

2025 North Carolina STD Surveillance Report

HIV/STD/Hepatitis Surveillance Unit
Division of Public Health
North Carolina Department of Health and Human Services
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NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

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https://epi.publichealth.nc.gov/cd/stds/figures.html

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Special Notes:

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About the Contents of This Report

This document, the *2025 North Carolina STD Surveillance Report*, includes summary tables of surveillance reports and other information for chlamydia, gonorrhea, and syphilis. In some instances, total numbers of reports may not agree between separate cross-tabulations due to missing values for some variables.

Detailed data tables of chlamydia, gonorrhea, and syphilis by county of diagnosis/residence and demographics can be found in the *2025 North Carolina STD Surveillance Data Tables* excel file. This excel file can be downloaded from the Annual Reports page (https://epi.dph.ncdhhs.gov/cd/stds/annualrpts.html).

Rates are presented by age group, gender, race, and ethnicity for each disease and are expressed as cases per 100,000 population. Public health reporting data for chlamydia and gonorrhea cases primarily come from paper and electronic laboratory reports where transgender information is very incomplete. Therefore, we present only male/female gender for chlamydia and gonorrhea. Cases with a reported race of "other" were included in the unknown race category. Rates are also presented for counties across the state and are expressed as cases per 100,000 population. Rates are not available for unknown/unspecified categories (including age, gender, race, and ethnicity). Beginning with the 2021 Annual Report, rate denominators were estimated using the Census demographic population estimates for 2021 from the Census Bureau's Population Estimates Program (PEP). More information about Census Population and Housing Estimates is available on the Census website (https://www.census.gov/programs-surveys/popest/data/special-tab/content.html). Use of these population denominators enabled calculation of rates for the multiple race category.

Rates that are based on a small number of cases (fewer than 10) should be viewed with caution and are considered unreliable because these rates have large standard errors and can vary widely with small changes in case numbers. Data are suppressed in this document for table cells with a population denominator less than 500, according to the North Carolina Department of Health and Human Services, Division of Public Health Communicable Disease Branch data release guidelines.

**Please note that 2020 data should be treated with caution due to the impact of the COVID-19 pandemic on accessing STD testing, STD treatment, and surveillance activities in North Carolina. In recent years, improvements to electronic lab reporting (ELR) facilities have increased the completeness of race and ethnicity data for chlamydia and gonorrhea. As a result, there has been a decline in cases with unknown race and ethnicity and an increase in the proportion of case records with recorded Hispanic ethnicity. We believe increases in STI rates for Hispanic/Latine people reflect both improved data and a true increase.*

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026) unless otherwise specified.

Summary

- Sexually transmitted infections (STIs) are more common among young people; 79% of chlamydia cases and 61% of gonorrhea cases in 2025 were among persons aged 15-29 years.
- Chlamydia case numbers remained steady between 2021-2023; cases started decreasing in 2024. In 2025, there were 56,160 cases (rate of 502 cases per 100,000 population).
- Gonorrhea cases have been declining since 2021; there were 17,275 gonorrhea cases in 2025 (rate of 154 cases per 100,000 population).
- Black/African American persons were more affected by gonorrhea, accounting for 63% of gonorrhea cases in 2025 (10,812 cases; rate of 454 cases per 100,000 population).
- Decreases in chlamydia and gonorrhea may be driven by decreases in testing availability as well as true decreases in disease.
- Early syphilis cases declined 17% in 2025 compared to 2024. Early syphilis cases are more frequent among men (2,155 cases in 2025, rate of 40 per 100,000) than women (821 cases, rate of 14 per 100,000).
- For the first time since 2018, North Carolina saw a decrease in congenital syphilis in 2025. There were 89 congenital syphilis cases in 2025 (0 stillbirths or neonatal deaths attributed to congenital syphilis); cases decreased by 7% in 2025 compared to 2024.

Bacterial and Other STDs in North Carolina Overview

Reportable Sexually Transmitted Diseases (STDs) in North Carolina

In North Carolina, eight bacterial sexually transmitted diseases (STDs) are reportable by law (10A NCAC 41A .0101) to the North Carolina Department of Health and Human Services (North Carolina DHHS).[1] Statewide surveillance information, such as patient demographics, diagnosis date, and treatment information, is collected by the local health departments and sent to the Communicable Disease Branch, within North Carolina DHHS. Local health departments are required to report bacterial STDs to the North Carolina DHHS according to the following schedule:

Within 24 hours	Within seven days
Chancroid*	Chlamydia*
Gonorrhea*	Lymphogranuloma venereum*
Granuloma inguinale	Nongonococcal urethritis (NGU)
Syphilis*	Pelvic inflammatory disease (PID)

*The conditions with asterisks are nationally notifiable to the Centers for Disease Control and Prevention.

Other non-reportable STDs also impact North Carolinians.

Table A. NC Reportable Bacterial Sexually Transmitted Diseases (STDs) by Gender, 2025

Bacterial STDs	Gender		Total*
	Men	Women	
Chlamydia	19,313	36,846	56,160
Gonorrhea	10,482	6,793	17,275
Syphilis			
Primary Syphilis	500	149	649
Secondary Syphilis	617	276	893
Early Non-Primary, Non-Secondary	1,091	407	1,498
Late or Unknown duration Syphilis	1,1674	1,032	2,706
Congenital Syphilis**	--	--	89
Nongonococcal urethritis (NGU)	1,171	3	1,177
Pelvic inflammatory disease (PID)	0	161	161
Chancroid	1	1	2
Granuloma Inguinale	0	0	0
Lymphogranuloma venereum	2	0	2
Total	**44,851**	**45,668**	**80,612**

*Total includes cases with missing gender; table reflects binary gender data which is comparable across diseases (transgender information is very incomplete for STDs beside syphilis).
**Congenital syphilis cases are not broken down by gender per the Communicable Disease Branch data confidentiality policy.
Data Source: North Carolina Electronic Disease Surveillance System (data as of July 1, 2026).

[1]North Carolina Office of Administrative Hearings (2019). Chapter 41: Epidemiology Health. Accessed September 30, 2026. Retrieved from http://reports.oah.state.nc.us/ncac.asp?folderName=\Title%2010A%20-%20Health%20and%20Human%20Services\Chapter%2041%20-%20Epidemiology%20Health.

Chlamydia

Chlamydia is the **most commonly reported sexually transmitted disease** in North Carolina and the United States.



Caused by the bacterium *Chlamydia trachomatis*.



Easily treated by antibiotics.



Most individuals are asymptomatic; symptoms include discharge and painful urination. Untreated chlamydial infection can cause severe damage to the female reproductive tract, including infertility and pelvic inflammatory disease.



The CDC and NC DHHS recommend chlamydia screening for all sexually active women under 25 years of age, as well as all pregnant women and women ≥ 25 years of age with risk factors (such as new or multiple sex partners).



Chlamydia and other STDs increase susceptibility to human immunodeficiency virus (HIV) infection by causing inflammation, which increases the concentration of cells targeted by HIV in genital regions.

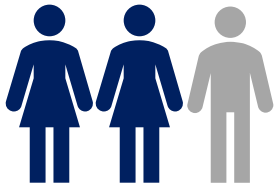


No comparable screening programs exist for young men. As a result, chlamydia reporting is highly biased with respect to gender, with a higher number of cases detected and reported for women.

