



2019 North Carolina STD Surveillance Report

HIV/STD/Hepatitis Surveillance Unit
Division of Public Health
North Carolina Department of Health and Human Services
November 2020



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Suggested Citation:

North Carolina HIV/STD/Hepatitis Surveillance Unit. (2020). 2019 North Carolina STD Surveillance Report. North Carolina Department of Health and Human Services, Division of Public Health, Communicable Disease Branch. Raleigh, North Carolina. [insert page numbers, tables, etc., if applicable]. Accessed [insert date].

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Funding to prepare this document was provided by the Centers for Disease Control and Prevention's CDC-RFA-18-1802 grant. Its contents are solely the responsibility of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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Summary

Chlamydia

- The number of chlamydia cases diagnosed in North Carolina in 2019 was 71,296, a rate of 679.8 per 100,000 population, an increase from 66,716 cases in 2018 (rate of 642.6 per 100,000 population).
- Among women, chlamydia diagnoses increased by 20% from 39,798 in 2015 to 47,795 in 2019.
- Among men, chlamydia diagnoses increased 61% from 14,590 in 2015 to 23,501 in 2019; this may in part be due to increased screening among men. Men also increased from 27% to 33% of the total population diagnosed with chlamydia during this time.
- Among women reported with chlamydia, the highest rates occurred in 20- to 24-year-olds, followed by 15- to 19-year-olds, and 25- to 29-year-olds (5,306.1, 4,546.4, and 2,230.9 per 100,000, respectively). Overall, the 15- to 29-year-olds (both men and women) comprised 83.6% of people diagnosed with chlamydia in 2019.
- In 2019, Black/African American men and women had the highest chlamydia rates (729.2 and 1,242.0 per 100,000, respectively) and accounted for 32.6% of people diagnosed with chlamydia.

Gonorrhea

- The reported number of gonorrhea cases in 2019 was 26,643, a rate of 254.0 per 100,000 population, an increase from 23,538 cases in 2018 (rate of 226.7 per 100,000). Gonorrhea cases have been increasing in North Carolina for the past few years. In 2015, there were a total of 17,051 cases reported (170.0 per 100,000).
- Among women, gonorrhea diagnoses increased 47% from 8,576 in 2015 to 12,617 in 2019.
- Among men, gonorrhea diagnoses increased 66% from 8,475 in 2015 to 14,026 in 2019; this may in part be due to increased screening among men. Men also increased from 50% to 53% of the total population diagnosed with gonorrhea during this time.
- Among women reported with gonorrhea, the highest rates occurred in 20- to 24-year-olds, followed by 25- to 29-year-olds and 15- to 19-year-olds (1,211.3, 876.2, and 730.8 per 100,000, respectively). The 15- to 29-year-olds (both men and women) comprised 69% of people diagnosed with gonorrhea in 2019.
- In 2019, Black/African American men and women had the highest gonorrhea rates (611.7 and 418.9 per 100,000, respectively) and accounted for 44.3% of people diagnosed with gonorrhea.

Syphilis

- The number of early syphilis (primary, secondary, and early non-primary non-secondary) cases diagnosed in North Carolina in 2019 was 2,117, a rate of 20.2 per 100,000 population. This is a slight increase from previous years (2017: 1,911 cases and rate of 18.6 per 100,000; 2018: 1,910 cases and rate of 18.4 per 100,000).
- There were 27 infants reported with congenital syphilis in 2019. This number is an important increase from the 19 probable congenital syphilis cases reported in 2018.
- Early syphilis cases increased among women in 2019. There were 352 early syphilis cases (6.5 per 100,000) in 2019, compared to 309 cases in 2018 (5.8 per 100,000).
- The highest rates of newly diagnosed early syphilis occurred in 20- to 24-year-olds (rate of 51.6 per 100,000) and 25- to 29-year-olds (66.4 per 100,000). Cases in these age groups comprised 40.0% of the total early syphilis cases in 2019.
- Black/African American men had the highest rates of early syphilis (98.8 per 100,000) and accounted for 50.6% of total early syphilis cases in 2019.
- Men who report sex with men (MSM and MSMW) accounted for 55% of newly diagnosed early syphilis in North Carolina in 2019.

BACTERIAL AND OTHER SEXUALLY TRANSMITTED DISEASES IN NORTH CAROLINA

Reportable Sexually Transmitted Diseases (STDs) in North Carolina

In North Carolina, eight bacterial sexually transmitted conditions (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.

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.² Chlamydia is easily treated with antibiotics. Chlamydia and other STDs appear to increase susceptibility to human immunodeficiency virus (HIV) infection via inflammation, which increases the concentration of cells targeted by HIV in genital regions.³ In addition, the infection can cause severe damage to the female reproductive tract, including infertility and PID.² Chlamydia in untreated 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.⁴ 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

¹North Carolina Office of Administrative Hearings (2019). Chapter 41: Epidemiology Health. Accessed July 2, 2019. Retrieved from <http://reports.oah.state.nc.us/ncac.asp?folderName=\Title%2010A%20-%20Health%20and%20Human%20Services\Chapter%2041%20-%20Epidemiology%20Health>.

²Centers for Disease Control and Prevention (2014). Chlamydia CDC detailed fact sheet. Updated January 23, 2014. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/chlamydia/stdfact-chlamydia.htm>.

³Centers for Disease Control and Prevention (2014). STDs and HIV-CDC detailed fact sheet. Updated December 16, 2014. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/hiv/stdfact-std-hiv.htm>.

⁴Centers for Disease Control and Prevention (2016). STDs during Pregnancy-CDC detailed fact sheet. Updated March 28, 2016. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/pregnancy/stdfact-pregnancy.htm>.

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 a gonorrheal infection, including discharge and burning on urination.⁵ Many women also experience symptoms, although they may be mild. 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.⁶

Gonorrhea is the most likely of the bacterial STDs to develop antibiotic resistance. Antibiotic resistance is widely reported throughout the world.⁷ North Carolina contributes to CDC's gonorrhea resistance screening project, Strengthening the United States to Respond to Resistant Gonorrhea (SURRG).⁸ Cultures from all gonorrhea cases diagnosed in Guilford County are screened for drug resistance. In 2018, a small number of organisms had partial resistance to drugs used for treatment. Resistance was mainly to azithromycin, with a very small number of gonorrhea isolates resistant to cefixime or ceftriaxone. Resistance in North Carolina is more limited than in other parts of the country.⁹ Surveillance for resistance is very important and will continue.

Ophthalmia Neonatorum

Ophthalmic infection (also known as neonatal conjunctivitis) with *N. gonorrhoeae* or *C. trachomatis* can occur in infants when a pregnant woman has an untreated case of gonorrhea or chlamydia. During delivery, the infant's eyes can become infected with either bacterium.¹⁰ 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 repeated ophthalmia neonatorum in a delivery hospital, which may indicate imperfect practice.

⁵Centers for Disease Control and Prevention (2014). Gonorrhea-CDC detailed fact sheet. Updated January 29, 2014. Retrieved April 9, 2019. <https://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea.htm>.

⁶Hook, 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.

⁷Hook, E & Kirkcaldy, R. (2018). A Brief History of Evolving Diagnostics and Therapy for Gonorrhea: Lessons Learned. *Clinical Infectious Diseases*. 67(8): pp 1294-9.

⁸Centers for Disease Control and Prevention (2017). Combating the Threat of Antibiotic-Resistant Gonorrhea. Updated August 9, 2017. Accessed July 2, 2019. Retrieved from https://www.cdc.gov/std/gonorrhea/arg/CARB_FACTSHEET-2018.pdf.

⁹Centers for Disease Control and Prevention (2018). Gonococcal Isolate Surveillance Project (GISP) Profiles, 2017. Updated March 27, 2018. Accessed July 2, 2019. Retrieved from <https://www.cdc.gov/std/stats17/gisp2017/default.htm>.

¹⁰Centers for Disease Control and Prevention (2019). Conjunctivitis (pink eye) in newborns. Updated January 4, 2019. Retrieved April 9, 2019. <https://www.cdc.gov/conjunctivitis/newborns.html>.

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 the [Technical Notes section](#).

Syphilis is a complex disease with a natural history encompassing a number of different stages, caused by the spirochete bacterium *Treponema pallidum*.¹¹ 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 a chancre or 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 early latent) does not have symptoms. Patients in the asymptomatic stage are also infectious to their sexual partners, although less so than in the primary or secondary stages of disease.¹¹ Such cases are less likely to be diagnosed and are generally identified through screening or partner notification. Primary, secondary, and early (non-primary non-secondary) stages all occur within the first year of infection.¹² 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 or infant death, especially when the pregnant woman is not treated during pregnancy. 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 is preventable provided that pregnant women receive consistent and timely prenatal care. North Carolina Administrative Code states pregnant women shall be tested for syphilis at first prenatal visit, at 28-32 weeks, and at delivery. If the syphilis infection is not detected during pregnancy or at the time of delivery, and the infant does not have initial physical symptoms, congenital syphilis diagnosis may not occur until years later.¹³ If a confirmed or probable case of congenital syphilis is detected at delivery the infant can be treated at the hospital before discharge.

¹¹Centers for Disease Control and Prevention (2017). Syphilis-CDC detailed fact sheet. Updated January 30,2017. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm>.

¹²Centers for Disease Control and Prevention (2018). Syphilis 2018 case definition-CSTE position paper. Updated January 1, 2018. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2018/>.

¹³Centers for Disease Control and Prevention (2017). Congenital syphilis-CDC fact sheet. Updated January 31,2017. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm>.

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

Nongonococcal urethritis (NGU) and pelvic inflammatory disease (PID), are syndromic in nature. NGU and PID 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 rectal discharge.¹⁴ Diagnosis is determined by the documented absence of *N. gonorrhoeae*, the causative agent in gonorrheal urethritis. Although NGU is caused by several different organisms, *C. trachomatis* may be responsible for many infections; however, these NGU cases are not tested for chlamydia.¹⁴ 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 uterus and the reproductive organs. 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. Sexually transmitted disease pathogens *N. gonorrhoeae* and *C. trachomatis* have frequently been identified among women with PID infection (one third to half of cases); most cases of PID are caused by these organisms.¹⁵ Quick detection and antibiotic treatment is critical to prevent long term sexual reproductive organ damage.

Rare Bacterial Sexually Transmitted Infections

Chancroid is caused by *Haemophilus ducreyi* organism. Symptoms include painful genital ulcer and tender suppurative inguinal adenopathy.¹⁶ Cases are rarely reported in North Carolina. Laboratory diagnosis is complex since no PCR tests for detection are cleared by the FDA and the culture media for *H. ducreyi* is not widely available. Two other rare bacterial STDs are reportable in North Carolina. 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. The diagnostic criteria for LGV include *C. trachomatis* culture and serology.¹⁷ Granuloma inguinale is caused by *Klebsiella granulomatis*, and the symptom is a genital ulcer.¹⁸ 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.

¹⁴Centers for Disease Control and Prevention (2015). Diseases characterized by urethritis and cervicitis. Updated June 4, 2015. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/tg2015/urethritis-and-cervicitis.htm>.

¹⁵Centers for Disease Control and Prevention (2015). Pelvic Inflammatory Disease (PID)-CDC basic fact sheet. Updated December 11, 2015. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/pid/stdfact-pid.htm>.

¹⁶Centers for Disease Control and Prevention (2015). Chancroid-2015 STD Treatment Guidelines. Updated June 4, 2015. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/tg2015/chancroid.htm>.

¹⁷Centers for Disease Control and Prevention (2015). Lymphogranuloma venereum (LGV)-2015 STD Treatment Guidelines. Updated June 4, 2015. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/tg2015/lgv.htm>.

¹⁸Centers for Disease Control and Prevention (2015). Granuloma Inguinale (Donovanosis)-2015 STD Treatment Guidelines. Updated June 4, 2015. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/tg2015/donovanosis.htm>.

Table A displays the overall number of reportable STD cases in NC in 2019. The majority of STDs reported were chlamydia, gonorrhea, and syphilis.

Table A. North Carolina Reportable Bacterial Sexually Transmitted Diseases (STDs) by Gender, 2019

Bacterial STDs	Gender		Total*
	Men	Women	
Chlamydia	23,501	47,795	71,296
Gonorrhea	14,026	12,617	26,643
Syphilis			
Primary Syphilis	369	48	417
Secondary Syphilis	583	131	714
Early Non-Primary, Non-Secondary	813	173	986
Late or Unknown duration Syphilis	867	385	1,252
Congenital Syphilis [^]	--	--	27
Nongonococcal urethritis (NGU)	3,910	--	3,910
Pelvic inflammatory disease (PID)	--	294	294
Chancroid	0	0	0
Granuloma Inguinale	0	0	0
Lymphogranuloma venereum	0	0	0
Total	44,069	61,443	105,512

*Total includes cases with missing gender for congenital syphilis (N= 27).

[^]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 May 5, 2020 and July 1, 2020).

Non-Reportable Sexually Transmitted Diseases (STDs) in North Carolina

In order to get a clear picture of STDs in North Carolina, it is worth mentioning four non-reportable diseases that impact North Carolinians. The following section will explain the significance of human papillomavirus, genital herpes, mycoplasma genitalium, and trichomoniasis.

Human Papillomavirus (HPV)

Genital human papillomavirus (HPV) is the most common sexually transmitted infection.¹⁹ The CDC estimates that about 14 million Americans become infected each year with HPV.²⁰ More than 40 strains of HPV can be sexually transmitted. Most strains produce no symptoms in infected individuals, but there are a few strains associated with genital warts and others associated with the development of cancer in

¹⁹Centers for Disease Control and Prevention (2017). Genital HPV Infection-CDC fact sheet. Updated November 16, 2017. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/hpv/stdfact-hpv.htm>.

²⁰Centers for Disease Control and Prevention (2019). About HPV. Updated April 29, 2019. Accessed July 2, 2019. Retrieved from https://www.cdc.gov/hpv/parents/about-hpv.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhpv%2Fparents%2Fwhatishpv.html.

both women and men.²¹ Since most infected people are asymptomatic, extensive screening would be required to diagnose the majority of infections. Current screening efforts focus on the detection of cancer, in particular cervical cancer in females, rather than on HPV infection.²¹ The most recent data available estimated that 333 cases of cervical cancer were reported in North Carolina in 2017.²²

There are three vaccines licensed by the US Food and Drug Administration (FDA) to protect against HPV infection, and all three have high efficacy (close to 100%).²³ The HPV vaccination is recommended for preteen girls and boys at age 11 or 12. For more information, visit the CDC website: <https://www.cdc.gov/vaccines/vpd/hpv/public/index.html>.

