Pacific Islander' category from non-OMB compliant jurisdictions are re-coded to 'Unknown' because these cases cannot be properly re-coded into a category currently in OMB standards. Therefore, the rates for Asians, NH/PI, or Multirace persons may be minimally under- or overestimated.

In 2023, 24.9% of chlamydia cases and 16.7% of gonorrhea cases were reported with missing information on race/Hispanic ethnicity. (Table A) Given the substantial number of these infections diagnosed, case data are primarily based on information received on the laboratory report which may not contain information about race/Hispanic ethnicity. As most P&S syphilis cases are investigated by local public health officials, only a small proportion (3.9%) were reported with missing information on race/Hispanic ethnicity in 2023. Cases missing race and/or Hispanic ethnicity are not included in the calculation of rates by race/Hispanic ethnicity. As a consequence, rate data presented in this report underestimate actual case incidence in these population categories and caution should be used in interpreting specific rate data points.

Of note, case notification data included in this report do not include tribal affiliation and cases that include American Indian or Alaska Native race may not be members or descendants of federally-recognized tribes or eligible to receive or actively receiving care from an Indian Health Service facility. Additionally, case notification race and Hispanic ethnicity data and the race and ethnicity categorization methodology described above may not accurately reflect how a person identifies. For these reasons and others not described, some case notification data included in this report may be misclassified by race and/or Hispanic ethnicity emphasizing the importance of interpreting these results with caution. Additionally, differences by race and/or Hispanic ethnicity cannot be understood without consideration of long-standing structural contributors that are not adequately captured in case notification data such as systemic racism, challenges with healthcare access, and disparities in social determinants of health.

Sex and Gender Identity

When providing STI case notification data to CDC, jurisdictions indicate the "current sex" (male, female, unknown) of the case-patient. Many of the tables and figures in this report present trends in rates of reported chlamydia, gonorrhea, and syphilis stratified by sex, based on information provided in the "current sex" variable. Some jurisdictions may enter "birth sex" (e.g., sex on original birth certificate) into the "current sex" variable or enter a value for the "current sex" variable that does not align with a person's current gender identity. Additionally, the "current sex" variable does not have a value for persons whose current gender identity is known but not able to be easily categorized as "male" or "female" (e.g., a person who identifies with a gender identity of genderqueer, nonbinary, or another gender identity that is neither exclusively male nor female). In this scenario, a jurisdiction may select a value of "unknown" for the "current sex" variable even though the current gender identity of the case-patient is known because it is not accurate to categorize the "current sex" as exclusively "male" or "female". Consequently, the "male" and "female" groups derived from the "current sex" variable and displayed in this report may be under- or overestimates.

Starting in 2018, jurisdictions were also able to provide "gender identity" (cisgender, transgender male-to-female, transgender female-to-male, and transgender unknown) for STI case notifications. As modifications to local and state surveillance systems may be required to collect, store, and transmit gender identity data, not all jurisdictions have begun providing these data to CDC. Additionally, among jurisdictions who have begun sending gender identity data, data are most complete for cases of P&S syphilis, as investigation of these cases likely include patient and provider follow-up allowing for collection of gender identity. To minimize bias due to missing data, gender identity data presented in this report are limited to data from states with ≥70% complete information on gender identity for P&S syphilis cases. As reporting of gender identity improves, case counts and distribution of cases by gender identity will become more representative of the US.

Sex of Sex Partners

Since 2005, jurisdictions have been able to provide information about reported sex of sex partners when sending STI case notifications to CDC. Information on sex of sex partners is most complete for cases of P&S syphilis, as investigations of these cases likely include patient and provider follow-up, allowing for the collection of information about sexual behaviors. Since 2007, the distribution of P&S syphilis case notification data by sex and sex of sex partners has been included in annual surveillance reports.

Starting with the 2023 report, data for the current reporting year were summarized according to detailed combinations of reported sex – men, women, or unknown – and reported sex of partners in the last 12 months, simplified as men only, men and women, women only, or unknown. For trends over multiple years, P&S syphilis case notification data were aggregated into groups commonly used for public health activities related to STIs: men who have sex with men (MSM), men who have sex with women only (MSW), and women. Unless otherwise noted, male cases were categorized as MSM if they reported having sex with any male partner in the last 12 months, including men who also reported sex with female partners in the last 12 months. Male cases were categorized as MSW if they reported having sex with only female partners in the last 12 months. Finally, male cases with no reported information on sex partners were categorized as men with unknown sex of sex partners (MSU), which provides context related to missing data on sex of sex partners.