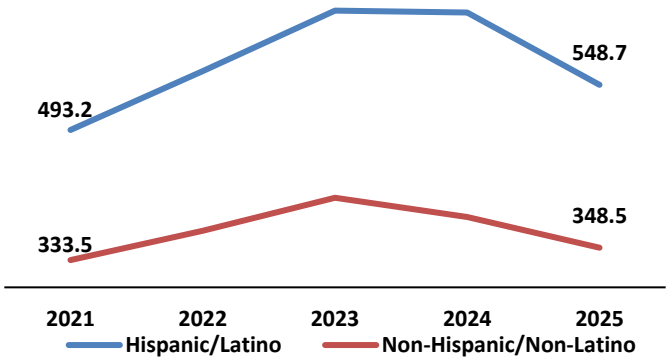
Chlamydia Disease Trends

2025 Summary		
Number of cases		56,160
Rate (per 100,000 population)		501.5
Percent change from 2024		-9.5%
Mean age (in years)		25
Gender	**Number (%)**	**Rate**
Male	19,313 (34.4)	356.1
Female	36,846 (65.6)	638.0
Unknown	0 (0.0)	-
Race	**Number (%)**	**Rate**
American Indian/Alaska Native	726 (1.3)	318.8
Asian/Pacific Islander	582 (1.0)	120.2
Black/African American	28,342 (50.5)	1,190.8
White	14,747 (26.3)	194.2
Multiple Races	1,326 (2.4)	258.9
Unknown	10,437 (18.6)	-
Ethnicity	**Number (%)**	**Rate**
Hispanic/Latino	7,764 (13.8)	548.7
Non-Hispanic/Non-Latino	34,091 (60.7)	348.5
Unknown	14,305 (25.5)	-

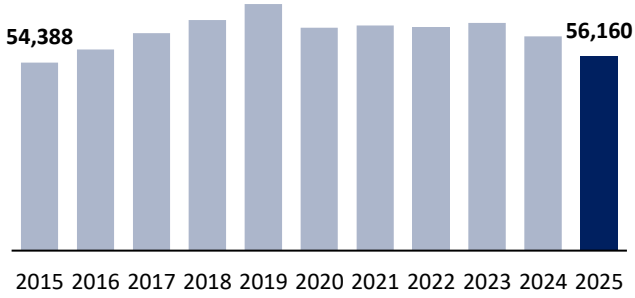
Approximately two-thirds (66%) of chlamydia cases were among **women** in 2025. Women are more likely to be screened for chlamydia (see page 12).



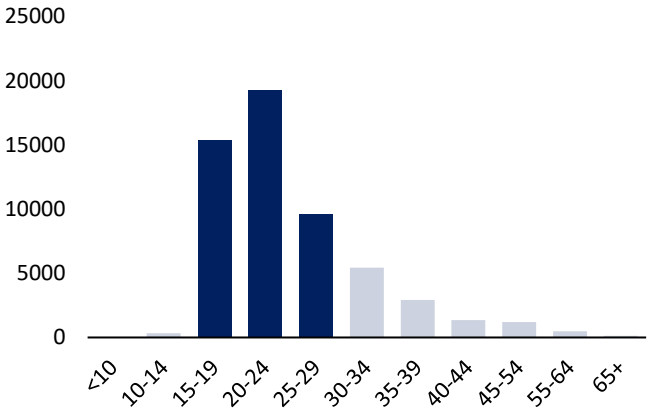
Chlamydia rates peaked in 2023 and has since declined among both Hispanic/Latino and non-Hispanic/non-Latino persons. **Rates of chlamydia remain higher among Hispanic/Latino persons**; the rate among Hispanic/Latino persons was 1.6 times higher than non-Hispanic/non-Latino persons in 2025.



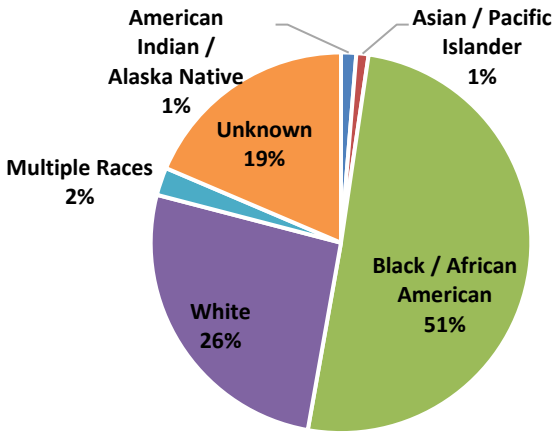
Chlamydia cases remained steady from 2020-2023 and have been **declining** since 2024.



79% of chlamydia cases in 2025 were among persons aged **15-29 years.**



Black/African American people were more affected by chlamydia; this group represents **51%** of cases in 2025, while representing 21% of NC's population.



Gonorrhea

Antibiotic resistance is a growing concern for gonorrhea and is widely reported throughout the world.



Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*.



Gonorrhea can be treated with recommended antibiotics.



Untreated urogenital gonorrhea can cause severe damage to the female reproductive tract, including infertility and pelvic inflammatory disease.



Gonorrhea and other STDs increase susceptibility to human immunodeficiency virus (HIV) infection by causing inflammation, which increases the concentration of cells targeted by HIV in genital regions.



Gonorrhea has developed resistance to all but one class of antibiotics. Cultures for gonorrhea can be screened for drug resistance at the State Lab for Public Health.

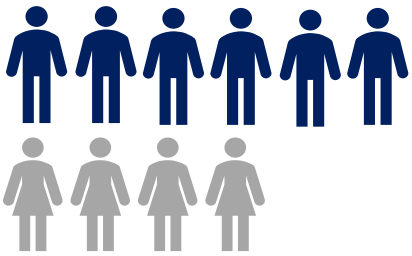


The majority of males with urethral gonorrhea experience symptoms, which include discharge and burning on urination; many women also experience symptoms, although they may be mild. Gonorrhea infections of the oropharynx and rectum are often asymptomatic.

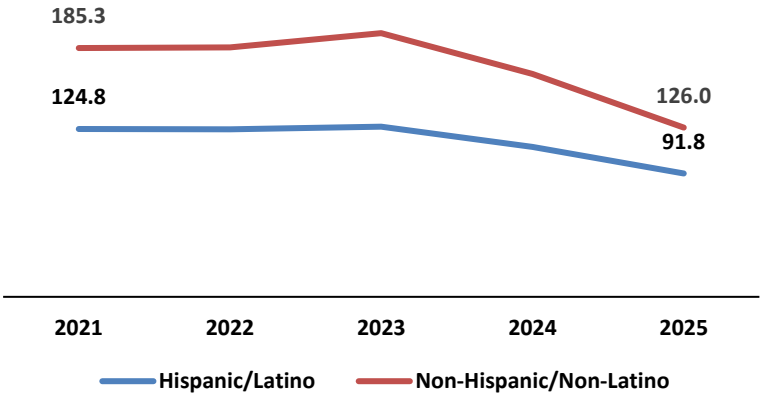
Gonorrhea Disease Trends

2025 Summary		
Number of cases		17,275
Rate (per 100,000 population)		154.3
Percent change from 2024		-22.4%
Mean age (in years)		29
Gender	**Number (%)**	**Rate**
Male	10,482 (60.7)	193.3
Female	6,793 (39.3)	117.6
Unknown	0 (0.0)	-
Race	**Number (%)**	**Rate**
American Indian/Alaska Native	185 (1.1)	81.2
Asian/Pacific Islander	158 (0.9)	32.6
Black/African American	10,812 (62.6)	454.3
White	3,659 (21.2)	48.2
Multiple Races	492 (2.8)	96.1
Unknown	1,969 (11.4)	-
Ethnicity	**Number (%)**	**Rate**
Hispanic/Latino	1,299 (7.5)	91.8
Non-Hispanic/Non-Latino	12,322 (71.3)	126.0
Unknown	3,654 (21.2)	-

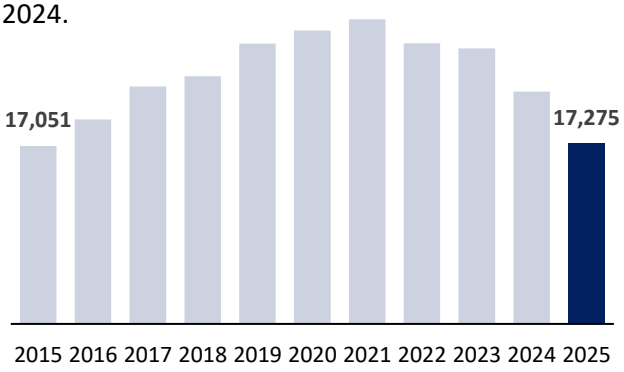
Approximately 6 out of 10 (61%) of gonorrhea cases in 2025 were among **men**.