Genital Herpes

The CDC estimates that 776,000 people are newly infected with genital herpes each year. Around 12% of people aged 14 to 49 have a genital herpes simplex virus type 2 (HSV-2) infection.²⁴ In 2015-2016, prevalence of HSV-1 was 48% and prevalence of HSV-2 was 12% in the U.S. population.²⁵ Asymptomatic shedding of the virus is not uncommon. Many infected patients are unaware of being infected and represent a source of transmission in the community.²⁴

HSV-2 infection is more common in women than in men, but transmission from an infected male to a female partner is more likely than from an infected female to a male partner.²⁴ Symptoms are most severe immediately following the initial infection and subsequent outbreaks decrease in severity. A rare but extreme consequence of genital herpes is transmission to newborns during birth.²⁴ Since active disease causes ulcerative lesions, herpes infection is believed to increase the risk of HIV transmission and acquisition.¹⁹ The CDC does not recommend routine serological screening for herpes in asymptomatic people.²⁶

²¹Centers for Disease Control and Prevention (2016). What is HPV? Updated December 13, 2016. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/hpv/parents/whatishpv.html>.

²²North Carolina State Center for Health Statistics (2019). Cancer incidence rates by race, North Carolina, 2017. Updated March 18, 2019. Accessed November 12, 2014. Retrieved from https://schs.dph.ncdhhs.gov/schs/CCR/incidence/2017/race_v2.pdf

²³Centers for Disease Control and Prevention (2016). About HPV vaccines. Updated December 15, 2016. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/vaccines/vpd/hpv/hcp/vaccines.html>.

²⁴Centers for Disease Control and Prevention (2017). Genital herpes-CDC detailed fact sheet. Updated January 31, 2017. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/herpes/stdfact-herpes-detailed.htm>.

²⁵Centers for Disease Control and Prevention (2018). Prevalence of herpes simplex virus type 1 and 2 in persons aged 14-49: United States, 2015-2016. Updated February 7, 2018. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/nchs/products/databriefs/db304.htm>.

²⁶Centers for Disease Control and Prevention (2017). Genital herpes screening FAQ. Updated February 9, 2017. Accessed April 9, 2019. Retrieved from <https://www.cdc.gov/std/herpes/screening.htm>.

Mycoplasma genitalium

Mycoplasma genitalium infections cause urethritis in men and cervicitis in women. Many cases are asymptomatic. *M. genitalium* is associated as a causative organism in NGU and PID diagnoses.²⁷ *M. genitalium* is responsible for approximately 15%-20% of NGU cases, and 2%-22% of PID cases.²⁷

Trichomoniasis

Trichomoniasis is caused by the protozoan *Trichomonas vaginalis* that affects about 3.7 million patients annually in the US.²⁸ Symptoms can include urethritis in males and diffuse malodorous vaginal discharge with vulvar irritation in females; asymptomatic infection also occurs.

Some studies have suggested that vaginal trichomoniasis is a risk factor for HIV acquisition, and up to 53% of women with HIV are also infected with *T. vaginalis*. In pregnant women, adverse pregnancy outcomes are associated with infection including premature rupture of membranes and low birth weight infants. Trichomoniasis usually responds to a single dose of metronidazole or tinidazole, although resistance to treatment can occur. Partner treatment is necessary to prevent re-infection.²⁸

Poverty and STDs

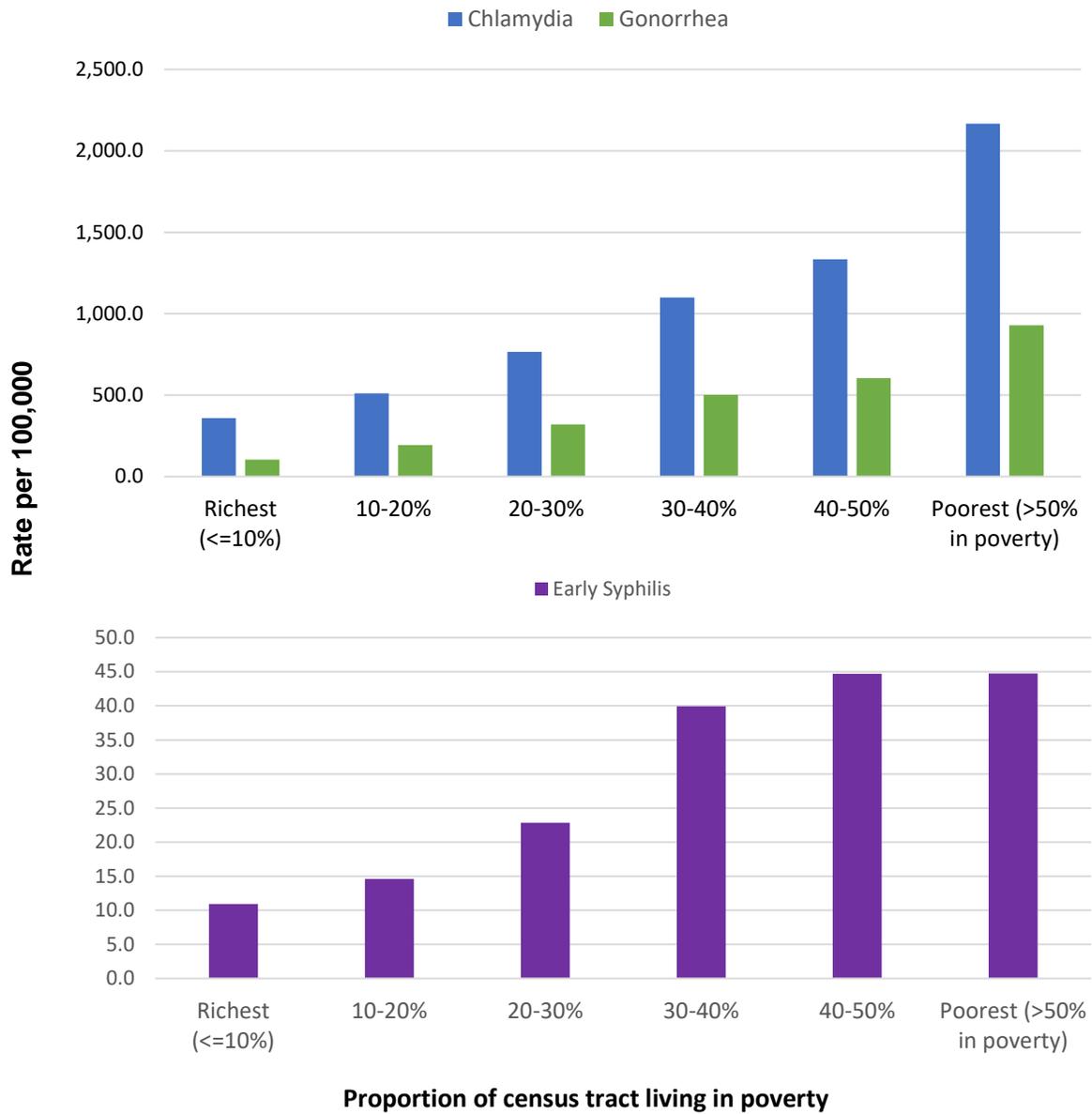
While the North Carolina surveillance data shows higher STD rates in some racial and ethnic groups, factors such as poverty and large gaps in wealth distribution may be driving these differences.²⁹ People who cannot afford basic needs may also have trouble accessing quality sexual health services, and 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 2019, 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 (2014-2018) estimates from the American Community Survey. This calculation estimated the neighborhood poverty level experienced for people newly diagnosed with STDs in North Carolina. Figure 1 shows the rate of newly diagnosed STDs in 2019 by census tract poverty rate. Figure 1 demonstrates 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.

²⁷Centers for Disease Control and Prevention (2015). 2015 STD Treatment Guidelines-Emerging Issues-*Mycoplasma genitalium*. Updated June 4, 2015. Accessed July 2, 2019. Retrieved from <https://www.cdc.gov/std/general/other.htm>.

²⁸Centers for Disease Control and Prevention (2017). Trichomoniasis-CDC detailed fact sheet. Updated January 31, 2017. Retrieved April 9, 2019. <https://www.cdc.gov/std/trichomonas/stdfact-trichomoniasis.htm>.

²⁹Centers for Disease Control and Prevention. (2017). STD health equity. Updated February 15, 2017. Accessed July 19, 2017. Retrieved from <https://www.cdc.gov/std/health-disparities/default.htm#ftn5>.

Figure 1. People Newly Diagnosed with Chlamydia, Gonorrhea, and Early Syphilis (Primary, Secondary, and Early Non-Primary Non-Secondary) in North Carolina by Poverty Indicator*, 2019

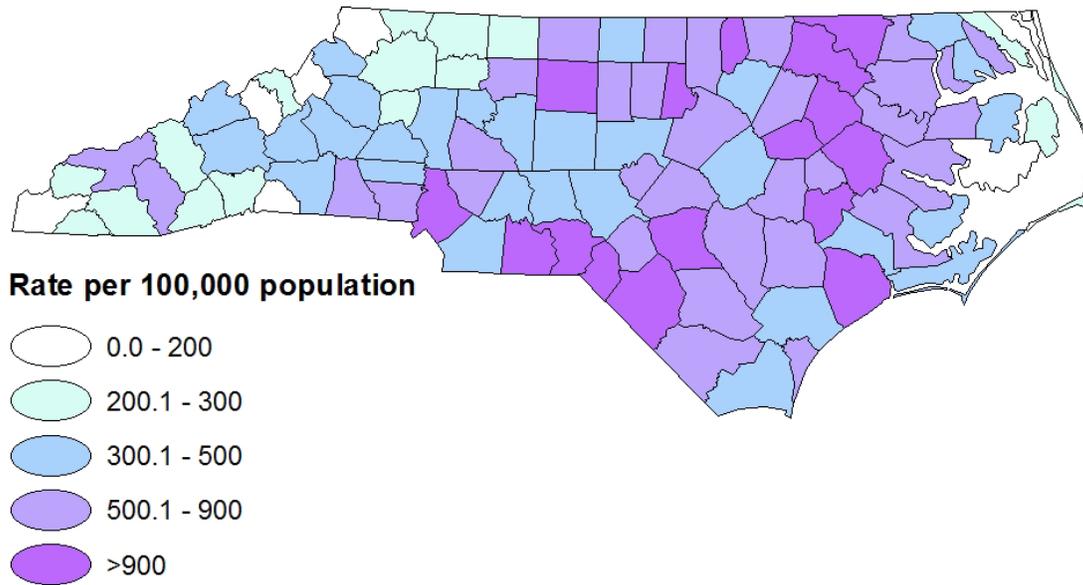


*Estimates of people living below the poverty line within a census tract and all population estimates obtained from the American Community Survey, 2014-2018 5-year estimate.

Data Sources: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020), and 2014-2018 American Community Survey (ACS) 5-year estimates (accessed from <https://www.census.gov/programs-surveys/acs/>).

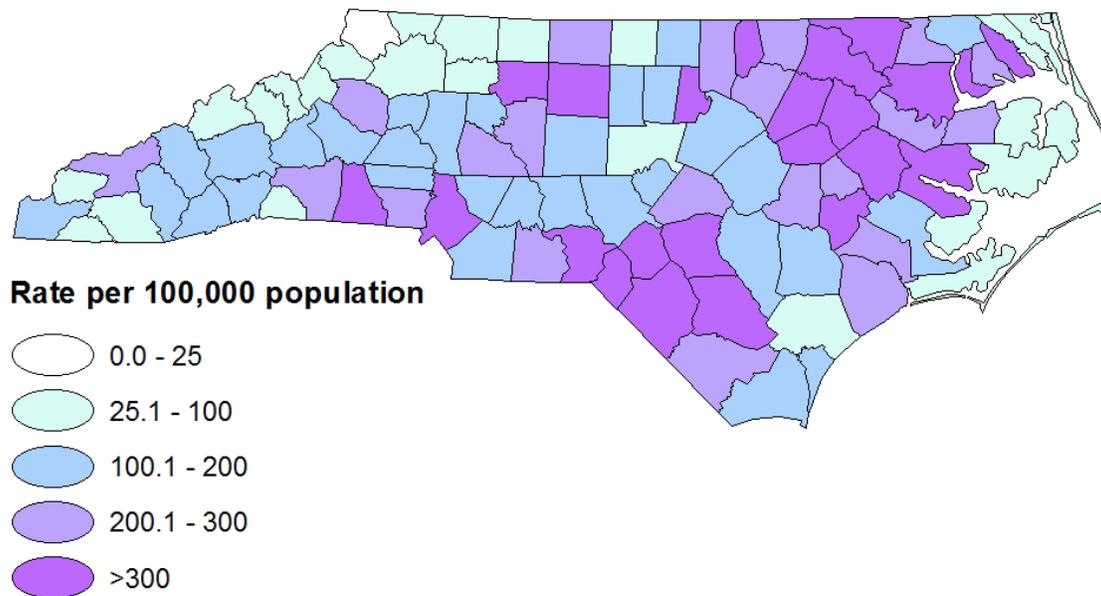
Chlamydia, Gonorrhea, and Syphilis Annual Rate Maps by County of Residence at Diagnosis, 2019

Figure 2. Newly Diagnosed Chlamydia Rates in North Carolina by County of Residence at Diagnosis, 2019



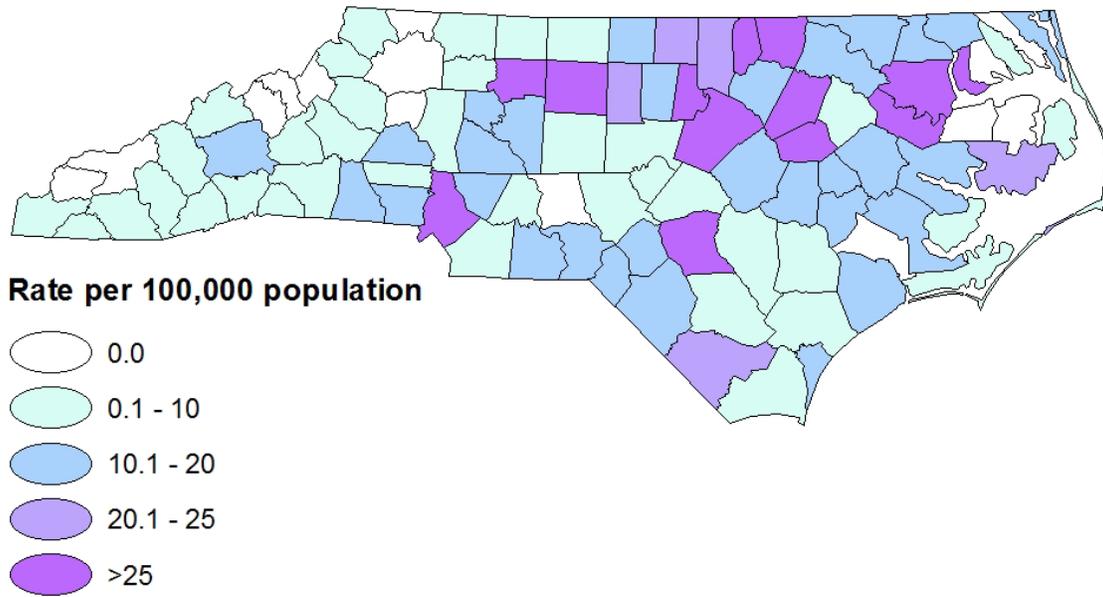
Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Figure 3. Newly Diagnosed Gonorrhea Rates in North Carolina by County of Residence at Diagnosis, 2019