Reporting Sources

Before 1996, states classified the source of case reports as either private source (including private physicians, hospitals, and institutions) or public source (primarily STD clinics). As states began reporting morbidity data electronically in 1996, the classification categories for source of case reports expanded to include the following data sources: STD clinics, HIV counseling and testing sites, drug treatment clinics, family planning clinics, prenatal/obstetrics clinics, tuberculosis clinics, private physicians/health maintenance organizations, hospitals (inpatient), emergency rooms, correctional facilities, laboratories, blood banks, the National Job Training Program, school-based clinics, mental health providers, the military, the Indian Health Service, and other unspecified sources. For figures displaying trends in cases by reporting source, case notification data are displayed as STD clinic and non-STD clinic, which includes all other reporting sources, including other unspecified sources.

Geography

To describe regional trends, data are stratified by US census region: the Northeast region (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont), the Midwest region (Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin), the South region (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Virginia, Tennessee, Texas, and West Virginia), and the West region (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming).

Selected tables and figures include data from five US territories (American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, and the US Virgin Islands); however, most of the case notification data presented in the report exclude data from these territories. There are a number of issues affecting STI surveillance data reported to CDC from the US territories, including limited access to STI test kits, resulting in an inability to test or screen for undetermined periods of time, as well as a variety of data collection, entry, and transmission issues. As such, the data likely underestimate the total STI burden in these areas and should be interpreted cautiously.

Population Denominators and Rate Calculations

2000–2023 Rates and Population

The population counts for 2000 through 2023 used to calculate rates displayed in figures and tables in this report were obtained from the County Characteristics Resident Population Estimates and the State Characteristics Population Estimates files available from the US Census Bureau.

Population estimates for American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the US Virgin Islands were obtained from the US Census Bureau International Programs Web site at: www.census.gov/programs-surveys/international-programs.html. The population counts for Puerto Rico were obtained from the Puerto Rico Characteristic Population Estimates file available from the US Census Bureau.

1990–1999 Rates and Population

The population counts for 1990 through 1999 incorporated the bridged single-race estimates of the April 1, 2000 US resident population. These files were prepared by the US Census Bureau with support from the National Cancer Institute.

1981–1989 Rates and Population

Rates were calculated by using US Census Bureau population estimates for 1981 through 1989.

1941–1980 Rates and Population

Rates for 1941 through 1980 were based on population estimates from the US Census Bureau and are currently maintained by CDC.

1941–2023 Congenital Syphilis Rates and Live Births

The congenital syphilis data in Table 1 of this report represent the number of congenital syphilis cases per 100,000 live births for all years during 1941–2023. Previous publications presented congenital syphilis rates per 100,000 population during 1941–1994 and rates for cases diagnosed at younger than 1 year of age per 100,000 live births during 1995–2005. To allow for trends in congenital syphilis rates to be compared for the period of 1941 through 2023, live births now are used as the denominator for congenital syphilis and case counts are no longer limited to those diagnosed within the first year of life. Congenital syphilis morbidity is assigned by year of birth. Rates of congenital syphilis for 1963 through 1988 were calculated by using published live birth data. Congenital syphilis rates for 1989 through

2023 were calculated by using live birth data provided to National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program. Rates for 2023 were calculated using live birth data for 2022.

2019–2023 Men Who Have Sex with Men Rates and Population

For the figure and table showing state-level rates of reported cases of P&S syphilis among men who have sex with men (MSM), population estimates of MSM are based on a method that combines published estimates of the prevalence of same-sex behavior among adult men with housing and population data from the American Community Survey five-year summary file (2014–2018).[1] County-specific estimates begin with MSM prevalence estimates that are determined by their urbanicity according to the NCHS urban-rural classification scheme for counties and their US region. Estimates are then multiplied by a modified ratio of each county's percentage of male same-sex households to the total percentage of male same-sex households among all counties at the same level of urbanicity and within the same region. Thus, the final estimate for each county reflects what would be expected based on the county's geography, urban-rural classification, and observed concentration of households with a male head of household and a male partner. State-level estimates are then aggregated from the county-specific estimates.