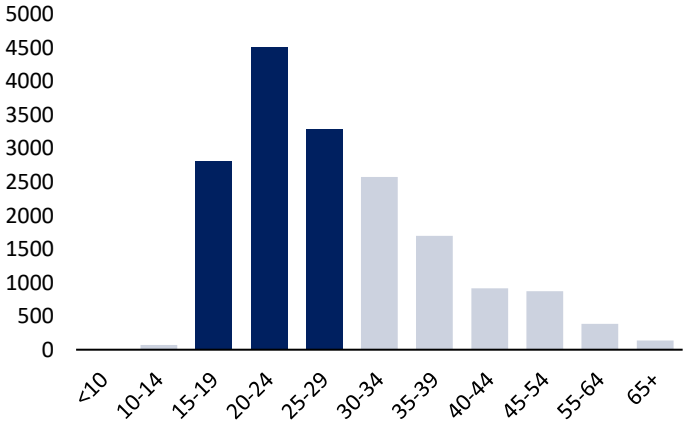
While disease incidence is **higher** among non-Hispanic/non-Latino persons compared to-Hispanic/Latino persons, the differences between ethnicities is shrinking.



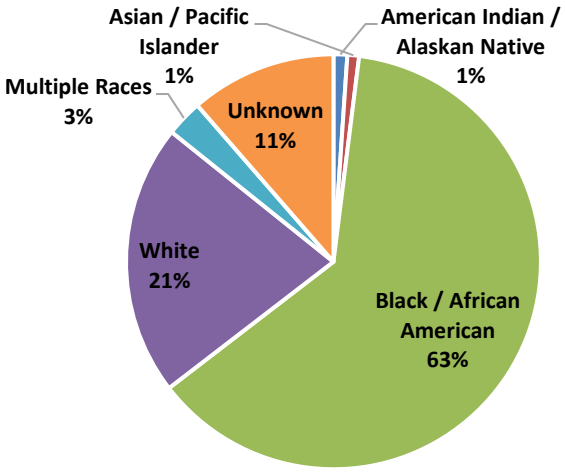
Gonorrhea cases have been **declining** since 2021; gonorrhea **decreased 22% in 2025** compared to 2024.



61% of gonorrhea cases in 2025 were among **persons aged 15-29 years**.



Black/African American persons were more affected by gonorrhea, with **63%** of gonorrhea cases in 2025; Black/African American persons had **9.4 times** the rate of White persons.



Syphilis

Syphilis is a complex disease with a natural history encompassing a number of different stages. **Early stages are the most infectious and the focus of public health activity.**



Syphilis is caused by the spirochete bacterium *Treponema pallidum*.



Non-primary non-secondary early syphilis (formerly early latent) infections are asymptomatic but acquired within the past 12 months.



Late or unknown duration syphilis are cases that have progressed past the early stage (greater than 12 months from initial infection). Individuals with late or unknown duration syphilis cannot transmit the infection to sex partners, but finding and treating this disease is still important as long-term consequences of untreated syphilis can be severe.



Patients are most likely to have noticeable symptoms in primary or secondary stages of syphilis, such as a chancre or rash. Patients in these stages are more likely to have their infection diagnosed and reported because they go to a doctor for treatment.



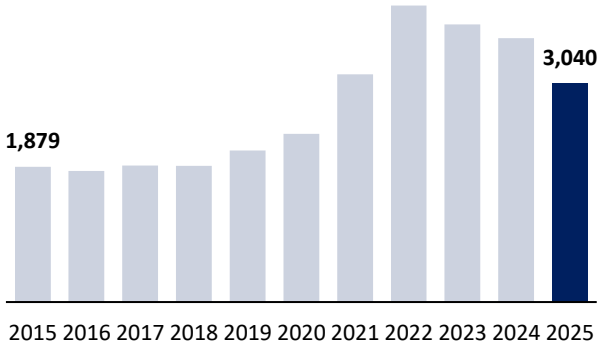
Pregnant women with any stage of syphilis can pass the infection to their unborn child. Exposure to syphilis while in utero can result in stillbirth, infant death, or adverse health outcomes for the infant if the maternal infection is not rapidly identified and appropriately treated before delivery.

Please note the case definition for syphilis changed in 2018. Therefore, data presented in this report before 2018 used the 2014 case definition, while data after 2018 uses the 2018 case definition. For more information on this, please refer to Appendix A: STD Surveillance Notes and Case Definitions.

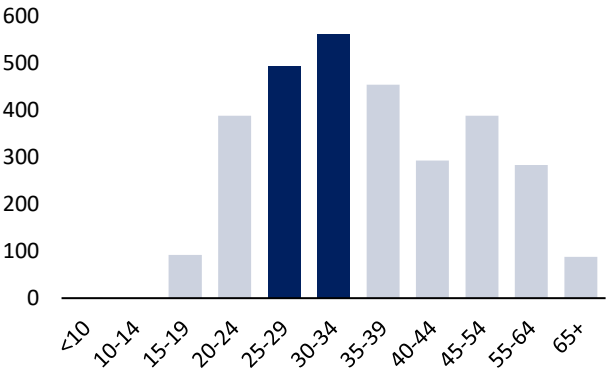
Early Syphilis Disease Trends

2025 Summary		
Number of cases		3,040
Rate (per 100,000 population)		27.1
Percent change from 2024		-17.1%
Mean age (in years)		37
Gender	**Number (%)**	**Rate**
Male	2,155 (70.9)	39.7
Female	821 (27.0)	14.2
Transgender	64 (2.1)	-
Unknown	0 (0.0)	-
Race	**Number (%)**	**Rate**
American Indian/Alaska Native	66 (2.2)	29.0
Asian/Pacific Islander	26 (0.9)	5.4
Black/African American	1,713 (56.3)	72.0
White	974 (32.0)	12.8
Multiple Races	242 (8.0)	47.3
Unknown	19 (0.6)	-
Ethnicity	**Number (%)**	**Rate**
Hispanic/Latino	416 (13.7)	29.4
Non-Hispanic/Non-Latino	2,533 (83.3)	25.9
Unknown	91 (3.0)	-

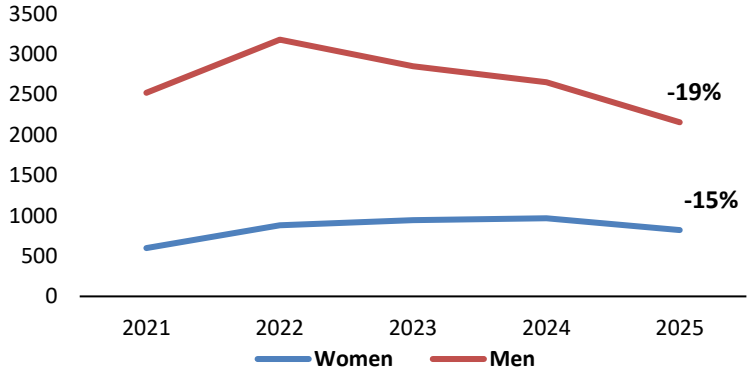
Early syphilis cases peaked in 2022 and have continued to **decline** since 2023.