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Figure 4. Newly Diagnosed Early Syphilis (Primary, Secondary, and Early Non-Primary Non-Secondary) Rates in North Carolina by County of Residence at Diagnosis, 2019



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

County Totals and Rates for Chlamydia, Gonorrhea, and Syphilis 2019

Table 1. Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019..... 2

Table 2. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019..... 5

Table 3. Newly Diagnosed Early Syphilis (Primary, Secondary, and Early Latent) Annual Rates in North Carolina by Rank Order, and Year of Diagnosis, 2017-2019 8

Table 4. Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2019 11

Table 5. Newly Diagnosed Early Syphilis (Primary, Secondary, and Early Latent) Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019 14

Table 1. Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*								
Alamance	802	510.7	835	521.0	905	554.3	936	562.1	1,058	624.2
Alexander	62	167.7	90	242.4	67	180.4	75	200.9	81	216.0
Alleghany	19	175.0	14	128.2	27	245.7	38	341.2	23	206.5
Anson	171	667.9	174	691.4	166	668.6	181	739.7	248	1,014.5
Ashe	25	93.9	43	161.7	41	153.1	40	147.6	30	110.3
Avery	12	68.6	32	183.5	33	188.4	30	171.2	34	193.7
Beaufort	230	485.3	254	536.2	254	540.0	290	616.3	306	651.1
Bertie	161	798.5	130	669.3	154	799.5	162	847.9	128	675.6
Bladen	150	440.1	182	541.1	166	496.4	142	428.3	174	531.8
Brunswick	316	258.6	351	277.9	400	305.7	443	323.6	472	330.5
Buncombe	872	346.1	998	391.4	1,104	429.5	1,139	439.3	1,251	479.0
Burke	269	301.1	285	318.6	333	369.4	356	393.8	360	397.9
Cabarrus	814	414.5	922	457.3	976	471.5	1,134	535.9	1,225	565.9
Caldwell	199	244.1	210	256.8	240	292.9	289	352.3	332	404.0
Camden	21	204.2	23	221.2	24	227.9	37	346.6	23	211.6
Carteret	227	330.4	194	281.9	225	326.5	241	347.1	248	357.0
Caswell	106	464.6	92	404.3	122	539.4	98	433.0	90	398.2
Catawba	499	320.8	585	373.9	623	394.7	656	413.4	689	431.8
Chatham	185	271.0	158	226.9	195	273.9	211	288.5	226	303.5
Cherokee	28	103.3	38	136.6	42	150.2	52	183.3	48	167.8
Chowan	80	561.5	87	612.6	101	719.9	95	675.4	91	652.7
Clay	10	94.1	14	130.2	18	163.6	22	197.8	27	240.4
Cleveland	489	504.9	508	523.9	567	583.7	665	681.9	644	657.5
Columbus	285	502.9	314	557.8	310	553.1	297	532.1	320	576.5
Craven	701	681.6	729	710.3	815	795.2	817	798.3	789	772.5
Cumberland	3,133	945.9	3,368	1,010.9	3,656	1,104.6	4,057	1,216.7	4,497	1,340.4
Currituck	75	298.7	67	261.3	61	232.0	77	285.0	50	180.1
Dare	98	276.3	69	192.6	108	298.4	112	306.0	75	202.7
Davidson	637	389.6	681	414.6	666	403.2	691	415.4	664	396.2
Davie	105	252.1	131	312.5	137	323.8	131	307.8	147	343.1
Duplin	225	382.1	218	367.8	275	466.6	322	545.8	319	543.1
Durham	2,284	759.3	2,427	788.4	2,741	878.1	2,862	902.9	2,994	931.3
Edgecombe	584	1,086.7	497	932.8	503	953.4	521	1,002.2	638	1,239.5
Forsyth	2,485	676.4	2,630	708.4	2,534	674.2	2,847	750.8	3,229	844.6
Franklin	253	397.4	271	419.0	330	498.8	347	513.1	341	489.3
Gaston	1,155	542.5	1,282	591.8	1,384	630.1	1,577	708.4	1,676	746.5
Gates	44	381.6	45	389.0	46	399.5	39	337.3	52	449.7
Graham	17	198.0	17	199.3	21	246.4	17	200.9	18	213.2
Granville	392	674.0	487	829.9	477	803.4	458	763.6	420	694.9
Greene	135	644.4	157	744.9	147	701.2	167	791.2	178	844.8
Guilford	4,137	800.1	4,611	879.5	4,993	945.2	5,159	968.6	5,371	999.9

Continued

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 1 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Halifax	415	795.3	370	714.1	419	816.6	491	969.7	466	931.8
Harnett	558	435.8	606	463.7	694	524.2	758	564.3	783	575.8
Haywood	131	219.6	133	220.2	139	227.9	168	271.4	179	287.2
Henderson	205	183.3	286	251.8	326	282.9	337	289.3	326	277.6
Hertford	210	861.6	166	685.7	155	647.9	194	812.5	176	743.3
Hoke	326	618.1	353	666.3	387	714.8	400	731.3	421	762.2
Hyde	23	423.9	17	312.8	24	458.0	17	338.2	8	162.0
Iredell	583	344.0	612	354.9	768	437.3	728	408.2	774	425.7
Jackson	136	329.3	154	361.3	206	476.6	204	467.9	277	630.4
Johnston	715	386.3	728	381.5	838	426.7	881	434.6	982	469.1
Jones	37	378.4	41	427.6	61	637.2	49	509.7	47	499.0
Lee	276	464.9	333	558.3	327	541.4	287	468.9	342	553.6
Lenoir	372	641.6	449	784.4	474	837.1	541	966.2	581	1,038.4
Lincoln	253	313.9	226	278.2	257	311.3	324	385.3	299	347.2
Macon	80	234.7	70	204.3	98	283.4	101	286.3	78	217.5
Madison	55	260.1	56	262.1	53	245.8	71	327.7	71	326.4
Martin	124	533.1	131	566.6	144	632.6	170	750.2	191	851.2
McDowell	157	349.1	164	365.5	177	392.6	145	318.9	167	365.0
Mecklenburg	7,890	763.6	7,984	755.4	8,837	819.7	9,203	841.4	10,048	904.9
Mitchell	13	86.3	34	226.7	33	220.1	36	240.1	38	253.9
Montgomery	112	408.2	125	457.9	156	572.1	141	520.7	127	467.4
Moore	304	323.4	343	359.5	327	335.8	389	393.7	427	423.3
Nash	603	643.0	645	686.5	641	681.8	680	722.7	773	819.7
New Hanover	1,113	507.2	1,171	520.9	1,259	550.4	1,216	523.6	1,301	554.9
Northampton	128	623.4	114	566.4	130	653.6	176	893.5	178	913.6
Onslow	1,521	787.6	1,742	905.8	1,782	913.5	2,092	1,062.4	2,390	1,207.4
Orange	636	450.1	692	484.6	779	542.4	691	467.0	751	505.8
Pamlico	19	149.1	21	164.5	43	340.2	33	261.2	47	369.3
Pasquotank	275	698.3	279	708.3	328	832.8	323	816.0	303	760.8
Pender	151	262.9	198	336.9	225	370.6	205	330.6	207	328.3
Perquimans	38	282.3	53	395.5	76	565.5	60	448.4	57	423.4
Person	198	505.2	210	534.8	240	610.1	176	446.3	207	524.2
Pitt	1,703	967.2	1,910	1,078.1	2,097	1,174.1	2,046	1,139.4	2,229	1,233.2
Polk	20	98.0	40	195.9	47	228.6	37	179.0	35	168.9
Randolph	416	291.8	420	293.6	469	327.9	509	355.3	565	393.3
Richmond	367	807.9	372	826.4	438	977.1	406	904.5	445	992.7
Robeson	1,107	823.3	1,221	915.4	1,269	956.8	1,156	876.5	1,319	1,009.8
Rockingham	290	316.4	377	412.9	354	389.9	419	462.4	460	505.4
Rowan	760	548.7	736	527.9	928	661.2	950	673.1	900	633.4
Rutherford	188	283.2	223	336.4	244	366.8	284	425.3	291	434.1

Continued

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 1 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*								
Sampson	285	448.4	327	517.2	282	445.8	323	509.9	405	637.5
Scotland	284	804.1	304	861.0	313	889.9	314	903.6	346	993.6
Stanly	224	369.5	248	407.7	239	388.6	268	431.0	287	457.0
Stokes	120	260.0	118	257.0	101	220.9	114	250.5	116	254.4
Surry	167	232.0	185	256.9	213	295.4	207	287.7	197	274.4
Swain	113	788.8	109	768.1	88	617.0	118	828.1	125	875.9
Transylvania	65	196.0	62	185.7	71	210.3	77	225.3	93	270.5
Tyrrell	9	217.4	16	397.6	16	382.8	18	437.4	15	373.5
Union	775	349.2	806	356.2	816	352.7	987	418.5	1,107	461.5
Vance	452	1,016.7	492	1,106.0	471	1,063.7	489	1,095.6	507	1,138.4
Wake	4,967	485.9	5,523	526.8	6,093	568.5	6,501	595.7	6,594	593.1
Warren	131	648.3	123	618.6	109	549.1	123	620.6	128	648.7
Washington	81	661.4	84	695.9	83	694.9	90	764.7	88	759.9
Watauga	175	329.6	203	375.0	268	485.7	274	489.0	279	496.6
Wayne	789	634.5	830	667.9	796	647.0	918	744.9	961	780.5
Wilkes	167	244.5	153	223.1	176	257.0	184	268.4	188	274.8
Wilson	485	597.0	468	575.6	516	633.6	667	819.5	897	1,096.6
Yadkin	80	212.7	76	201.8	72	191.6	86	229.4	80	212.4
Yancey	21	119.7	24	136.3	29	163.9	34	190.2	31	171.6
North Carolina	54,390	542.2	58,176	572.9	62,988	613.4	66,716	642.6	71,296	679.8

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 2. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*								
Alamance	321	204.4	378	235.8	274	167.8	261	156.7	258	152.2
Alexander	5	13.5	15	40.4	26	70.0	21	56.3	43	114.7
Alleghany	0	0.0	1	9.2	2	18.2	6	53.9	3	26.9
Anson	96	375.0	99	393.4	62	249.7	69	282.0	73	298.6
Ashe	0	0.0	6	22.6	4	14.9	5	18.5	6	22.1
Avery	1	5.7	6	34.4	5	28.5	7	39.9	5	28.5
Beaufort	60	126.6	60	126.7	77	163.7	75	159.4	144	306.4
Bertie	59	292.6	39	200.8	48	249.2	49	256.5	62	327.2
Bladen	44	129.1	76	225.9	91	272.1	74	223.2	112	342.3
Brunswick	112	91.6	136	107.7	135	103.2	170	124.2	165	115.5
Buncombe	300	119.1	252	98.8	452	175.8	402	155.1	473	181.1
Burke	40	44.8	69	77.1	165	183.0	188	208.0	177	195.6
Cabarrus	159	81.0	251	124.5	256	123.7	326	154.1	326	150.6
Caldwell	23	28.2	57	69.7	105	128.2	149	181.6	214	260.4
Camden	3	29.2	3	28.9	7	66.5	9	84.3	7	64.4
Carteret	40	58.2	44	63.9	41	59.5	39	56.2	43	61.9
Caswell	34	149.0	38	167.0	39	172.4	27	119.3	18	79.6
Catawba	127	81.7	123	78.6	294	186.3	264	166.4	302	189.3
Chatham	52	76.2	39	56.0	56	78.7	40	54.7	40	53.7
Cherokee	6	22.1	8	28.8	13	46.5	19	67.0	31	108.3
Chowan	7	49.1	27	190.1	37	263.7	47	334.2	70	502.0
Clay	1	9.4	2	18.6	1	9.1	2	18.0	11	97.9
Cleveland	152	156.9	253	260.9	349	359.3	413	423.5	312	318.5
Columbus	94	165.9	100	177.6	216	385.4	132	236.5	140	252.2
Craven	169	164.3	226	220.2	185	180.5	229	223.8	182	178.2
Cumberland	1,015	306.5	1,249	374.9	1,485	448.6	1,483	444.8	1,766	526.4
Currituck	9	35.8	10	39.0	15	57.1	21	77.7	17	61.2
Dare	28	78.9	9	25.1	27	74.6	20	54.6	19	51.3
Davidson	248	151.7	285	173.5	282	170.7	293	176.1	417	248.8
Davie	26	62.4	39	93.0	46	108.7	39	91.6	44	102.7
Duplin	77	130.8	84	141.7	89	151.0	95	161.0	102	173.6
Durham	739	245.7	959	311.5	1,073	343.7	1,107	349.2	1,139	354.3
Edgecombe	200	372.1	187	351.0	237	449.2	278	534.8	311	604.2
Forsyth	1,046	284.7	1,051	283.1	966	257.0	1,168	308.0	1,570	410.7
Franklin	87	136.6	68	105.1	127	192.0	154	227.7	164	235.3
Gaston	299	140.4	476	219.7	534	243.1	658	295.6	610	271.7
Gates	12	104.1	20	172.9	13	112.9	14	121.1	14	121.1
Graham	2	23.3	1	11.7	3	35.2	5	59.1	3	35.5
Granville	96	165.1	105	178.9	133	224.0	137	228.4	170	281.3
Greene	43	205.3	46	218.2	49	233.7	53	251.1	58	275.3
Guilford	1,656	320.3	1,770	337.6	1,917	362.9	1,964	368.8	2,297	427.6