References

1. Grey JA, Bernstein KT, Sullivan PS, et al. Estimating the population sizes of men who have sex with men in US states and counties using data from the American Community Survey. *JMIR Public Health Surveill*. 2016;2(1):e14.

Other Sources of Surveillance Data —

STI Surveillance Network

In 2005, CDC established the STI Surveillance Network (SSuN) as a collaborative network of state, county and/or city health departments following common protocols to conduct sentinel and enhanced STI surveillance activities. The purpose of SSuN is to improve the capacity of national, state, and local STI programs to detect, monitor, and respond to trends in STIs through enhanced data collection, reporting, analysis, visualization, and interpretation of disease information.

Cycle 4 (2019–2024) of SSuN provides funding to 11 jurisdictions to conduct sentinel and enhanced STI surveillance activities. Sentinel surveillance activities include the abstraction of demographic and clinical information on the full census of patients presenting for care at participating SSuN STI clinics (Strategy A). SSuN Cycle 4 enhanced surveillance activities include provider and patient investigations on a probability sample of all persons diagnosed and reported with gonorrhea and case data for reported adult syphilis cases (Strategy B). Unique patients from Strategy A and Strategy B activities are matched to their respective individual jurisdiction's HIV surveillance registry. Jurisdictions funded in SSuN Cycle 4 include Baltimore City (Maryland), California (excluding San Francisco County), City of Columbus (8-County metropolitan statistical area), Florida, Indiana, Multnomah County (Oregon), New York City (New York), Philadelphia City/County (Pennsylvania), San Francisco City/County (California), Utah, and Washington State.

In both strategies of SSuN, unique persons (those seeking care in participating clinical facilities diagnosed and reported with gonorrhea) are longitudinally followed using unique, non-name-based coded IDs to provide information on repeat infections and/or care seeking behaviors. The primary unit of analysis for sentinel surveillance activities in clinical facilities is unique persons. Clinic visits are merged with STI-related laboratory, diagnoses, and treatment observations to provide a comprehensive picture of services and diagnoses received for each unique patient. For enhanced, case-based surveillance activities in SSuN, the primary unit of analysis is a diagnosed and reported episode (case) of gonorrhea or adult syphilis from any provider type or setting within the funded jurisdiction. Case data also included a unique person identifier, which allowed merging with multiple laboratory observations, matching with other health department disease registries, querying provider-based clinical information systems, and unique patient demographic and behavioral data obtained through direct patient interviews. Gonorrhea cases in the probability sample were weighted to reflect study design and to adjust for non-response by demographic category of the patient. Weighted analysis provides estimates of case-level and person-level characteristics representative of all gonorrhea cases diagnosed and reported in the funded jurisdictions.

Gay, bisexual, and other men who have sex with men (MSM) are defined in all SSuN data collection activities as men who ever: a) report a male sex partner(s) in the preceding 2–3 months or who report a male sex partner(s) in their clinic visit history, and/or, b) identify as gay/homosexual or bisexual. Men who have sex with women (MSW) are defined as men who ever report only female sex partners and/or who identify as straight/heterosexual.

Data presented from Strategy A includes STI clinics in the 11 participating Cycle 4 jurisdictions (Baltimore City [Maryland], Orange County [California], Columbus [Ohio], Miami, Leon, and Escambia County [Florida], Multnomah County [Oregon], New York City [New York], Philadelphia [Pennsylvania], Salt Lake City [Utah], San Francisco [California], and Seattle [Washington]).

Data presented from Strategy B (enhanced surveillance of gonorrhea cases) of SSuN for 2023 include gonorrhea cases sampled, investigated and weighted for analysis from Baltimore City, Columbus (Ohio), Florida, Indiana, Multnomah County (Oregon), New York City, Philadelphia, Utah, and Washington State.

Case Definitions —

STI Case Definitions 2023 PDF

Download

STI Case Definitions in effect during 2023

SOURCES

CONTENT SOURCE:

National Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention; About Division of STD Prevention