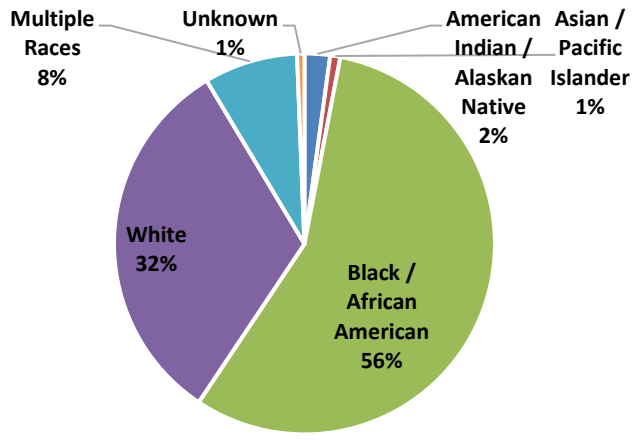
35% of early syphilis cases were among persons aged **25-34 years** in 2025.



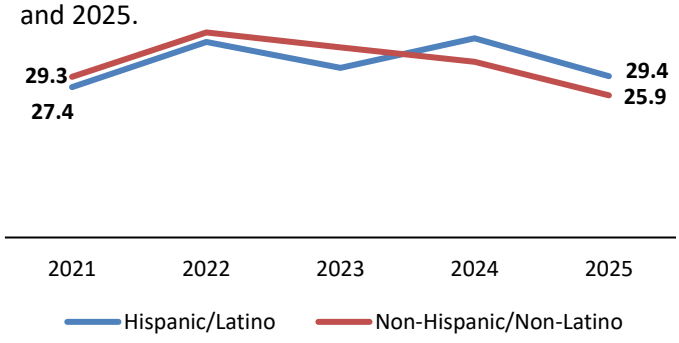
The **majority of early syphilis cases were among men (72%)**; men had a greater decrease since 2022 compared to women.



More than half of early syphilis cases in 2025 were diagnosed among **Black/African American** people. Black/African American people had **5.6 times** the rate of early syphilis as White persons in 2025.



Rates among Hispanic/Latino persons were **slightly higher** than rates among non-Hispanic/non-Latino persons in 2024 and 2025.



Congenital Syphilis

Congenital syphilis decreased for the first time since 2018 in 2025. Congenital syphilis cases **decreased 7%** in 2025 compared to 2024.



Pregnant women with any stage of syphilis can pass the infection to their unborn child. Exposure to syphilis while in utero can result in stillbirth, infant death, or adverse health outcomes for the infant if the maternal infection is not rapidly identified and appropriately treated before delivery.



Up to 40% of babies born to women with untreated syphilis may be stillborn or die from the infection as a newborn.



Congenital syphilis is preventable; pregnant women who receive consistent and timely prenatal care can prevent passing the infection to their unborn child.



Infants that are born with congenital syphilis can have a rash, low birth weight, jaundice, bone and joint deformities, and eye and ear nerve damage.



The North Carolina Administrative Code requires that all pregnant women be tested for syphilis at the first prenatal visit, between 28-30 weeks of gestation, and at delivery. Failure to detect maternal syphilis infection during pregnancy or at delivery can result in delayed identification of infection in children who can have ongoing infection for months to years before being diagnosed.

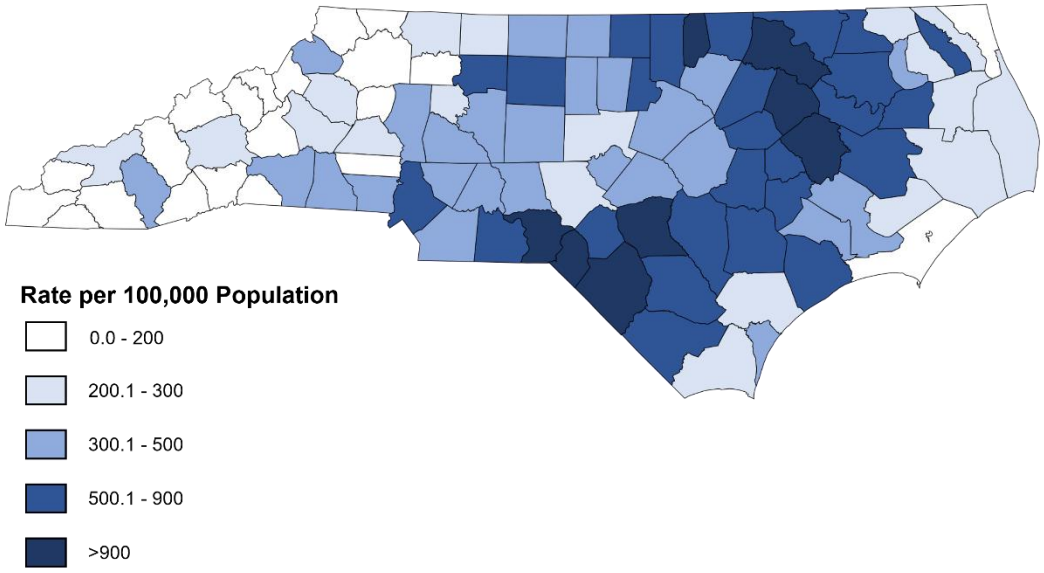
Table 1. Number of Infants Diagnosed with Congenital Syphilis in North Carolina by Year of Birth, 2015-2025*

Classification	2015	2016	2017	2018	2019	*2020**	2021	2022	2023	2024	2025
Presumptive/Probable	11	16	23	18	26	*32*	40	57	63	90	89
Confirmed-Live birth	0	1	0	0	0	*0*	0	0	0	0	0
Confirmed-Still birth	0	1	0	1	1	*0*	2	0	10	6	0
Total	**11**	**18**	**23**	**19**	**27**	***32***	**42**	**57**	**73**	**96**	**89**

*2020 data should be treated with caution due to the impact of the COVID-19 pandemic on accessing STD testing, STD treatment, and surveillance activities in North Carolina. 2020 data is italicized for this reason.
Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026).