Continued

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 2 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*								
Halifax	179	343.0	109	210.4	163	317.7	180	355.5	219	437.9
Harnett	147	114.8	163	124.7	193	145.8	244	181.6	286	210.3
Haywood	25	41.9	14	23.2	42	68.8	51	82.4	75	120.4
Henderson	52	46.5	57	50.2	102	88.5	106	91.0	143	121.8
Hertford	48	196.9	40	165.2	46	192.3	67	280.6	66	278.8
Hoke	140	265.5	151	285.0	158	291.8	150	274.2	182	329.5
Hyde	4	73.7	2	36.8	6	114.5	3	59.7	4	81.0
Iredell	148	87.3	152	88.1	364	207.2	222	124.5	255	140.3
Jackson	31	75.1	24	56.3	83	192.0	65	149.1	50	113.8
Johnston	196	105.9	201	105.3	261	132.9	245	120.9	330	157.6
Jones	20	204.6	18	187.7	19	198.5	20	208.1	19	201.7
Lee	80	134.7	144	241.4	98	162.2	79	129.1	85	137.6
Lenoir	162	279.4	157	274.3	202	356.8	235	419.7	222	396.8
Lincoln	41	50.9	59	72.6	76	92.1	98	116.5	99	115.0
Macon	14	41.1	13	37.9	14	40.5	31	87.9	26	72.5
Madison	10	47.3	5	23.4	15	69.6	16	73.9	18	82.7
Martin	25	107.5	33	142.7	32	140.6	62	273.6	53	236.2
McDowell	31	68.9	34	75.8	100	221.8	70	154.0	82	179.2
Mecklenburg	2,575	249.2	2,782	263.2	3,190	295.9	3,187	291.4	3,432	309.1
Mitchell	0	0.0	11	73.4	7	46.7	2	13.3	5	33.4
Montgomery	25	91.1	43	157.5	34	124.7	30	110.8	41	150.9
Moore	59	62.8	94	98.5	89	91.4	79	80.0	138	136.8
Nash	243	259.1	223	237.4	307	326.5	280	297.6	434	460.2
New Hanover	359	163.6	476	211.7	408	178.4	387	166.6	435	185.5
Northampton	43	209.4	37	183.8	72	362.0	64	324.9	74	379.8
Onslow	225	116.5	306	159.1	379	194.3	515	261.5	525	265.2
Orange	184	130.2	175	122.5	229	159.4	189	127.7	177	119.2
Pamlico	5	39.2	10	78.3	12	95.0	6	47.5	10	78.6
Pasquotank	62	157.4	60	152.3	88	223.4	128	323.4	138	346.5
Pender	53	92.3	72	122.5	46	75.8	58	93.5	53	84.0
Perquimans	8	59.4	16	119.4	13	96.7	23	171.9	35	260.0
Person	61	155.7	79	201.2	75	190.7	46	116.6	52	131.7
Pitt	565	320.9	662	373.7	687	384.6	645	359.2	856	473.6
Polk	2	9.8	9	44.1	12	58.4	9	43.5	20	96.5
Randolph	156	109.4	184	128.6	153	107.0	176	122.9	162	112.8
Richmond	99	217.9	105	233.3	114	254.3	174	387.6	246	548.8
Robeson	360	267.7	517	387.6	591	445.6	505	382.9	711	544.3
Rockingham	101	110.2	174	190.6	180	198.3	144	158.9	194	213.2
Rowan	169	122.0	203	145.6	255	181.7	343	243.0	385	271.0
Rutherford	44	66.3	83	125.2	153	230.0	177	265.1	167	249.1

Continued

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 2 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015		2016		2017		2018		2019	
	Cases	Rate*								
Sampson	88	138.5	129	204.0	98	154.9	107	168.9	119	187.3
Scotland	73	206.7	89	252.1	156	443.5	155	446.0	173	496.8
Stanly	45	74.2	70	115.1	59	95.9	70	112.6	75	119.4
Stokes	15	32.5	32	69.7	25	54.7	40	87.9	43	94.3
Surry	15	20.8	34	47.2	46	63.8	43	59.8	63	87.8
Swain	24	167.5	24	169.1	36	252.4	49	343.9	37	259.3
Transylvania	13	39.2	7	21.0	15	44.4	24	70.2	46	133.8
Tyrrell	1	24.2	0	0.0	4	95.7	1	24.3	3	74.7
Union	210	94.6	267	118.0	203	87.7	285	120.8	296	123.4
Vance	143	321.6	219	492.3	255	575.9	264	591.5	293	657.9
Wake	1,453	142.1	1,626	155.1	2,081	194.2	2,148	196.8	2,213	199.1
Warren	23	113.8	34	171.0	35	176.3	38	191.7	57	288.9
Washington	16	130.6	16	132.6	20	167.4	26	220.9	32	276.3
Watauga	18	33.9	28	51.7	22	39.9	35	62.5	25	44.5
Wayne	358	287.9	384	309.0	337	273.9	314	254.8	309	251.0
Wilkes	8	11.7	27	39.4	48	70.1	51	74.4	43	62.9
Wilson	293	360.7	230	282.9	259	318.0	238	292.4	365	446.2
Yadkin	14	37.2	17	45.1	24	63.9	19	50.7	19	50.4
Yancey	2	11.4	2	11.4	9	50.9	8	44.8	10	55.3
North Carolina	17,051	170.0	19,599	193.0	22,736	221.4	23,538	226.7	26,643	254.0

*Rates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 3. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Rank Order^b, and Year of Diagnosis, 2017-2019

Rank ^b	County	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2019 Cases	2019 Rate ^c	2017-2019 Average Rate ^b
1	Durham	123	39.4	176	55.5	173	53.8	49.6
2	Mecklenburg	460	42.7	425	38.9	456	41.1	40.9
3	Guilford	186	35.2	151	28.4	182	33.9	32.5
4	Cumberland	79	23.9	116	34.8	112	33.4	30.7
5	Forsyth	82	21.8	100	26.4	100	26.2	24.8
6	Wake	245	22.9	249	22.8	311	28.0	24.6
7	Wilson	19	23.3	20	24.6	21	25.7	24.5
8	Pitt	30	16.8	49	27.3	35	19.4	21.1
9	Granville	8	13.5	16	26.7	14	23.2	21.1
10	New Hanover	52	22.7	50	21.5	44	18.8	21.0
11	Nash	19	20.2	15	15.9	25	26.5	20.9
12	Robeson	23	17.3	34	25.8	25	19.1	20.8
13	Vance	5	11.3	9	20.2	13	29.2	20.2
14	Bertie	3	15.6	3	15.7	5	26.4	19.2
15	Martin	3	13.2	2	8.8	8	35.7	19.2
16	Chowan	1	7.1	1	7.1	6	43.0	19.1
17	Edgecombe	17	32.2	6	11.5	5	9.7	17.8
18	Halifax	10	19.5	8	15.8	9	18.0	17.8
19	Alamance	22	13.5	27	16.2	39	23.0	17.6
20	Gaston	36	16.4	41	18.4	40	17.8	17.5
21	Hoke	9	16.6	8	14.6	10	18.1	16.5
22	Person	4	10.2	6	15.2	8	20.3	15.2
23	Warren	1	5.0	2	10.1	6	30.4	15.2
24	Columbus	11	19.6	2	3.6	12	21.6	14.9
25	Lenoir	5	8.8	10	17.9	10	17.9	14.9
26	Buncombe	46	17.9	26	10.0	40	15.3	14.4
27	Scotland	3	8.5	7	20.1	5	14.4	14.3
28	Rowan	18	12.8	16	11.3	26	18.3	14.2
29	Hertford	3	12.5	3	12.6	4	16.9	14.0
30	Catawba	19	12.0	28	17.6	18	11.3	13.7
31	Anson	3	12.1	3	12.3	4	16.4	13.6
32	Craven	10	9.8	16	15.6	15	14.7	13.4
33	Wayne	16	13.0	14	11.4	19	15.4	13.3
34	Onslow	23	11.8	28	14.2	27	13.6	13.2
35	Hyde	1	19.1	0	0.0	1	20.3	13.1
36	Orange	15	10.4	17	11.5	20	13.5	11.8
37	Cabarrus	23	11.1	25	11.8	27	12.5	11.8
38	Sampson	9	14.2	6	9.5	5	7.9	10.5
39	Jones	2	20.9	1	10.4	0	0.0	10.4
40	Caswell	1	4.4	2	8.8	4	17.7	10.3
41	Northampton	3	15.1	1	5.1	2	10.3	10.1
42	Bladen	4	12.0	3	9.0	3	9.2	10.1

Continued

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bRank is based on a three-year average rate per 100,000 population for newly diagnosed early syphilis in the county of interest.

^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 3 (Continued). Newly Diagnosed Early Syphilis^a (Primary, Secondary, and Early Latent) Annual Rates in North Carolina by Rank Order^b, and Year of Diagnosis, 2017-2019

Rank ^b	County	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2019 Cases	2019 Rate ^c	2017-2019 Average Rate ^b
43	Johnston	17	8.7	18	8.9	24	11.5	9.7
44	Greene	2	9.5	0	0.0	4	19.0	9.5
45	Cleveland	8	8.2	8	8.2	11	11.2	9.2
46	Union	30	13.0	15	6.4	20	8.3	9.2
47	Haywood	9	14.8	3	4.8	5	8.0	9.2
48	Iredell	15	8.5	16	9.0	18	9.9	9.1
49	Gates	0	0.0	1	8.6	2	17.3	8.6
50	Franklin	2	3.0	5	7.4	10	14.4	8.3
51	Harnett	8	6.0	12	8.9	13	9.6	8.2
52	Burke	15	16.6	2	2.2	5	5.5	8.1
53	Rockingham	12	13.2	6	6.6	4	4.4	8.1
54	Polk	1	4.9	2	9.7	2	9.7	8.1
55	Brunswick	13	9.9	7	5.1	13	9.1	8.1
56	Davidson	15	9.1	8	4.8	17	10.1	8.0
57	Duplin	4	6.8	7	11.9	3	5.1	7.9
58	Davie	2	4.7	3	7.0	5	11.7	7.8
59	Pender	7	11.5	4	6.4	3	4.8	7.6
60	Richmond	3	6.7	2	4.5	5	11.2	7.4
61	Currituck	2	7.6	1	3.7	3	10.8	7.4
62	Montgomery	4	14.7	2	7.4	0	0.0	7.4
63	Beaufort	2	4.3	3	6.4	5	10.6	7.1
64	Pasquotank	3	7.6	3	7.6	2	5.0	6.7
65	Lincoln	4	4.8	9	10.7	4	4.6	6.7
66	Macon	2	5.8	3	8.5	2	5.6	6.6
67	McDowell	2	4.4	6	13.2	1	2.2	6.6
68	Lee	4	6.6	3	4.9	5	8.1	6.5
69	Jackson	3	6.9	2	4.6	3	6.8	6.1
70	Caldwell	6	7.3	6	7.3	3	3.7	6.1
71	Stanly	8	13.0	0	0.0	3	4.8	5.9
72	Henderson	14	12.2	5	4.3	1	0.9	5.8
73	Randolph	11	7.7	7	4.9	4	2.8	5.1
74	Transylvania	2	5.9	0	0.0	3	8.7	4.9
75	Surry	4	5.5	5	6.9	1	1.4	4.6
76	Madison	0	0.0	2	9.2	1	4.6	4.6
77	Rutherford	5	7.5	0	0.0	4	6.0	4.5
78	Watauga	3	5.4	1	1.8	2	3.6	3.6
79	Moore	4	4.1	2	2.0	4	4.0	3.4

Continued

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.
^bRank is based on a three-year average rate per 100,000 population for newly diagnosed early syphilis in the county of interest.
^cRates are expressed per 100,000 population.
 Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.
 Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 3 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Rank Order^b, and Year of Diagnosis, 2017-2019

Rank ^b	County	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2019 Cases	2019 Rate ^c	2017-2019 Average Rate ^b
80	Carteret	1	1.5	2	2.9	4	5.8	3.4
81	Clay	0	0.0	0	0.0	1	8.9	3.0
82	Washington	1	8.4	0	0.0	0	0.0	2.8
83	Chatham	3	4.2	2	2.7	1	1.3	2.8
84	Dare	1	2.8	0	0.0	2	5.4	2.7
85	Yadkin	1	2.7	1	2.7	1	2.7	2.7
86	Pamlico	0	0.0	0	0.0	1	7.9	2.6
87	Mitchell	1	6.7	0	0.0	0	0.0	2.2
88	Stokes	1	2.2	1	2.2	1	2.2	2.2
89	Wilkes	2	2.9	2	2.9	0	0.0	1.9
90	Avery	0	0.0	1	5.7	0	0.0	1.9
91	Yancey	1	5.7	0	0.0	0	0.0	1.9
92	Ashe	0	0.0	0	0.0	1	3.7	1.2
93	Cherokee	0	0.0	0	0.0	1	3.5	1.2
94	Alexander	1	2.7	0	0.0	0	0.0	0.9
94	Alleghany	0	0.0	0	0.0	0	0.0	0.0
94	Camden	0	0.0	0	0.0	0	0.0	0.0
94	Graham	0	0.0	0	0.0	0	0.0	0.0
94	Perquimans	0	0.0	0	0.0	0	0.0	0.0
94	Swain	0	0.0	0	0.0	0	0.0	0.0
94	Tyrrell	0	0.0	0	0.0	0	0.0	0.0
N/A	NORTH CAROLINA	1,911	18.6	1,910	18.4	2,117	20.2	19.1

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bRank is based on a three-year average rate per 100,000 population for newly diagnosed early syphilis in the county of interest.