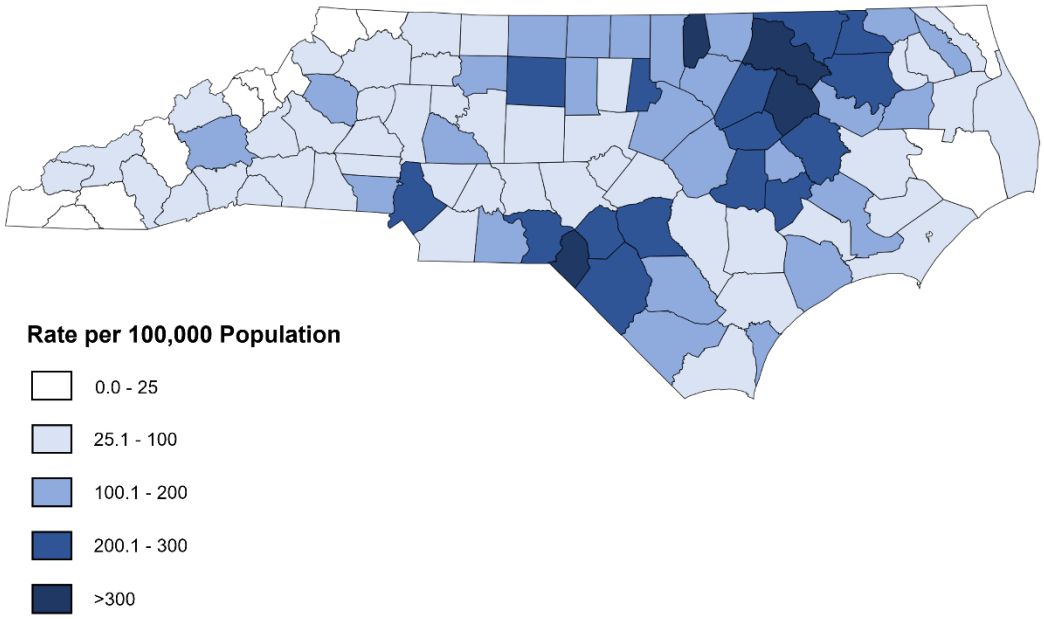
Chlamydia, Gonorrhea, and Syphilis Annual Rate Maps by County of Residence at Diagnosis, 2025

Figure 1. Chlamydia Rates in North Carolina by County of Residence at Diagnosis, 2025



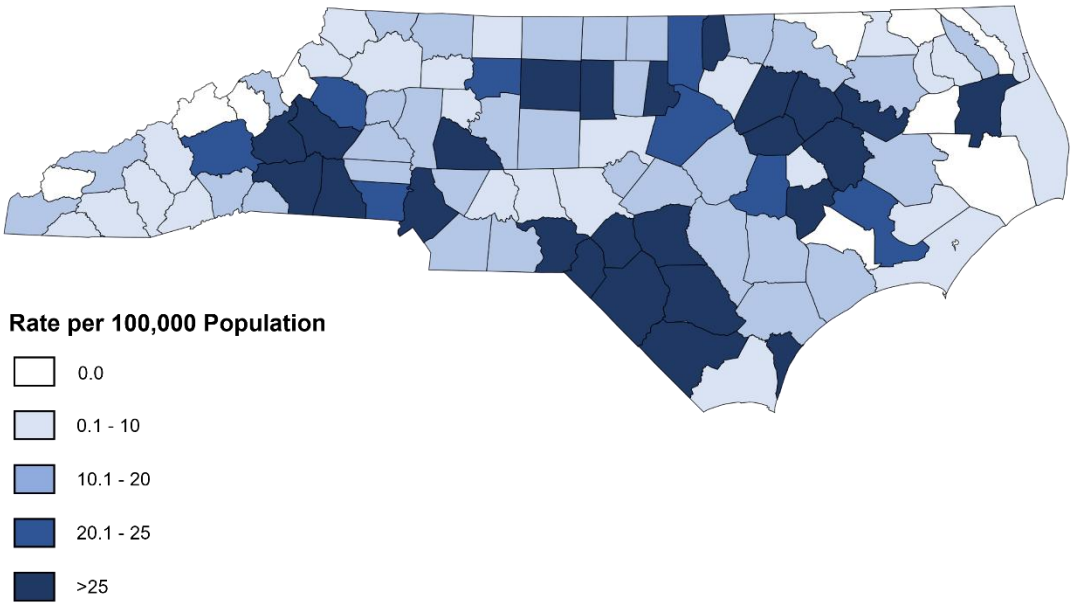
Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026).

Figure 2. Gonorrhea Rates in North Carolina by County of Residence at Diagnosis, 2025



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026).

Figure 3. Early Syphilis (Primary, Secondary, and Early Non-Primary Non-Secondary) Rates in North Carolina by County of Residence at Diagnosis, 2025

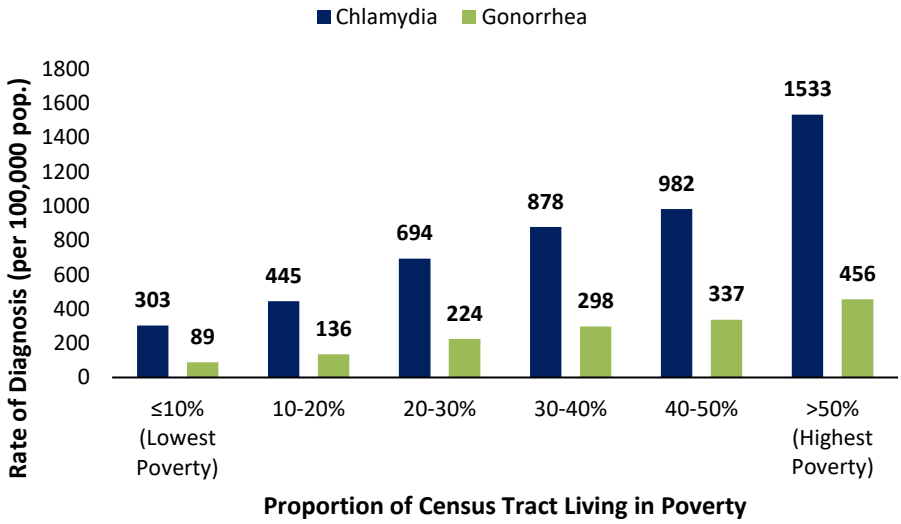


Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026).

Poverty and STDs

While the North Carolina surveillance data shows higher STD rates in some racial and ethnic groups, factors such as poverty and large gaps in wealth distribution may be driving these differences.[2] People who cannot afford basic needs may also have trouble accessing quality sexual health services, and may have had experiences with the health system that discourage the accessing of testing and care.[29] For each person diagnosed with a STD in North Carolina in 2025, we calculated the proportion of the population living below the poverty line in their census tract of residence at the time of their diagnosis using 5-year (2020-2024) estimates from the American Community Survey. This calculation estimated the neighborhood poverty level experienced for people newly diagnosed with STDs in North Carolina. Figures 4 and 5 show the rate of newly diagnosed STDs in 2025 by census tract poverty rate. Figures 4 and 5 demonstrate that although people living at all levels of poverty get STDs, those living in census tracts with a higher proportion of residents residing below the federal poverty line are more likely to be diagnosed with STDs.

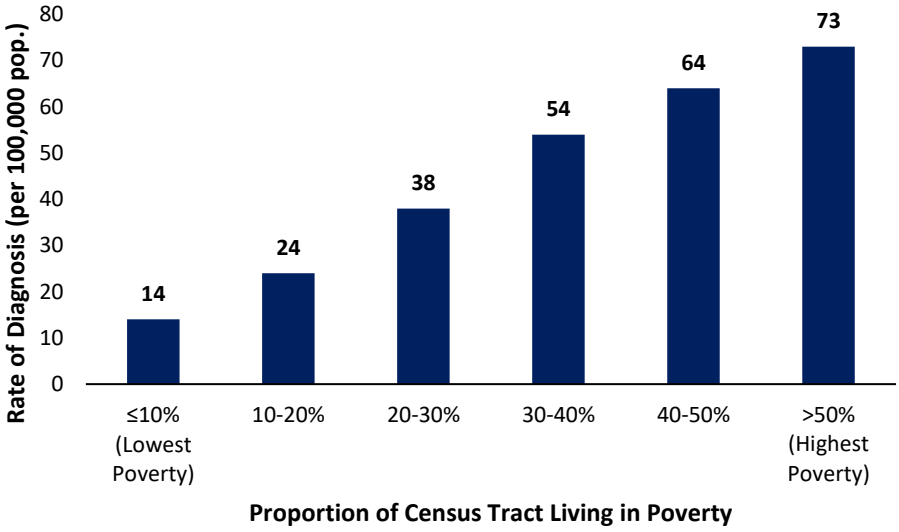
Figure 4. People Newly Diagnosed with Chlamydia and Gonorrhea in North Carolina by Poverty Indicator*



*Estimates of people living below the poverty line within a census tract and all population estimates obtained from the American Community Survey, 2020-2024, five-year estimate.
Data Sources: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026), and 2020-2024 American Community Survey (ACS) five-year estimates (accessed from https://data.census.gov/).

[2]Centers for Disease Control and Prevention. (2024). ST1 health equity. Updated January 31, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/sti/php/projects/health-equity.html.

Figure 5. People Newly Diagnosed with Early Syphilis (Primary, Secondary, and Early Non-Primary Non-Secondary) in North Carolina by Poverty Indicator*



*Estimates of people living below the poverty line within a census tract and all population estimates obtained from the American Community Survey, 2020-2024, five-year estimate.
Data Sources: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of July 1, 2026), and 2020-2024 American Community Survey (ACS) five-year estimates (accessed from https://data.census.gov/).

Sexually Transmitted Disease Information

Reportable Sexually Transmitted Diseases in North Carolina

Chlamydia

Chlamydia is caused by the bacterium *Chlamydia trachomatis* and is the most frequently reported bacterial STD both nationally and in North Carolina. Although symptoms from infections caused by *C. trachomatis* include discharge and painful urination, most individuals with chlamydia have no symptoms at all.[3] Chlamydia is easily treated with antibiotics. Chlamydia and other STDs increase susceptibility to human immunodeficiency virus (HIV) infection by causing inflammation, which increases the concentration of the immune cells targeted by HIV in genital regions.[4] In addition, the infection can cause severe damage to the female reproductive tract, including infertility and PID.[2] Untreated chlamydia in pregnant women can result in problems during pregnancy, including preterm labor, premature rupture of the membranes surrounding the baby in the uterus, and low birth weight. The newborn may also become infected during delivery as the baby passes through the birth canal, leading primarily to eye and lung infections.[5] For this reason, the Centers for Disease Control and Prevention (CDC) and North Carolina DHHS recommend that all sexually active females age 25 years and younger, as well as all pregnant women and older women with risk factors, such as new or multiple sex partners, be screened for chlamydia. No comparable screening programs exist for young men. As a result, chlamydia reporting is highly biased with respect to gender, with a higher number of cases detected and reported among women.

Gonorrhea

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae.* Nearly all infected males experience symptoms of urethral gonococcal infections, which include urethral discharge and/or burning with urination.[6] Many women also experience symptoms, although they may be mild. Pharyngeal and rectal gonorrhea are often asymptomatic[7]. Like chlamydia, untreated gonorrhea can cause severe damage to the female reproductive tract, including PID and infertility, and facilitates the acquisition of HIV in both men and women.[8]

Gonorrhea is the most likely of the nationally notifiable bacterial STDs to develop antibiotic resistance. Antibiotic resistance is widely reported throughout the world.[9] North Carolina contributes to CDC's gonorrhea resistance screening project, Combatting Antimicrobial Resistant Gonorrhea and Other STIs (CARGOS).[10] Cultures from all gonorrhea cases diagnosed in Guilford County are screened for drug resistance. In 2024, all specimen screened for

[3]Centers for Disease Control and Prevention (2024). About Chlamydia. Updated January 31, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/chlamydia/about/?CDC_AAref_Val=https://www.cdc.gov/std/chlamydia/stdfact-chlamydia.htm.
[4]Centers for Disease Control and Prevention (1998). HIV prevention through early detection and treatment of other sexually transmitted diseases—United States. Recommendations of the Advisory Committee for HIV and STD Prevention. Accessed September 30, 2026. Retrieved from www.cdc.gov/mmwr/preview/mmwrhtml/00054174.htm.
[5]Centers for Disease Control and Prevention (2024). STIs and Pregnancy. Updated February 12, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/sti/about/about-stis-and-pregnancy.html.
[6]Centers for Disease Control and Prevention (2024). Gonorrhea. Updated January 31, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/gonorrhea/about/index.html?CDC_AAref_Val=https://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea.htm%20.
[7]Centers for Disease Control and Prevention (2021). Gonococcal Infections Among Adolescents and Adults. Updated September 21, 2022. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/std/treatment-guidelines/gonorrhea-adults.htm.
[8]Hook, E. & Handsfield, H. (1999). Chapter 32: Gonococcal infections in the adult. In K.K. Holmes, P.F. Sparling, P.A. Mårdh, S.M. Lemon, W.E. Stamm, P. Piot & J.N. Wasserheit (eds.), *Sexually Transmitted Diseases, 3rd Edition* (pp. 1165-1189). New York: McGraw-Hill.
[9]Hook, E & Kirkcaldy, R. (2018). A Brief History of Evolving Diagnostics and Therapy for Gonorrhea: Lessons Learned. Clinical Infectious Diseases. 67(8): pp 1294-9.
[10]Centers for Disease Control and Prevention (2024). Combatting Antimicrobial Resistant Gonorrhea and Other STIs (CARGOS). Updated August 1, 2024. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/sti/php/projects/cargos.html.

drug resistance from Guilford County remained susceptible to ceftriaxone, the primary treatment for gonorrhea."[11] Surveillance for antibiotic-resistant gonorrhea is very important to rapidly and will continue in NC.

Ophthalmia Neonatorum

Ophthalmic infection (also known as neonatal conjunctivitis) with *N. gonorrhoeae* or *C. trachomatis* can occur in infants when a pregnant woman has untreated gonorrhea or chlamydia. During delivery, the infant's eyes can become infected with either bacterium.[12] In the past, ophthalmia neonatorum was reportable by law in North Carolina, but it is no longer a reportable disease in the state. However, cases may be reported because positive lab tests for *N. gonorrhoeae* and *C. trachomatis* are reportable. Cases are reviewed to detect ophthalmia neonatorum in a delivery hospital, which may indicate imperfect practice.

Syphilis

Please note the case definition for syphilis changed in 2018. Therefore, data presented in this report before 2018 used the 2014 case definition, while data after 2018 uses the 2018 case definition. For more information on this, please refer to Appendix A: STD Surveillance Notes and Case Definitions.

Syphilis is a complex disease with a natural history encompassing a number of different stages, caused by the spirochete bacterium *Treponema pallidum*.[13] Early stages are the most infectious and the focus of public health activity.

Patients in the primary or secondary stages of syphilis are most likely to have noticeable symptoms, such as an ulcerative lesion (called a chancre) or skin rash, and to have their disease diagnosed and reported because they go to a doctor for treatment. These stages are also the most infectious and, therefore, of the greatest public health concern. Non-primary non-secondary early syphilis (formerly called early latent) have no symptoms of primary or secondary syphilis but have other evidence that the infection was acquired within the past 12 months. Primary, secondary, and early non-primary non-secondary stages all occur within the first year of infection.[14] These stages are often grouped together when discussing infectious syphilis and are called "early syphilis."

If a case progresses past the early stage (greater than 12 months from initial infection), the infection moves into a stage known as late or unknown duration syphilis. These syphilis cases are detected and reported in several different ways. Some patients with late syphilis develop symptoms and go to a doctor, while others are detected through screening or partner notification. Patients of either sex are not likely to be infectious to their sexual partners beyond the early latent stage, but finding these cases is still important, as long-term outcomes of untreated syphilis can be severe.[12]

Pregnant women can pass syphilis to their infants at any stage. Exposure to syphilis while in utero can result in stillbirth, infant death, or adverse health outcomes for the infant if the maternal infection is not rapidly identified and appropriately treated before delivery.