^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 4. Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2019

County	Primary, Secondary, and Early ^a		Unknown Duration and Late ^b		Total	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Alamance	39	23.0	17	10.0	56	33.0
Alexander	0	0.0	1	2.7	1	2.7
Alleghany	0	0.0	0	0.0	0	0.0
Anson	4	16.4	1	4.1	5	20.5
Ashe	1	3.7	1	3.7	2	7.4
Avery	0	0.0	0	0.0	0	0.0
Beaufort	5	10.6	4	8.5	9	19.2
Bertie	5	26.4	2	10.6	7	36.9
Bladen	3	9.2	4	12.2	7	21.4
Brunswick	13	9.1	4	2.8	17	11.9
Buncombe	40	15.3	15	5.7	55	21.1
Burke	5	5.5	4	4.4	9	9.9
Cabarrus	27	12.5	18	8.3	45	20.8
Caldwell	3	3.7	3	3.7	6	7.3
Camden	0	0.0	0	0.0	0	0.0
Carteret	4	5.8	2	2.9	6	8.6
Caswell	4	17.7	1	4.4	5	22.1
Catawba	18	11.3	7	4.4	25	15.7
Chatham	1	1.3	0	0.0	1	1.3
Cherokee	1	3.5	2	7.0	3	10.5
Chowan	6	43.0	0	0.0	6	43.0
Clay	1	8.9	0	0.0	1	8.9
Cleveland	11	11.2	6	6.1	17	17.4
Columbus	12	21.6	4	7.2	16	28.8
Craven	15	14.7	16	15.7	31	30.4
Cumberland	112	33.4	71	21.2	183	54.5
Currituck	3	10.8	1	3.6	4	14.4
Dare	2	5.4	1	2.7	3	8.1
Davidson	17	10.1	5	3.0	22	13.1
Davie	5	11.7	1	2.3	6	14.0
Duplin	3	5.1	4	6.8	7	11.9
Durham	173	53.8	98	30.5	271	84.3
Edgecombe	5	9.7	11	21.4	16	31.1
Forsyth	100	26.2	46	12.0	146	38.2
Franklin	10	14.4	5	7.2	15	21.5
Gaston	40	17.8	24	10.7	64	28.5
Gates	2	17.3	0	0.0	2	17.3
Graham	0	0.0	0	0.0	0	0.0
Granville	14	23.2	15	24.8	29	48.0
Greene	4	19.0	0	0.0	4	19.0
Guilford	182	33.9	59	11.0	241	44.9

Continued

^aPrimary, secondary, and early non-primary non-secondary (formerly early latent) is defined as having been infected for a year or less.^bLate is defined as having been infected more than one year and presenting with inflammatory lesions of the cardiovascular system, skin, bone, or other tissue/structures. Late syphilis usually becomes clinically manifest only after a period of 15–30 years of untreated infection.^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 4 (Continued). Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2019

County	Primary, Secondary, and Early ^a		Unknown Duration and Late ^b		Total	
	Cases	Rate ^c	Cases	Cases	Rate ^c	Cases
Halifax	9	18.0	7	14.0	16	32.0
Harnett	13	9.6	7	5.1	20	14.7
Haywood	5	8.0	6	9.6	11	17.7
Henderson	1	0.9	6	5.1	7	6.0
Hertford	4	16.9	10	42.2	14	59.1
Hoke	10	18.1	11	19.9	21	38.0
Hyde	1	20.3	0	0.0	1	20.3
Iredell	18	9.9	12	6.6	30	16.5
Jackson	3	6.8	1	2.3	4	9.1
Johnston	24	11.5	26	12.4	50	23.9
Jones	0	0.0	1	10.6	1	10.6
Lee	5	8.1	6	9.7	11	17.8
Lenoir	10	17.9	9	16.1	19	34.0
Lincoln	4	4.6	6	7.0	10	11.6
Macon	2	5.6	1	2.8	3	8.4
Madison	1	4.6	0	0.0	1	4.6
Martin	8	35.7	1	4.5	9	40.1
McDowell	1	2.2	1	2.2	2	4.4
Mecklenburg	456	41.1	243	21.9	699	63.0
Mitchell	0	0.0	1	6.7	1	6.7
Montgomery	0	0.0	0	0.0	0	0.0
Moore	4	4.0	9	8.9	13	12.9
Nash	25	26.5	14	14.8	39	41.4
New Hanover	44	18.8	32	13.6	76	32.4
Northampton	2	10.3	4	20.5	6	30.8
Onslow	27	13.6	10	5.1	37	18.7
Orange	20	13.5	17	11.4	37	24.9
Pamlico	1	7.9	1	7.9	2	15.7
Pasquotank	2	5.0	3	7.5	5	12.6
Pender	3	4.8	2	3.2	5	7.9
Perquimans	0	0.0	1	7.4	1	7.4
Person	8	20.3	6	15.2	14	35.5
Pitt	35	19.4	17	9.4	52	28.8
Polk	2	9.7	0	0.0	2	9.7
Randolph	4	2.8	11	7.7	15	10.4
Richmond	5	11.2	6	13.4	11	24.5
Robeson	25	19.1	24	18.4	49	37.5
Rockingham	4	4.4	6	6.6	10	11.0
Rowan	26	18.3	14	9.9	40	28.2
Rutherford	4	6.0	2	3.0	6	9.0

Continued

^aPrimary, secondary, and early non-primary non-secondary (formerly early latent) is defined as having been infected for a year or less.^bLate is defined as having been infected more than one year and presenting with inflammatory lesions of the cardiovascular system, skin, bone, or other tissue/structures. Late syphilis usually becomes clinically manifest only after a period of 15–30 years of untreated infection.^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 4 (Continued). Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2019

County	Primary, Secondary, and Early ^a		Unknown Duration, or Late ^b		Total	
	Cases	Rate ^c	Cases	Cases	Rate ^c	Cases
Sampson	5	7.9	14	22.0	19	29.9
Scotland	5	14.4	6	17.2	11	31.6
Stanly	3	4.8	2	3.2	5	8.0
Stokes	1	2.2	2	4.4	3	6.6
Surry	1	1.4	6	8.4	7	9.8
Swain	0	0.0	0	0.0	0	0.0
Transylvania	3	8.7	1	2.9	4	11.6
Tyrrell	0	0.0	1	24.9	1	24.9
Union	20	8.3	10	4.2	30	12.5
Vance	13	29.2	9	20.2	22	49.4
Wake	311	28.0	185	16.6	498	44.8
Warren	6	30.4	4	20.3	10	50.7
Washington	0	0.0	1	8.6	1	8.6
Watauga	2	3.6	0	0.0	2	3.6
Wayne	19	15.4	8	6.5	27	21.9
Wilkes	0	0.0	1	1.5	1	1.5
Wilson	21	25.7	14	17.1	35	42.8
Yadkin	0	0.0	0	0.0	0	0.0
Yancey	1	5.5	1	5.5	2	11.1
North Carolina	2,117	20.2	1,252	11.9	3,371	32.1

^aPrimary, secondary, and early non-primary non-secondary (formerly early latent) is defined as having been infected for a year or less.

^bLate is defined as having been infected more than one year and presenting with inflammatory lesions of the cardiovascular system, skin, bone, or other tissue/structures. Late syphilis usually becomes clinically manifest only after a period of 15–30 years of untreated infection.

^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 5. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015				2016				2017				2018				2019			
	Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b	Cases	Rate ^b
Alamance	15	9.6	6	3.8	23	14.3	24	15.0	13	8.0	9	5.5	14	8.4	13	7.8	16	9.4	23	13.6
Alexander	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0	0	0.0	0	0.0
Alleghany	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Anson	3	11.7	0	0.0	4	15.9	0	0.0	2	8.1	1	4.0	3	12.3	0	0.0	2	8.2	2	8.2
Ashe	0	0.0	2	7.5	1	3.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.7
Avery	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.7	0	0.0	0	0.0	0	0.0
Beaufort	1	2.1	3	6.3	4	8.4	2	4.2	2	4.3	0	0.0	1	2.1	2	4.3	3	6.4	2	4.3
Bertie	0	0.0	0	0.0	1	5.1	1	5.1	2	10.4	1	5.2	1	5.2	2	10.5	0	0.0	5	26.4
Bladen	2	5.9	3	8.8	0	0.0	0	0.0	1	3.0	3	9.0	2	6.0	1	3.0	2	6.1	1	3.1
Brunswick	2	1.6	6	4.9	4	3.2	3	2.4	8	6.1	5	3.8	3	2.2	4	2.9	6	4.2	7	4.9
Buncombe	13	5.2	12	4.8	25	9.8	12	4.7	33	12.8	13	5.1	13	5.0	13	5.0	28	10.7	12	4.6
Burke	0	0.0	0	0.0	5	5.6	2	2.2	8	8.9	7	7.8	1	1.1	1	1.1	3	3.3	2	2.2
Cabarrus	19	9.7	7	3.6	5	2.5	11	5.5	11	5.3	12	5.8	15	7.1	10	4.7	16	7.4	11	5.1
Caldwell	4	4.9	1	1.2	3	3.7	1	1.2	2	2.4	4	4.9	2	2.4	4	4.9	3	3.7	0	0.0
Camden	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Carteret	3	4.4	0	0.0	2	2.9	0	0.0	0	0.0	1	1.5	2	2.9	0	0.0	2	2.9	2	2.9
Caswell	2	8.8	0	0.0	2	8.8	1	4.4	1	4.4	0	0.0	1	4.4	1	4.4	3	13.3	1	4.4
Catawba	3	1.9	9	5.8	3	1.9	6	3.8	11	7.0	8	5.1	21	13.2	7	4.4	13	8.1	5	3.1
Chatham	1	1.5	1	1.5	5	7.2	0	0.0	2	2.8	1	1.4	2	2.7	0	0.0	1	1.3	0	0.0
Cherokee	3	11.1	2	7.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.5	0	0.0
Chowan	1	7.0	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	1	7.1	0	0.0	3	21.5	3	21.5
Clay	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.9
Cleveland	3	3.1	5	5.2	3	3.1	3	3.1	6	6.2	2	2.1	3	3.1	5	5.1	7	7.1	4	4.1
Columbus	6	10.6	4	7.1	1	1.8	2	3.6	7	12.5	4	7.1	1	1.8	1	1.8	5	9.0	7	12.6
Craven	10	9.7	9	8.8	6	5.8	4	3.9	5	4.9	5	4.9	8	7.8	8	7.8	7	6.9	8	7.8
Cumberland	80	24.2	37	11.2	52	15.6	27	8.1	47	14.2	32	9.7	63	18.9	53	15.9	56	16.7	56	16.7
Currituck	0	0.0	0	0.0	0	0.0	0	0.0	1	3.8	1	3.8	0	0.0	1	3.7	1	3.6	2	7.2
Dare	1	2.8	1	2.8	0	0.0	2	5.6	0	0.0	1	2.8	0	0.0	0	0.0	2	5.4	0	0.0
Davidson	10	6.1	2	1.2	5	3.0	6	3.7	8	4.8	7	4.2	3	1.8	5	3.0	8	4.8	9	5.4
Davie	1	2.4	0	0.0	2	4.8	0	0.0	2	4.7	0	0.0	2	4.7	1	2.3	0	0.0	5	11.7
Duplin	3	5.1	3	5.1	1	1.7	2	3.4	3	5.1	1	1.7	4	6.8	3	5.1	2	3.4	1	1.7

Continued

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Table 5 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015				2016				2017				2018				2019			
	Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Durham	87	28.9	43	14.3	68	22.1	53	17.2	77	24.7	46	14.7	113	35.6	63	19.9	100	31.1	73	22.7
Edgecombe	13	24.2	11	20.5	9	16.9	7	13.1	8	15.2	9	17.1	3	5.8	3	5.8	3	5.8	2	3.9
Forsyth	49	13.3	34	9.3	55	14.8	29	7.8	57	15.2	25	6.7	54	14.2	46	12.1	60	15.7	40	10.5
Franklin	4	6.3	1	1.6	1	1.5	1	1.5	1	1.5	1	1.5	4	5.9	1	1.5	6	8.6	4	5.7
Gaston	12	5.6	10	4.7	26	12.0	14	6.5	20	9.1	16	7.3	21	9.4	20	9.0	25	11.1	15	6.7
Gates	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.6	2	17.3	0	0.0
Graham	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Granville	7	12.0	1	1.7	6	10.2	4	6.8	3	5.1	5	8.4	13	21.7	3	5.0	9	14.9	5	8.3
Greene	0	0.0	1	4.8	1	4.7	2	9.5	2	9.5	0	0.0	0	0.0	0	0.0	1	4.7	3	14.2
Guilford	120	23.2	78	15.1	92	17.5	79	15.1	119	22.5	67	12.7	87	16.3	64	12.0	81	15.1	101	18.8
Halifax	1	1.9	3	5.7	6	11.6	1	1.9	5	9.7	5	9.7	2	3.9	6	11.8	3	6.0	6	12.0
Harnett	10	7.8	7	5.5	5	3.8	5	3.8	6	4.5	2	1.5	3	2.2	9	6.7	7	5.1	6	4.4
Haywood	0	0.0	1	1.7	7	11.6	1	1.7	7	11.5	2	3.3	2	3.2	1	1.6	4	6.4	1	1.6
Henderson	3	2.7	2	1.8	6	5.3	2	1.8	10	8.7	4	3.5	2	1.7	3	2.6	1	0.9	0	0.0
Hertford	0	0.0	0	0.0	1	4.1	1	4.1	0	0.0	3	12.5	1	4.2	2	8.4	1	4.2	3	12.7
Hoke	4	7.6	3	5.7	1	1.9	3	5.7	5	9.2	4	7.4	2	3.7	6	11.0	3	5.4	7	12.7
Hyde	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	19.1	0	0.0	0	0.0	0	0.0	1	20.3
Iredell	3	1.8	3	1.8	7	4.1	3	1.7	12	6.8	3	1.7	9	5.0	7	3.9	9	5.0	9	5.0
Jackson	6	14.5	2	4.8	6	14.1	1	2.3	3	6.9	0	0.0	1	2.3	1	2.3	2	4.6	1	2.3
Johnston	10	5.4	10	5.4	11	5.8	10	5.2	8	4.1	9	4.6	14	6.9	4	2.0	12	5.7	12	5.7
Jones	0	0.0	0	0.0	2	20.9	0	0.0	2	20.9	0	0.0	0	0.0	1	10.4	0	0.0	0	0.0
Lee	6	10.1	2	3.4	3	5.0	4	6.7	3	5.0	1	1.7	1	1.6	2	3.3	4	6.5	1	1.6
Lenoir	9	15.5	7	12.1	7	12.2	8	14.0	4	7.1	1	1.8	6	10.7	4	7.1	4	7.1	6	10.7
Lincoln	2	2.5	3	3.7	8	9.8	2	2.5	3	3.6	1	1.2	4	4.8	5	5.9	2	2.3	2	2.3
Macon	1	2.9	0	0.0	1	2.9	0	0.0	2	5.8	0	0.0	2	5.7	1	2.8	0	0.0	2	5.6
Madison	0	0.0	0	0.0	1	4.7	1	4.7	0	0.0	0	0.0	1	4.6	1	4.6	1	4.6	0	0.0
Martin	3	12.9	3	12.9	1	4.3	2	8.6	2	8.8	1	4.4	2	8.8	0	0.0	4	17.8	4	17.8
McDowell	1	2.2	1	2.2	4	8.9	0	0.0	2	4.4	0	0.0	4	8.8	2	4.4	0	0.0	1	2.2
Mecklenburg	260	25.2	150	14.5	301	28.5	198	18.7	269	25.0	191	17.7	250	22.9	175	16.0	244	22.0	212	19.1
Mitchell	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0	0	0.0
Montgomery	2	7.3	1	3.6	2	7.3	1	3.7	1	3.7	3	11.0	0	0.0	2	7.4	0	0.0	0	0.0
Moore	3	3.2	4	4.3	2	2.1	2	2.1	1	1.0	3	3.1	2	2.0	0	0.0	2	2.0	2	2.0