[11]Centers for Disease Control and Prevention (2024). Gonococcal Isolate Surveillance Project (GISP) Profiles. Updated April 13, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/sti-statistics/gisp-profiles/index.html.
[12]Centers for Disease Control and Prevention (2024). Pink Eye in Newborns. Updated April 15, 2024. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/conjunctivitis/newborns/?CDC_AAref_Val=https://www.cdc.gov/conjunctivitis/newborns.html.
[13]Centers for Disease Control and Prevention (2024). About Syphilis. Updated January 30, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/syphilis/about/index.html.
[14]Centers for Disease Control and Prevention (2018). Syphilis 2018 case definition-CSTE position paper. Updated January 1, 2018. Accessed September 30, 2026. Retrieved from https://ndc.services.cdc.gov/case-definitions/syphilis-2018/.

Up to 40% of babies born to women with untreated syphilis may be stillborn or die from the infection as a newborn. Infants that are born with congenital syphilis can have a skin rash, low birth weight, jaundice, bone and joint deformities, and eye and ear nerve damage.[13] Congenital syphilis can be prevented by rapid diagnosis and treatment of the infection before delivery. North Carolina Administrative Code requires all pregnant women be tested for syphilis at the first prenatal visit, at 28-30 weeks gestation, and at delivery. If the syphilis infection is not detected during pregnancy or at the time of delivery, infection in the newborn may go undiagnosed for months to years because the majority of congenital infections are asymptomatic at birth.[15] Infants born to women who did not receive appropriate treatment for their syphilis infection prior to delivery, should be assessed and empirically treated for syphilis.

Nongonococcal urethritis (NGU) and Pelvic Inflammatory Disease (PID)

NGU and PID are syndromic in nature and are diagnosed by symptom presentation and exclusion of other causative organisms. NGU is a diagnosis of exclusion that requires specific physical manifestations which include the inflammation of the urethra, painful urination and penile and/or urethral discharge.[14] Diagnosis is determined by the documented absence of *N. gonorrhoeae*, the causative agent in gonococcal urethritis. Although NGU can be caused by several different organisms, *C. trachomatis* may be responsible for many infections*;* however, most NGU cases are not tested for chlamydia.[16] Most NGU cases in North Carolina are diagnosed at local health department clinics.

Similarly, PID occurs when an untreated sexually transmitted infection spreads to the female reproductive organs such as the uterus, ovaries, and fallopian tubes. PID symptoms can include cervical motion tenderness, discharge, fever, lower back pain, and painful urination.[15] Many different types of microorganisms can cause PID; therefore, this STD is considered a polymicrobial infection. *N. gonorrhoeae* and *C. trachomatis* have been identified among women one third to half of PID cases.[17] Quick detection and antibiotic treatment are critical to prevent long term sexual dysfunction and reproductive organ damage.

Rare Bacterial Sexually Transmitted Infections

Chancroid is caused by the bacterium, *Haemophilus ducreyi*. Symptoms include painful genital ulcers and tender suppurative inguinal adenopathy.[18] Laboratory diagnosis is difficult as there are currently no FDA approved nucleic acid amplification tests for the detection of *H. ducreyi* and the culture media needed to grow this organism is not widely available.

Lymphogranuloma venereum (LGV) is caused by a variant of *C. trachomatis.* The physical symptoms can include tender inguinal and or femoral lymphadenopathy, a lesion, proctocolitis, and other symptoms. A definitive diagnosis of LGV can be made using molecular testing which is not widely available in the US. LGV diagnosis is

[15]Centers for Disease Control and Prevention (2024). About Congenital Syphilis. Updated January 31, 2025. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/syphilis/about/about-congenital-syphilis.html?CDC_AAref_Val=https://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm%20.
[16]Centers for Disease Control and Prevention (2015). Diseases characterized by urethritis and cervicitis. Updated September 21, 2022. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/std/treatment-guidelines/urethritis-and-cervicitis.htm.
[17]Centers for Disease Control and Prevention (2023). About Pelvic Inflammatory Disease (PID). Updated December 13, 2023. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/pid/about/?CDC_AAref_Val=https://www.cdc.gov/std/pid/stdfact-pid.htm.
[18]Centers for Disease Control and Prevention (2021). Chancroid-2021 STD Treatment Guidelines. Updated July 22, 2021. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/std/treatment-guidelines/chancroid.htm.

therefore typically based on a combination of clinical suspicion, epidemiologic criteria, and a positive C. trachomatis NAAT at the symptomatic anatomic site.[19]

Granuloma inguinale is caused by the bacterium *Klebsiella granulomatis*, and it presents as painless, slowly progressive ulcers on the genitals or perineum without regional lymphadenopathy.[20] There are no FDA approved molecular tests for the detection of *K. granulomatis* and the bacterium is difficult to culture, therefore diagnosis is generally based on clinical and epidemiologic suspicion.

North Carolina DHHS investigates less than 10 possible cases of these conditions each year. Because these STDs are so rare, most clinicians have little experience in diagnosis and reporting, and it is possible that these diseases are underreported.[20]

[19]Centers for Disease Control and Prevention (2021). Lymphogranuloma venereum (LGV)-2021 STD Treatment Guidelines. Updated July 22, 2021. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/std/treatment-guidelines/lgv.htm.
[20]Centers for Disease Control and Prevention (2021). Granuloma Inguinale (Donovanosis)-2021 STD Treatment Guidelines. Updated July 22, 2021. Accessed September 30, 2026. Retrieved from https://www.cdc.gov/std/treatment-guidelines/donovanosis.htm.

Appendix A: STD Surveillance Notes and Case Definitions

About the Authors

North Carolina law requires that diagnoses of certain communicable diseases, including STDs, be reported to local health departments that in turn report the information to the state. The HIV/STD/Hepatitis Surveillance Unit is the designated recipient for STD, viral hepatitis B (HBV) and hepatitis C (HCV), and HIV morbidity reports at the state level. From these reports, the HIV/STD/Hepatitis Surveillance Unit is responsible for aggregating these reports and providing county, regional, and statewide data to the public and the CDC. The HIV/STD/Hepatitis Surveillance Unit is part of the Communicable Disease Branch within the North Carolina Department of Health and Human Services, Division of Public Health.

Chlamydia Surveillance Data

Chlamydia case reports represent people who have a laboratory-confirmed chlamydial infection (isolation of *Chlamydia trachomatis* by culture or detection of antigen or nucleic acid)[21]. Chlamydial infection is often asymptomatic in both males and females and most cases are detected through screening. Therefore, changes in the number of reported cases may be due to changes in screening practices rather than changes in true disease incidence. The disease can cause serious complications in females, such as pelvic inflammatory disease and infertility, so a number of screening programs are in place to detect chlamydia infection in young women. No comparable screening programs exist for young men. For this reason, chlamydia case reports are always highly biased with respect to gender.

Reports are summarized by the **date of diagnosis**.

Determining whether the prevalence of chlamydia infections is changing is difficult because chlamydia reporting is dependent on screening practices.