Continued

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Table 5 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015				2016				2017				2018				2019			
	Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Nash	18	19.2	10	10.7	19	20.2	14	14.9	11	11.7	8	8.5	8	8.5	7	7.4	13	13.8	12	12.7
New Hanover	25	11.4	7	3.2	5	2.2	8	3.6	36	15.7	16	7.0	25	10.8	25	10.8	24	10.2	20	8.5
Northampton	0	0.0	0	0.0	2	9.9	6	29.8	3	15.1	0	0.0	1	5.1	0	0.0	2	10.3	0	0.0
Onslow	7	3.6	9	4.7	9	4.7	9	4.7	14	7.2	9	4.6	17	8.6	11	5.6	15	7.6	12	6.1
Orange	12	8.5	3	2.1	6	4.2	5	3.5	10	7.0	5	3.5	10	6.8	7	4.7	9	6.1	11	7.4
Pamlico	1	7.8	0	0.0	1	7.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.9	0	0.0
Pasquotank	2	5.1	1	2.5	1	2.5	2	5.1	3	7.6	0	0.0	3	7.6	0	0.0	0	0.0	2	5.0
Pender	4	7.0	6	10.4	2	3.4	2	3.4	5	8.2	2	3.3	1	1.6	3	4.8	2	3.2	1	1.6
Perquimans	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Person	3	7.7	1	2.6	4	10.2	0	0.0	3	7.6	1	2.5	4	10.1	2	5.1	7	17.7	1	2.5
Pitt	32	18.2	20	11.4	26	14.7	21	11.9	19	10.6	11	6.2	26	14.5	23	12.8	17	9.4	18	10.0
Polk	0	0.0	0	0.0	0	0.0	0	0.0	1	4.9	0	0.0	2	9.7	0	0.0	1	4.8	1	4.8
Randolph	9	6.3	2	1.4	8	5.6	4	2.8	9	6.3	2	1.4	3	2.1	4	2.8	3	2.1	1	0.7
Richmond	0	0.0	2	4.4	1	2.2	5	11.1	2	4.5	1	2.2	1	2.2	1	2.2	5	11.2	0	0.0
Robeson	16	11.9	14	10.4	12	9.0	14	10.5	15	11.3	8	6.0	17	12.9	17	12.9	13	10.0	12	9.2
Rockingham	3	3.3	3	3.3	2	2.2	5	5.5	4	4.4	8	8.8	4	4.4	2	2.2	2	2.2	2	2.2
Rowan	6	4.3	5	3.6	11	7.9	4	2.9	13	9.3	5	3.6	9	6.4	7	5.0	12	8.4	14	9.9
Rutherford	3	4.5	2	3.0	4	6.0	0	0.0	2	3.0	3	4.5	0	0.0	0	0.0	4	6.0	0	0.0
Sampson	6	9.4	3	4.7	4	6.3	2	3.2	3	4.7	6	9.5	3	4.7	3	4.7	3	4.7	2	3.1
Scotland	3	8.5	3	8.5	4	11.3	5	14.2	2	5.7	1	2.8	4	11.5	3	8.6	3	8.6	2	5.7
Stanly	2	3.3	1	1.6	1	1.6	2	3.3	6	9.8	2	3.3	0	0.0	0	0.0	2	3.2	1	1.6
Stokes	2	4.3	0	0.0	0	0.0	1	2.2	0	0.0	1	2.2	0	0.0	1	2.2	1	2.2	0	0.0
Surry	2	2.8	1	1.4	2	2.8	2	2.8	3	4.2	1	1.4	1	1.4	4	5.6	1	1.4	0	0.0
Swain	0	0.0	0	0.0	1	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Transylvania	0	0.0	0	0.0	1	3.0	1	3.0	0	0.0	2	5.9	0	0.0	0	0.0	2	5.8	1	2.9
Tyrrell	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Union	9	4.1	6	2.7	9	4.0	7	3.1	18	7.8	12	5.2	11	4.7	4	1.7	13	5.4	7	2.9
Vance	7	15.7	2	4.5	9	20.2	4	9.0	2	4.5	3	6.8	7	15.7	2	4.5	9	20.2	4	9.0
Wake	146	14.3	102	10.0	128	12.2	122	11.6	128	11.9	117	10.9	149	13.7	100	9.2	160	14.4	151	13.6
Warren	0	0.0	1	4.9	0	0.0	1	5.0	1	5.0	0	0.0	1	5.0	1	5.0	3	15.2	3	15.2

Continued

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Table 5 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2015-2019

County	2015				2016				2017				2018				2019			
	Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Washington	2	16.3	1	8.2	1	8.3	1	8.3	1	8.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Watauga	0	0.0	0	0.0	2	3.7	0	0.0	2	3.6	1	1.8	1	1.8	0	0.0	0	0.0	2	3.6
Wayne	13	10.5	11	8.8	12	9.7	8	6.4	13	10.6	3	2.4	5	4.1	9	7.3	13	10.6	6	4.9
Wilkes	3	4.4	2	2.9	1	1.5	0	0.0	1	1.5	1	1.5	2	2.9	0	0.0	0	0.0	0	0.0
Wilson	12	14.8	12	14.8	5	6.1	9	11.1	12	14.7	7	8.6	12	14.7	8	9.8	10	12.2	11	13.4
Yadkin	0	0.0	1	2.7	1	2.7	1	2.7	1	2.7	0	0.0	1	2.7	0	0.0	1	2.7	0	0.0
Yancey	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.7	0	0.0	0	0.0	0	0.0	0	0.0
North Carolina	1,150	11.5	725	7.2	1,092	10.8	808	8.0	1,151	11.2	760	7.4	1,098	10.6	812	7.8	1,131	10.8	986	9.4

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Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

North Carolina State Totals and Rates of Chlamydia, Gonorrhea, and Syphilis by Selected Demographics, 2019

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Table 6. Number of Infants Diagnosed with Congenital Syphilis in North Carolina by Year of Birth, 2010-2019

Classification	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Presumptive/Probable	6	6	1	3	5	11	16	23	18	26
Confirmed-Live birth	0	0	0	1	0	0	1	0	0	0
Confirmed-Still birth	4	0	0	2	2	0	1	0	1	1
Total	10	6	1	5	7	11	18	23	19	27

Data Source: Sexually Transmitted Disease Management Information System (STD*MIS) and North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 7. Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015			2016			2017			2018			2019		
		Cases	%	Rate ^b												
Men	Less than 10	8	0.1	1.3	10	0.1	1.6	7	0.0	1.1	2	0.0	0.3	4	0.0	0.6
	10-14	38	0.3	11.5	38	0.2	11.5	29	0.1	8.6	31	0.1	9.2	50	0.2	14.7
	15-19	2,771	19.0	822.1	3,222	19.0	937.5	3,824	19.8	1,104.7	4,078	19.3	1,168.8	4,447	18.9	1,270.4
	20-24	5,833	40.0	1,578.7	6,700	39.5	1,823.7	7,470	38.6	2,058.9	7,993	37.8	2,211.3	8,830	37.6	2,447.9
	25-29	3,008	20.6	898.6	3,549	20.9	1,021.9	4,024	20.8	1,124.4	4,578	21.6	1,251.6	4,884	20.8	1,318.6
	30-34	1,348	9.2	429.7	1,530	9.0	482.7	1,765	9.1	549.6	1,967	9.3	602.9	2,424	10.3	722.9
	35-39	707	4.8	228.9	863	5.1	274.8	912	4.7	287.2	1,053	5.0	328.2	1,214	5.2	375.8
	40-44	369	2.5	113.7	419	2.5	133.1	534	2.8	171.9	616	2.9	198.9	696	3.0	223.6
	45-54	374	2.6	55.8	450	2.7	66.7	550	2.8	81.5	613	2.9	91.3	656	2.8	98.7
	55-64	102	0.7	17.0	152	0.9	24.7	185	1.0	29.6	183	0.9	28.8	250	1.1	38.7
	65 and older	23	0.2	3.5	29	0.2	4.2	36	0.2	5.1	41	0.2	5.6	45	0.2	5.9
	Unknown ^c	9	0.1	--	5	0.0	--	6	0.0	--	0	0.0	--	1	0.0	--
Total		14,590	100.0	298.7	16,967	100.0	343.2	19,342	100.0	387.1	21,155	100.0	418.9	23,501	100.0	460.8
Women	Less than 10	8	0.0	1.3	14	0.0	2.3	10	0.0	1.6	3	0.0	0.5	17	0.0	2.8
	10-14	348	0.9	109.2	341	0.8	106.8	356	0.8	110.4	370	0.8	113.7	414	0.9	126.9
	15-19	12,187	30.6	3,763.5	12,885	31.3	3,881.6	14,345	32.9	4,290.9	14,747	32.4	4,371.4	15,374	32.2	4,546.4
	20-24	16,139	40.6	4,763.7	16,348	39.7	4,836.8	16,865	38.6	5,019.2	17,354	38.1	5,142.3	17,942	37.5	5,306.1
	25-29	6,574	16.5	1,938.7	6,803	16.5	1,948.9	7,011	16.1	1,962.2	7,718	16.9	2,133.9	8,102	17.0	2,230.9
	30-34	2,456	6.2	754.1	2,679	6.5	815.6	2,748	6.3	827.3	2,918	6.4	865.2	3,254	6.8	937.3
	35-39	1,197	3.0	369.9	1,170	2.8	355.2	1,202	2.8	360.3	1,323	2.9	392.4	1,382	2.9	407.4
	40-44	468	1.2	138.0	492	1.2	149.5	558	1.3	171.0	592	1.3	181.0	687	1.4	208.2
	45-54	363	0.9	51.5	375	0.9	52.9	424	1.0	59.8	396	0.9	56.1	495	1.0	70.8
	55-64	47	0.1	7.0	73	0.2	10.7	96	0.2	13.8	125	0.3	17.7	110	0.2	15.4
	65 and older	6	0.0	0.7	10	0.0	1.1	18	0.0	2.0	14	0.0	1.5	14	0.0	1.4
	Unknown ^c	5	0.0	---	19	0.0	---	12	0.0	---	0	0.0	---	4	0.0	---
Total		39,798	100.0	773.2	41,209	100.0	790.8	43,645	100.0	828.0	45,560	100.0	854.6	47,795	100.0	887.1

Continued

^aChlamydia case reports are always highly biased with respect to gender. See Appendix A: Technical Notes for more information.

^bRate is expressed per 100,000 population.

^cRates are not available due to the lack of overall population data for unknown age group.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 7 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015			2016			2017			2018			2019		
		Cases	%	Rate ^b												
Total^d	Less than 10	16	0.0	1.3	24	0.0	1.9	17	0.0	1.4	5	0.0	0.4	21	0.0	1.7
	10-14	386	0.7	59.4	379	0.7	58.2	385	0.6	58.5	401	0.6	60.4	464	0.7	69.7
	15-19	14,958	27.5	2,263.3	16,107	27.7	2,383.9	18,169	28.8	2,670.1	18,825	28.2	2,743.1	19,821	27.8	2,880.1
	20-24	21,973	40.4	3,102.3	23,048	39.6	3,267.5	24,335	38.6	3,482.2	25,347	38	3,626.5	26,772	37.6	3,830.8
	25-29	9,583	17.6	1,422.2	10,352	17.8	1,486.6	11,036	17.5	1,543.1	12,296	18.4	1,690.2	12,986	18.2	1,770.2
	30-34	3,804	7.0	595.0	4,209	7.2	652.1	4,513	7.2	690.8	4,886	7.3	736.4	5,678	8.0	831.9
	35-39	1,904	3.5	301.0	2,033	3.5	315.9	2,114	3.4	324.7	2,376	3.6	361.1	2,596	3.6	392.0
	40-44	837	1.5	126.1	911	1.6	141.5	1,092	1.7	171.4	1,208	1.8	189.7	1,383	1.9	215.7
	45-54	737	1.4	53.6	825	1.4	59.6	974	1.5	70.4	1,009	1.5	73.3	1,151	1.6	84.4
	55-64	149	0.3	11.7	225	0.4	17.3	281	0.4	21.3	308	0.5	22.9	360	0.5	26.4
	65 and older	29	0.1	1.9	39	0.1	2.5	54	0.1	3.3	55	0.1	3.3	59	0.1	3.4
	Unknown ^c	14	0.0	--	24	0.0	--	18	0.0	--	0	0.0	--	5	0.0	--
Total^d		54,390	100.0	542.2	58,176	100.0	572.9	62,988	100.0	613.4	66,716	100.0	642.6	71,296	100.0	679.8

^aChlamydia case reports are always highly biased with respect to gender. See Appendix A: Technical Notes for more information.

^bRate is expressed per 100,000 population.

^cRates are not available due to the lack of overall population data for unknown age group.

^dTotal may include cases with missing gender information.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 8. Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Race/Ethnicity, and Year of Diagnosis, 2015-2019

Gender	Race/Ethnicity	2015			2016			2017			2018			2019		
		Cases	%	Rate ^b												
Men	American Indian/Alaska Native ^c	138	0.9	237.0	148	0.9	252.3	212	1.1	358.6	223	1.1	375.5	227	1.0	379.7
	Asian/Pacific Islander ^c	78	0.5	55.0	82	0.5	54.7	92	0.5	58.2	101	0.5	61.7	96	0.4	56.8
	Black/African American ^c	5,616	38.5	541.0	6,037	35.6	574.6	7,043	36.4	662.7	7,535	35.6	701.3	7,915	33.7	729.2
	Hispanic/Latino	822	5.6	174.5	887	5.2	183.2	1,037	5.4	208.3	1,216	5.7	236.7	1,322	5.6	249.9
	White/Caucasian ^c	2,031	13.9	64.0	2,210	13.0	69.1	2,798	14.5	86.9	2,885	13.6	89.1	3,137	13.3	96.3
	Multiple Races ^d	15	0.1	--	24	0.1	--	29	0.1	--	41	0.2	--	47	0.2	--
	Unknown/Unspecified ^d	5,890	40.4	--	7,579	44.7	--	8,131	42.0	--	9,154	43.3	--	10,757	45.8	--
Total		14,590	100.0	298.7	16,967	100.0	343.2	19,342	100.0	387.1	21,155	100.0	418.9	23,501	100.0	460.8
Women	American Indian/Alaska Native ^c	591	1.5	943.6	620	1.5	980.9	680	1.6	1,066.6	625	1.4	971.5	633	1.3	976.0
	Asian/Pacific Islander ^c	258	0.6	169.3	234	0.6	145.9	277	0.6	164.7	268	0.6	153.9	270	0.6	150.1
	Black/African American ^c	14,949	37.6	1,268.1	14,311	34.7	1,198.7	14,986	34.3	1,240.9	15,460	33.9	1,265.6	15,335	32.1	1,242.0
	Hispanic/Latino	2,800	7.0	649.2	2,859	6.9	639.4	3,130	7.2	675.5	3,329	7.3	692.4	3,703	7.7	745.2
	White/Caucasian ^c	7,835	19.7	235.9	7,694	18.7	229.9	8,493	19.5	252.2	8,561	18.8	252.5	8,660	18.1	253.9
	Multiple Races ^d	117	0.3	--	111	0.3	--	118	0.3	--	102	0.2	--	147	0.3	--
	Unknown/Unspecified ^d	13,248	33.3	--	15,380	37.3	--	15,961	36.6	--	17,215	37.8	--	19,047	39.9	--
Total		39,798	100.0	773.2	41,209	100.0	790.8	43,645	100.0	828.0	45,560	100.0	854.6	47,795	100.0	887.1
Total^e	American Indian/Alaska Native ^c	729	1.3	603.1	768	1.3	630.2	892	1.4	726.0	849	1.3	686.2	860	1.2	690.0
	Asian/Pacific Islander ^c	336	0.6	114.2	316	0.5	101.8	369	0.6	113.1	369	0.6	109.2	366	0.5	104.9
	Black/African American ^c	20,565	37.8	927.7	20,348	35	906.6	22,029	35.0	970.2	22,995	34.5	1,001.5	23,250	32.6	1,002.1
	Hispanic/Latino	3,622	6.7	401.4	3,746	6.4	402.3	4,167	6.6	433.6	4,545	6.8	457.0	5,025	7.0	489.8
	White/Caucasian ^c	9,866	18.1	151.8	9,904	17.0	151.3	11,291	17.9	171.4	11,446	17.2	172.7	11,797	16.5	176.9
	Multiple Races ^d	132	0.2	--	135	0.2	--	147	0.2	--	143	0.2	--	194	0.3	--
	Unknown/Unspecified ^d	19,140	35.2	--	22,959	39.5	--	24,093	38.3	--	26,369	39.5	--	29,804	41.8	--
Total^e		54,390	100.0	542.2	58,176	100.0	572.9	62,988	100.0	613.4	66,716	100.0	642.6	71,296	100.0	679.8

^aChlamydia case reports are always highly biased with respect to gender. See Appendix A: Technical Notes for more information.

^bRate is expressed per 100,000 population.

^cNon-Hispanic/Latino.

^dRates are not available due to the lack of overall population data for the multiple race and unknown/unspecified race/ethnicity groups.

^eTotals may include cases with missing gender information.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 9. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015			2016			2017			2018			2019		
		Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a
Men	Less than 10	0	0.0	0.0	1	0.0	0.2	0	0.0	0.0	0	0.0	0.0	1	0.0	0.2
	10-14	7	0.1	2.1	25	0.2	7.5	16	0.1	4.8	14	0.1	4.1	26	0.2	7.7
	15-19	1,135	13.4	336.7	1,287	12.8	374.5	1,474	12.6	425.8	1,478	12.3	423.6	1,628	11.6	465.1
	20-24	2,789	32.9	754.8	3,117	31.1	848.4	3,371	28.8	929.1	3,341	27.7	924.3	3,742	26.7	1,037.4
	25-29	1,934	22.8	577.8	2,347	23.4	675.8	2,674	22.9	747.2	2,765	22.9	755.9	3,288	23.4	887.7
	30-34	980	11.6	312.4	1,190	11.9	375.4	1,414	12.1	440.3	1,586	13.2	486.2	2,015	14.4	600.9
	35-39	607	7.2	196.5	727	7.2	231.5	880	7.5	277.2	1,051	8.7	327.6	1,226	8.7	379.5
	40-44	365	4.3	112.4	425	4.2	135.0	594	5.1	191.3	651	5.4	210.2	733	5.2	235.5
	45-54	450	5.3	67.1	619	6.2	91.8	847	7.2	125.5	739	6.1	110.0	881	6.3	132.5
	55-64	171	2.0	28.4	228	2.3	37.1	357	3.1	57.1	358	3.0	56.3	405	2.9	62.6
	65 and older	35	0.4	5.3	63	0.6	9.2	71	0.6	10.0	72	0.6	9.8	81	0.6	10.6
	Unknown ^b	2	0.0	--	2	0.0	--	0	0.0	--	0	0.0	--	0	0.0	--
Total		8,475	100.0	173.5	10,031	100.0	202.9	11,698	100.0	234.1	12,055	100.0	238.7	14,026	100.0	275.0
Women	Less than 10	6	0.1	1.0	6	0.1	1.0	3	0.0	0.5	3	0.0	0.5	7	0.1	1.2
	10-14	71	0.8	22.3	85	0.9	26.6	75	0.7	23.3	77	0.7	23.7	98	0.8	30.0
	15-19	2,165	25.2	668.6	2,337	24.4	704.0	2,739	24.8	819.3	2,709	23.6	803.0	2,963	23.5	876.2
	20-24	3,221	37.6	950.7	3,441	36.0	1,018.1	3,778	34.2	1,124.4	3,714	32.3	1,100.5	4,096	32.5	1,211.3
	25-29	1,734	20.2	511.4	1,969	20.6	564.1	2,268	20.5	634.8	2,480	21.6	685.7	2,654	21.0	730.8
	30-34	699	8.2	214.6	902	9.4	274.6	1,073	9.7	323.0	1,265	11.0	375.1	1,375	10.9	396.1
	35-39	354	4.1	109.4	443	4.6	134.5	553	5.0	165.8	611	5.3	181.2	688	5.5	202.8
	40-44	157	1.8	46.3	201	2.1	61.1	265	2.4	81.2	291	2.5	89.0	363	2.9	110.0
	45-54	134	1.6	19.0	135	1.4	19.0	231	2.1	32.6	251	2.2	35.6	287	2.3	41.0
	55-64	26	0.3	3.9	38	0.4	5.6	47	0.4	6.8	69	0.6	9.8	68	0.5	9.5
	65 and older	6	0.1	0.7	7	0.1	0.8	5	0.0	0.5	12	0.1	1.3	16	0.1	1.6
	Unknown ^b	3	0.0	--	4	0.0	--	0	0.0	--	0	0.0	--	2	0.0	--
Total		8,576	100.0	166.6	9,568	100.0	183.6	11,037	100.0	209.4	11,482	100.0	215.4	12,617	100.0	234.2

Continued

^aRate is expressed per 100,000 population.

^bRates are not available due to the lack of overall population data for unknown age group.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 9 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015			2016			2017			2018			2019		
		Cases	%	Rate ^a												
Total^c	Less than 10	6	0.0	0.5	7	0.0	0.6	3	0.0	0.2	3	0.0	0.2	8	0.0	0.6
	10-14	78	0.5	12.0	110	0.6	16.9	91	0.4	13.8	91	0.4	13.7	124	0.5	18.6
	15-19	3,300	19.4	499.3	3,624	18.5	536.4	4,213	18.5	619.1	4,187	17.8	610.1	4,591	17.2	667.1
	20-24	6,010	35.2	848.5	6,558	33.5	929.7	7,149	31.4	1,023.0	7,055	30	1,009.4	7,838	29.4	1,121.5
	25-29	3,668	21.5	544.4	4,316	22	619.8	4,942	21.7	691.0	5,245	22.3	721.0	5,942	22.3	810.0
	30-34	1,679	9.8	262.6	2,092	10.7	324.1	2,487	10.9	380.7	2,852	12.1	429.8	3,390	12.7	496.7
	35-39	961	5.6	151.9	1,170	6	181.8	1,433	6.3	220.1	1,662	7.1	252.6	1,914	7.2	289.0
	40-44	522	3.1	78.6	626	3.2	97.2	859	3.8	134.9	942	4	147.9	1,096	4.1	170.9
	45-54	584	3.4	42.5	754	3.8	54.5	1,079	4.7	78.0	990	4.2	71.9	1,168	4.4	85.6
	55-64	197	1.2	15.5	266	1.4	20.5	404	1.8	30.6	427	1.8	31.8	473	1.8	34.7
	65 and older	41	0.2	2.7	70	0.4	4.5	76	0.3	4.7	84	0.4	5.0	97	0.4	5.5
Unknown ^b	5	0.0	--	6	0.0	--	0	0.0	--	0	0.0	--	2	0.0	--	
Total^c		17,051	100	170.0	19,599	100	193.0	22,736	100	221.4	23,538	100	226.7	26,643	100	254.0

^aRate is expressed per 100,000 population.

^bRates are not available due to the lack of overall population data for unknown age group.

^cTotal may include cases with missing gender information.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 10. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Race/Ethnicity, and Year of Diagnosis, 2015-2019

Gender	Race/Ethnicity	2015			2016			2017			2018			2019		
		Cases	%	Rate ^a												
Men	American Indian/Alaska Native ^b	81	1.0	139.1	112	1.1	190.9	136	1.2	230.1	120	1.0	202.1	132	0.9	220.8
	Asian/Pacific Islander ^b	18	0.2	12.7	25	0.2	16.7	37	0.3	23.4	39	0.3	23.8	44	0.3	26.0
	Black/African American ^b	4,776	56.4	460.1	5,167	51.5	491.8	5,918	50.6	556.8	5,989	49.7	557.4	6,639	47.3	611.7
	Hispanic/Latino	238	2.8	50.5	379	3.8	78.3	389	3.3	78.1	410	3.4	79.8	512	3.7	96.8
	White/Caucasian ^b	939	11.1	29.6	1,043	10.4	32.6	1,450	12.4	45.0	1,476	12.2	45.6	1,743	12.4	53.5
	Multiple Races ^c	17	0.2	--	24	0.2	--	25	0.2	--	30	0.2	--	47	0.3	--
	Unknown/Unspecified ^c	2,406	28.4	--	3,281	32.7	--	3,743	32.0	--	3,991	33.1	--	4,909	35.0	--
Total		8,475	100.0	173.5	10,031	100.0	202.9	11,698	100.0	234.1	12,055	100.0	238.7	14,026	100.0	275.0
Women	American Indian/Alaska Native ^b	138	1.6	220.3	153	1.6	242.1	232	2.1	363.9	186	1.6	289.1	209	1.7	322.2
	Asian/Pacific Islander ^b	28	0.3	18.4	21	0.2	13.1	35	0.3	20.8	41	0.4	23.5	32	0.3	17.8
	Black/African American ^b	4,537	52.9	384.9	4,573	47.8	383.1	5,074	46.0	420.1	5,185	45.2	424.5	5,172	41.0	418.9
	Hispanic/Latino	248	2.9	57.5	274	2.9	61.3	261	2.4	56.3	329	2.9	68.4	378	3.0	76.1
	White/Caucasian ^b	1,240	14.5	37.3	1,405	14.7	42.0	1,975	17.9	58.6	2,084	18.2	61.5	2,349	18.6	68.9
	Multiple Races ^c	30	0.3	--	45	0.5	--	31	0.3	--	45	0.4	--	42	0.3	--
	Unknown/Unspecified ^c	2,355	27.5	--	3,097	32.4	--	3,429	31.1	--	3,612	31.5	--	4,435	35.2	--
Total		8,576	100.0	166.6	9,568	100.0	183.6	11,037	100.0	209.4	11,482	100.0	215.4	12,617	100.0	234.2
Total^d	American Indian/Alaska Native ^b	219	1.3	181.2	265	1.4	217.4	368	1.6	299.5	307	1.3	248.1	341	1.3	273.6
	Asian/Pacific Islander ^b	46	0.3	15.6	46	0.2	14.8	72	0.3	22.1	80	0.3	23.7	76	0.3	21.8
	Black/African American ^b	9,313	54.6	420.1	9,740	49.7	433.9	10,993	48.4	484.2	11,174	47.5	486.7	11,811	44.3	509.1
	Hispanic/Latino	486	2.9	53.9	653	3.3	70.1	650	2.9	67.6	739	3.1	74.3	890	3.3	86.8
	White/Caucasian ^b	2,179	12.8	33.5	2,448	12.5	37.4	3,425	15.1	52	3,560	15.1	53.7	4,092	15.4	61.4
	Multiple Races ^c	47	0.3	--	69	0.4	--	56	0.2	--	75	0.3	--	89	0.3	--
	Unknown/Unspecified ^c	4,761	27.9	--	6,378	32.5	--	7,172	31.5	--	7,603	32.3	--	9,344	35.1	--
Total^d		17,051	100.0	170.0	19,599	100.0	193.0	22,736	100.0	221.4	23,538	100.0	226.7	26,643	100.0	254.0

^aRate is expressed per 100,000 population.

^bNon-Hispanic/Latino.

^cRates are not available due to the lack of overall population data for the multiple race and unknown/unspecified race/ethnicity groups.

^dTotals may include cases with missing gender information.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 11. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015				2016				2017				2018				2019			
		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
		Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Men	Less than 10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	10-14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	15-19	51	15.1	15	4.4	50	14.5	23	6.7	55	15.9	25	7.2	41	11.8	16	4.6	43	12.3	23	6.6
	20-24	250	67.7	132	35.7	199	54.2	111	30.2	229	63.1	109	30.0	180	49.8	114	31.5	177	49.1	112	31.0
	25-29	233	69.6	135	40.3	232	66.8	151	43.5	227	63.4	151	42.2	233	63.7	152	41.6	232	62.6	187	50.5
	30-34	123	39.2	102	32.5	154	48.6	90	28.4	134	41.7	97	30.2	132	40.5	122	37.4	145	43.2	150	44.7
	35-39	93	30.1	63	20.4	90	28.7	86	27.4	104	32.8	75	23.6	97	30.2	83	25.9	88	27.2	104	32.2
	40-44	93	28.7	45	13.9	69	21.9	49	15.6	80	25.8	48	15.5	66	21.3	44	14.2	64	20.6	69	22.2
	45-54	144	21.5	88	13.1	127	18.8	98	14.5	115	17.0	95	14.1	124	18.5	83	12.4	130	19.6	112	16.9
	55-64	51	8.5	21	3.5	50	8.1	32	5.2	64	10.2	38	6.1	60	9.4	37	5.8	59	9.1	47	7.3
	65 and older	5	0.8	10	1.5	13	1.9	8	1.2	10	1.4	6	0.8	6	0.8	11	1.5	14	1.8	9	1.2
Total	1,043	21.4	612	12.5	984	19.9	648	13.1	1,018	20.4	644	12.9	939	18.6	662	13.1	952	18.7	813	15.9	
Women	Less than 10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	10-14	0	0.0	0	0.0	1	0.3	0	0.0	1	0.3	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0
	15-19	11	3.4	6	1.9	14	4.2	16	4.8	11	3.3	23	6.9	18	5.3	17	5.0	11	3.3	11	3.3
	20-24	29	8.6	20	5.9	20	5.9	28	8.3	32	9.5	28	8.3	30	8.9	32	9.5	30	8.9	42	12.4
	25-29	22	6.5	26	7.7	26	7.4	44	12.6	33	9.2	19	5.3	42	11.6	34	9.4	36	9.9	32	8.8
	30-34	10	3.1	17	5.2	16	4.9	23	7.0	18	5.4	15	4.5	23	6.8	20	5.9	31	8.9	30	8.6
	35-39	11	3.4	12	3.7	10	3.0	14	4.3	10	3.0	8	2.4	14	4.2	12	3.6	20	5.9	16	4.7
	40-44	10	2.9	11	3.2	7	2.1	8	2.4	10	3.1	8	2.5	12	3.7	16	4.9	20	6.1	17	5.2
	45-54	14	2.0	13	1.8	9	1.3	17	2.4	13	1.8	10	1.4	14	2.0	11	1.6	21	3.0	19	2.7
	55-64	0	0.0	7	1.0	4	0.6	8	1.2	1	0.1	4	0.6	4	0.6	7	1.0	7	1.0	6	0.8
	65 and older	0	0.0	1	0.1	1	0.1	2	0.2	4	0.4	1	0.1	1	0.1	1	0.1	3	0.3	0	0.0
Total	107	2.1	113	2.2	108	2.1	160	3.1	133	2.5	116	2.2	159	3.0	150	2.8	179	3.3	173	3.2	

Continued

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bEarly non-primary non-secondary (formerly early latent) syphilis.