Gonorrhea Surveillance Data

Gonorrhea case reports represent people who have a laboratory-confirmed gonorrhea infection. Gonorrhea is often symptomatic in males and slightly less so in females. Many cases are detected when patients seek medical care. Other cases are detected through routine testing even if no symptoms are present. Classification of gonorrhea is based on the presence of a gram-negative intracellular diplococci in a urethral smear (male) or endocervical smear (female) (probable case) OR the isolation of a gram-negative, oxidase-positive diplococci by culture (presumptive *Neisseria gonorrhoeae*) from clinical specimen OR *N. gonorrhoeae* by detection of antigen or nucleic acid amplification (confirmed case).[22]

[21]Centers for Disease Control and Prevention (2010). National Notifiable Disease Surveillance System (NNDSS): *Chlamydia trachomatis* infection 2010 case definition. Retrieved from https://ndc.services.cdc.gov/case-definitions/chlamydia-trachomatis-infection-2010/.
[22]Centers for Disease Control and Prevention (2014). National Notifiable Disease Surveillance System (NNDSS): Gonorrhea (*Neisseria gonorrhoeae*) 2014 case definition. Retrieved from https://ndc.services.cdc.gov/case-definitions/gonorrhea-2014/.

Gonorrhea can cause serious complications for females, and a number of screening programs exist targeting this population. Screening programs focused on female patients are predominately conducted at public clinics and health departments, which can cause the reported cases to be biased toward those attending public clinics. Males are less likely to be diagnosed by routine screening; however, they are more likely to have symptoms that would bring them to an STD clinic. Therefore, gender bias in gonorrhea reporting is not considered to be large.

Reports are summarized by the **date of diagnosis**.

Determining whether the prevalence of gonorrhea infections is changing is difficult because gonorrhea reporting is dependent on screening practices; in 2018, these changes included an increase in screening for infection in pharyngeal and rectal sites, which may lead to the detection of more cases in the absence of a true increase in disease.

Syphilis Surveillance Data

Syphilis cases are reported by stage of infection, which is determined through a combination of laboratory testing and patient interviews. Primary and secondary syphilis have characteristic symptoms, so misclassification of these stages is highly unlikely. Primary, secondary, and early non-primary non-secondary (formerly early latent syphilis) are considered "early syphilis," and all stages of early syphilis are considered a priority for public health action.

North Carolina performs patient interviews, partner notification, and contact tracing on all early syphilis cases; therefore, the quality of early syphilis case data is good. Screening programs are more likely to detect asymptomatic cases, which may result in more complete reporting of cases in the screened populations (pregnant women, jail inmates, and others). However, thorough contact tracing further aids in case detection and reduces these biases.

For more complete case definition of the stages of syphilis, please refer to the CDC's websites (https://ndc.services.cdc.gov/case-definitions/syphilis-2018/). CDC and the Council for Territorial and State Epidemiologists (CSTE) periodically update case definitions. Included below are the syphilis case definitions that were in using during the collection of the data in this report. The syphilis case definition was updated in 2026 but was not used for any data prior to 2026 in this report (https://ndc.services.cdc.gov/case-definitions/syphilis-treponema-pallidum-2/).

The 2018 case definitions for all stages of syphilis are summarized below.

2018 Case Definition of Primary Syphilis

- *Confirmed: T. pallidum* in clinical specimen by dark field microscopy that was not obtained from the oropharynx AND one or more ulcerative lesions (such as chancre), which may differ in appearance.
- *Probable:* One or more ulcerative lesions AND a reactive serologic test (nontreponemal: Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods; treponemal: fluorescent treponemal antibody absorbed [FTA-ABS], *T. pallidum*

particle agglutination [TP-PA], enzyme immunoassay [EIA], chemiluminescence immunoassay [CIA] or equivalent serologic methods).[23]

2018 Case Definition of Secondary Syphilis

- *Confirmed: T. pallidum* in clinical specimens by darkfield microscopy that was not obtained from the oropharynx AND at least one sign or symptom common with secondary syphilis (lesions, rash, or localized lymphadenopathy).
- *Probable:* At least one sign or symptom common with secondary syphilis as stated above AND a nontreponemal serologic test (VDRL, RPR, or equivalent serologic methods) AND a reactive treponemal serologic test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods).[33]

2018 Case Definition of Early Non-Primary Non-Secondary Syphilis (Formerly Early Latent Syphilis)

- *Probable:* No clinical symptoms evidence of having acquired the infection within the past 12 months (but no signs or symptoms of primary or secondary syphilis) AND has one of the following:
    - No past diagnosis of syphilis AND a current reactive nontreponemal test (VDRL, RPR, or equivalent serologic methods) AND a reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods); OR
    - A prior history of syphilis AND a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer, unless there is evidence that this increase was not sustained for ≥ 2 weeks; AND
    - Evidence having acquired the infection within the past 12 months based on 1.) documented seroconversion or fourfold or greater increase in titer of nontreponemal test during previous 12 months, unless there is evidence this increase was not sustained for ≥ 2 weeks, 2.) documented seroconversion of a treponemal test during previous 12 months, 3.) a history of symptoms consistent with primary or secondary syphilis during the previous 12 months, and 4.) has a history of sexual exposure to a partner within the previous 12 months who had primary, secondary, or early non-primary non-secondary syphilis (documented ≤ 12 months) or only sexual contact was within the previous 12 months.[33]

2018 Case Definition of Unknown Duration or Late Syphilis

- *Probable:* A person with no clinical signs or symptoms of primary or secondary syphilis AND who has no evidence of acquiring the infection within 12 months AND who meets one of the following:
    - No prior history of syphilis and a current reactive nontreponemal test (VDRL, RPR, or equivalent serologic methods), and a current reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods); OR
    - A prior history of syphilis with a current nontreponemal test titer demonstrating a fourfold or greater increase from the last nontreponemal test titer, unless there is evidence that this increase was not sustained for more than two weeks; OR
    - Clinical signs or symptoms and laboratory results that meet the likely or verified criteria for neurological, ocular, otic, or late clinical manifestations (15-30 years of untreated syphilis).[33] More information about neurological, ocular, otic, or late clinical

[23]Centers for Disease Control and Prevention (2018). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2018 case definition. Retrieved from https://ndc.services.cdc.gov/case-definitions/syphilis-2018/.

[33] Centers for Disease Control and Prevention (2018). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2018 case definition. Retrieved from https://ndc.services.cdc.gov/case-definitions/syphilis-2018/.

manifestations can be found on the CDC's website, under "Comments": https://ndc.services.cdc.gov/case-definitions/syphilis-2018/.

2018 Case Definition of Congenital Syphilis

A condition caused by in utero infection with *T. pallidum*. A wide spectrum of severity exists, which includes stillbirth.[33]

- *Confirmed:* Demonstration of *T. pallidum* by:
  - Darkfield microscopy of lesions, body fluids, or neonatal nasal discharge; OR
  - PCR or equivalent direct molecular methods of lesions, neonatal nasal discharge, placenta, umbilical cord, or autopsy material; OR
  - Immunohistochemistry or specific stains of specimens from lesions, neonatal nasal discharge, placenta, umbilical cord, or autopsy material.
- *Probable:* A condition affecting an infant whose mother had untreated or inadequately treated syphilis at delivery, regardless of signs in the infant OR an infant or child who has a reactive treponemal test for syphilis AND one of the following:
  - Any evidence of congenital syphilis on physical examination or radiographs of long bones;
  - A reactive cerebrospinal fluid VDRL;
  - An elevated cerebrospinal fluid cell count or protein; or
  - In a non-traumatic lumbar puncture, an elevated cerebrospinal fluid leukocyte (white blood cell) count or protein.[33]

[33] Centers for Disease Control and Prevention (2018). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2018 case definition. Retrieved from https://ndc.services.cdc.gov/case-definitions/syphilis-2018/.