^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 11 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2015-2019

Gender	Age at Diagnosis (Year)	2015				2016				2017				2018				2019			
		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
		Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Total	Less than 10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	10-14	0	0.0	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
	15-19	62	9.4	21	3.2	64	9.5	39	5.8	66	9.7	48	7.1	59	8.6	33	4.8	54	7.8	34	4.9
	20-24	279	39.4	152	21.5	219	31.0	139	19.7	261	37.3	137	19.6	210	30.0	146	20.9	207	29.6	154	22.0
	25-29	255	37.8	161	23.9	258	37.1	195	28.0	260	36.4	170	23.8	275	37.8	186	25.6	268	36.5	219	29.9
	30-34	133	20.8	119	18.6	170	26.3	113	17.5	152	23.3	112	17.1	155	23.4	142	21.4	176	25.8	180	26.4
	35-39	104	16.4	75	11.9	100	15.5	100	15.5	114	17.5	83	12.7	111	16.9	95	14.4	108	16.3	120	18.1
	40-44	103	15.5	56	8.4	76	11.8	57	8.9	90	14.1	56	8.8	78	12.2	60	9.4	84	13.1	86	13.4
	45-54	158	11.5	101	7.3	136	9.8	115	8.3	128	9.2	105	7.6	138	10.0	94	6.8	151	11.1	131	9.6
	55-64	51	4.0	28	2.2	54	4.2	40	3.1	65	4.9	42	3.2	64	4.8	44	3.3	66	4.8	53	3.9
65 and older	5	0.3	11	0.7	14	0.9	10	0.6	14	0.9	7	0.4	7	0.4	12	0.7	17	1.0	9	0.5	
Total	1,150	11.5	725	7.2	1,092	10.8	808	8.0	1,151	11.2	760	7.4	1,098	10.6	812	7.8	1,131	10.8	986	9.4	

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bEarly non-primary non-secondary (formerly early latent) syphilis.

^cRates are expressed per 100,000 population.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 12. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Race/Ethnicity, and Year of Diagnosis, 2015-2019

Gender	Race/Ethnicity	2015				2016				2017				2018				2019			
		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
		Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Men	American Indian/Alaska Native ^d	8	13.7	5	8.6	6	10.2	5	8.5	7	11.8	2	3.4	7	11.8	6	10.1	6	10.0	7	11.7
	Asian/Pacific Islander ^d	7	4.9	3	2.1	9	6.0	2	1.3	12	7.6	4	2.5	6	3.7	5	3.1	6	3.5	6	3.5
	Black/African American ^d	641	61.8	375	36.1	565	53.8	399	38.0	602	56.6	363	34.2	569	53.0	392	36.5	561	51.7	511	47.1
	Hispanic/Latino	56	11.9	50	10.6	70	14.5	61	12.6	69	13.9	69	13.9	75	14.6	60	11.7	84	15.9	74	14.0
	White/Caucasian ^d	289	9.1	155	4.9	292	9.1	146	4.6	293	9.1	178	5.5	239	7.4	168	5.2	250	7.7	181	5.6
	Multiple Races ^e	21	--	14	--	25	--	16	--	17	--	17	--	20	--	14	--	18	--	12	--
	Unknown/Unspecified ^e	21	--	10	--	17	--	19	--	18	--	11	--	23	--	17	--	27	--	22	--
Total	1,043	21.4	612	12.5	984	19.9	648	13.1	1,018	20.4	644	12.9	939	18.6	662	13.1	952	18.7	813	15.9	
Women	American Indian/Alaska Native ^d	0	0.0	0	0.0	1	1.6	2	3.2	2	3.1	0	0.0	2	3.1	0	0.0	1	1.5	1	1.5
	Asian/Pacific Islander ^d	0	0.0	3	2.0	1	0.6	1	0.6	0	0.0	2	1.2	0	0.0	0	0.0	2	1.1	2	1.1
	Black/African American ^d	85	7.2	81	6.9	79	6.6	111	9.3	88	7.3	73	6.0	105	8.6	106	8.7	121	9.8	106	8.6
	Hispanic/Latino	3	0.7	4	0.9	1	0.2	7	1.6	3	0.6	10	2.2	7	1.5	12	2.5	8	1.6	17	3.4
	White/Caucasian ^d	15	0.5	21	0.6	20	0.6	30	0.9	31	0.9	25	0.7	42	1.2	26	0.8	39	1.1	40	1.2
	Multiple Races ^e	2	--	3	--	2	--	6	--	7	--	5	--	2	--	3	--	5	--	4	--
	Unknown/Unspecified ^e	2	--	1	--	4	--	3	--	2	--	1	--	1	--	3	--	3	--	3	--
Total	107	2.1	113	2.2	108	2.1	160	3.1	133	2.5	116	2.2	159	3.0	150	2.8	179	3.3	173	3.2	
Total [^]	American Indian/Alaska Native ^d	8	6.6	5	4.1	7	5.7	7	5.7	9	7.3	2	1.6	9	7.3	6	4.8	7	5.6	8	6.4
	Asian/Pacific Islander ^d	7	2.4	6	2.0	10	3.2	3	1.0	12	3.7	6	1.8	6	1.8	5	1.5	8	2.3	8	2.3
	Black/African American ^d	726	32.7	456	20.6	644	28.7	510	22.7	690	30.4	436	19.2	674	29.4	498	21.7	682	29.4	617	26.6
	Hispanic/Latino	59	6.5	54	6.0	71	7.6	68	7.3	72	7.5	79	8.2	82	8.2	72	7.2	92	9.0	91	8.9
	White/Caucasian ^d	304	4.7	176	2.7	312	4.8	176	2.7	324	4.9	203	3.1	281	4.2	194	2.9	289	4.3	221	3.3
	Multiple Races ^e	23	--	17	--	27	--	22	--	24	--	22	--	22	--	17	--	23	--	16	--
	Unknown/Unspecified ^e	23	--	11	--	21	--	22	--	20	--	12	--	24	--	20	--	30	--	25	--
Total[^]	1,150	11.5	725	7.2	1,092	10.8	808	8.0	1,151	11.2	760	7.4	1,098	10.6	812	7.8	1,131	10.8	986	9.4	

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bEarly non-primary non-secondary (formerly early latent) syphilis.

^cRate is expressed per 100,000 population.

^dNon-Hispanic/Latino.

^eRates are not available due to the lack of overall population data for the multiple race and unknown/unspecified race/ethnicity groups.

[^]Totals include missing gender information.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020).

Table 13. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Risk of Exposure, and Year of Diagnosis, 2015-2019

Risk of Exposure	2015				2016				2017				2018				2019			
	Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b		Primary and Secondary		Early ^b	
	Cases	%	Cases	%																
WSM/W ^c	107	9.3	113	15.6	108	9.9	160	19.8	133	11.6	116	15.3	159	14.5	150	18.5	179	15.8	173	17.5
MSM ^d	690	60.0	434	59.9	594	54.4	429	53.1	628	54.6	446	58.7	580	52.8	464	57.1	543	48.0	554	56.2
MSM/W ^e	89	7.7	56	7.7	145	13.3	69	8.5	71	6.2	35	4.6	45	4.1	18	2.2	47	4.2	20	2.0
MSW only ^f	184	16.0	60	8.3	194	17.8	87	10.8	231	20.1	87	11.4	216	19.7	104	12.8	240	21.2	119	12.1
Unknown Men	80	7.0	62	8.6	51	4.7	63	7.8	88	7.6	76	10.0	98	8.9	76	9.4	122	10.8	120	12.2
Total	1,150	100.0	725	100.0	1,092	100.0	808	100.0	1,151	100.0	760	100.0	1,098	100.0	812	100.0	1,131	100.0	986	100.0

^aEarly syphilis is defined as having primary, secondary, or early non-primary non-secondary (formerly early latent) syphilis.

^bEarly non-primary non-secondary (formerly early latent) syphilis.

^cWomen with a partner of any gender.

^dMSM =Men who report sex with men.

^eMSM/W = Men who report sex with men and women.

^fMSW only = Men who report sex with women only.

Please use caution when interpreting reported numbers less than 10 and the corresponding rates based on these numbers.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 5, 2020 and July 1, 2020).

APPENDIX A: Technical Notes

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.

About the Content of This Report

This document, the *2019 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.

Rates are presented for several categories of race/ethnicity, age group, and gender for each disease. Rates are also presented for counties across the state and are expressed as cases per 100,000 population. Rate denominators were calculated using the available bridged-race population estimates for 2018 from the National Center for Health Statistics. More information about bridged-race categories is available at the website http://www.cdc.gov/nchs/nvss/bridged_race.htm.

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.

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)³⁰. 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

³⁰Centers for Disease Control and Prevention (2010). National Notifiable Disease Surveillance System (NNDSS): *Chlamydia trachomatis* infection 2010 case definition. Retrieved from <https://wwwn.cdc.gov/nndss/conditions/chlamydia-trachomatis-infection/case-definition/2010/>.

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**. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports prior to Q2 2016, chlamydia cases are summarized by **date of report**, so there are slight differences in the case numbers when comparing this report with previous reports.

Determining whether the prevalence of chlamydia infections is changing is difficult because chlamydia reporting is dependent on screening practices. While North Carolina State Laboratory of Public Health screening data from local health department clinic cases provides better data on chlamydia rates, data are unavailable at this time due to data system changes.

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).³¹

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**. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports prior to Q2 2016, gonorrhea cases are summarized by **date of report**, so there are slight differences in the case numbers when comparing this report with other reports.

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. North Carolina State Laboratory of Public Health screening data from local health department clinic cases provides better data on gonorrhea rates. By using these data,

³¹Centers for Disease Control and Prevention (2014). National Notifiable Disease Surveillance System (NNDSS): Gonorrhea (*Neisseria gonorrhoeae*) 2014 case definition. Retrieved from <https://wwwn.cdc.gov/nndss/conditions/gonorrhea/case-definition/2014/>.

we can examine positivity rates over time among stable, screened populations. 2018 data from this source is not available at this time due to data system changes.

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.

During the fourth quarter of 2012, the HIV/STD/Hepatitis Surveillance Unit converted syphilis surveillance data from the Sexually Transmitted Disease Management Information System (STD*MIS) data system to NC EDSS. Reports are summarized by the **date of diagnosis** by the HIV/STD/Hepatitis Surveillance Unit. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports prior to Q2 2016, syphilis cases are summarized by **date of report**, so there are slight differences in the case numbers when comparing this report with other reports.

For more complete case definition of the stages of syphilis, please refer to the CDC’s websites (<https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2014/> and <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/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 2014 case definitions, that cover data through 2017, for all stages of syphilis are summarized below.

2014 Case Definition of Primary Syphilis

- **Confirmed:** *Treponema pallidum* in clinical specimen by dark field microscopy or by PCR or equivalent direct molecular methods 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).³²

³²Centers for Disease Control and Prevention (2014). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2014 case definition. Accessed July 2, 2019. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2014/>.

2014 Case Definition of Secondary Syphilis

- *Confirmed*: *T. pallidum* in clinical specimens by darkfield microscopy or by PCR or equivalent direct molecular methods 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 (VDRL, RPR, or equivalent serologic methods) titer ≥ 4 AND a reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods).³²

2014 Case Definition of Early Latent Syphilis

- *Probable*: No clinical symptoms AND evidence of having acquired the infection within the past 12 months, and has one of the following:
 - No past diagnosis of syphilis AND a 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 current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer.³²

2014 Case Definition of Late Latent Syphilis

- *Probable*: No clinical symptoms AND no evidence of having acquired the infection in the past 12 months, and has one of the following:
 - No past diagnosis of syphilis AND a 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 past history of syphilis therapy and a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer.³²

2014 Case Definition of Late Syphilis with Clinical Manifestations

Clinical manifestations include inflammatory lesions of the cardiovascular system, skin, bone, or other tissue. Late syphilis usually becomes clinically manifest only after a period of 15-30 years of untreated infection. If neurological manifestations of syphilis are present and infection occurred more than 12 months ago, the case should be reported as "late syphilis."³²

- *Confirmed*: Demonstration of *T. pallidum* in late lesions by special stain or equivalent methods, or by PCR or equivalent direct molecular methods.
- *Probable*: Characteristic abnormalities or lesions of the cardiovascular system, skin, bone, or other tissue AND a reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods) in the absence of other known causes. Cerebrospinal fluid abnormalities and clinical symptoms or signs consistent with neurologic manifestations of syphilis might be present.³²

³²Centers for Disease Control and Prevention (2014). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2014 case definition. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2014/>.

2014 Case Definition of Congenital Syphilis

A condition caused by in utero infection with *T. pallidum*. A wide spectrum of severity exists, which includes stillbirth.³²

- *Confirmed*: Demonstration of *T. pallidum* by darkfield microscopy, fluorescent antibody, or other specific stains in specimens from lesions, 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
 - A fluorescent treponemal antibody absorbed -19S-IgM antibody test or IgM enzyme-linked immunosorbent assay.³²

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).³³

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

³² Centers for Disease Control and Prevention (2014). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2014 case definition. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2014/>.

³³Centers for Disease Control and Prevention (2018). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2018 case definition. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2018/>.

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 manifestations can be found on the CDC's website, under "Comments": <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/2018/>.

³³ Centers for Disease Control and Prevention (2018). National Notifiable Disease Surveillance System (NNDSS): Syphilis (*Treponema pallidum*) 2018 case definition. Retrieved from <https://www.cdc.gov/nndss/conditions/syphilis/case-definition/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://www.cdc.gov/nndss/conditions/syphilis/case-definition/2018/>.