



2018 North Carolina STD Surveillance Report

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



Please direct any comments or questions to:

HIV/STD/Hepatitis Surveillance Unit
North Carolina Communicable Disease Branch
1902 Mail Service Center
Raleigh, North Carolina 27699-1902
919-733-7301

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

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**North Carolina
Department of Health and Human Services
Division of Public Health
Epidemiology Section**

Communicable Disease Branch

Nicole Adams, MSc, HIV/Hepatitis Surveillance Epidemiologist
Anna Cope, PhD, MPH, Epidemiologist
Christy Crowley, MPH, Field & Surveillance Liaison
Mara Larson, MPH, Bacterial STD Epidemiologist
Jason Maxwell, BS, HIV/STD Surveillance Data Manager
Erika Samoff, PhD, MPH, HIV/STD/Hepatitis Surveillance Manager
Victoria Mobley, MD, MPH, HIV/STD Medical Director
Jacquelyn Clymore, MS, State HIV/STD/Hepatitis Director
Evelyn Foust, MPH, CPM, Branch Head

State of North Carolina • Roy Cooper, Governor
Department of Health and Human Services • Mandy Cohen, M.D., MPH, Secretary
Division of Public Health • Mark Benton, Assistant Secretary of Public Health
Epidemiology Section • Zack Moore, M.D., MPH, State Epidemiologist

<https://www.ncdhhs.gov/> • <https://www.ncdhhs.gov/divisions/dph>

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Summary

Chlamydia

- The number of chlamydia cases diagnosed in North Carolina in 2018 was 66,763, a rate of 643.0 per 100,000 population, an increase from 62,988 cases in 2017 (rate of 613.3 per 100,000 population).
- Among women, chlamydia diagnoses increased by 21% from 37,584 in 2014 to 45,579 in 2018.
- Among men, chlamydia diagnoses increased 71% from 12,388 in 2014 to 21,184 in 2018; this may in part be due to increased screening among men. Men also increased from 25% to 32% 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 (5,154.2, 4,389.5, and 2,135.6 per 100,000, respectively). Overall, the 15- to 29-year-olds (both men and women) comprised 84.6% of people diagnosed with chlamydia in 2018.
- In 2018, Black/African American men and women had the highest chlamydia rates (702.1 and 1,266.3 per 100,000, respectively) and accounted for 34.5% of people diagnosed with chlamydia.

Gonorrhea

- The reported number of gonorrhea cases in 2018 was 23,593, a rate of 227.2 per 100,000 population, an increase from 22,736 cases in 2017 (rate of 221.4 per 100,000). Gonorrhea cases have been increasing in North Carolina for the past few years. In 2014, there were a total of 14,977 cases reported (150.8 per 100,000).
- Among women, gonorrhea diagnoses increased 42% from 8,079 in 2014 to 11,509 in 2018.
- Among men, gonorrhea diagnoses increased 75% from 6,896 in 2014 to 12,084 in 2018; this may in part be due to increased screening among men. Men also increased from 46% to 51% 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 15- to 19-year-olds, and 25- to 29-year-olds (1,104, 807.6, and 687.1 per 100,000, respectively). The 15- to 29-year-olds (both men and women) comprised 70% of people diagnosed with gonorrhea in 2018.
- In 2018, Black/African American men and women had the highest gonorrhea rates (557.9 and 425.6 per 100,000, respectively) and accounted for 47.5% 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 2018 was 1,914, a rate of 18.4 per 100,000 population. This number is similar to 2017, where there were 1,919 cases diagnosed (rate of 18.7 per 100,000).
- There were 19 infants reported with congenital syphilis (18 probable and 1 still birth) in 2018. This number is a slight decrease from the 23 probable congenital syphilis cases reported in 2017.
- Early syphilis cases did increase among females in 2018. There were 310 early syphilis cases (5.8 per 100,000) in 2018, compared to 250 cases in 2017 (4.7 per 100,000).
- The highest rates of newly diagnosed early syphilis occurred in 20- to 24-year-olds (rate of 51.0 per 100,000) and 25- to 29-year-olds (63.3 per 100,000). Cases in these age groups comprised 43.0% of the total early syphilis cases in 2018.
- Black/African American men had the highest rates of early syphilis (89.7 per 100,000) and accounted for 50.3% of total early syphilis cases in 2018.
- Men who report sex with men (MSM) accounted for 54.8% of newly diagnosed early syphilis in North Carolina in 2018.

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 the 2018 data 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 2018. The majority of STDs reported were chlamydia, gonorrhea, and syphilis.

Table A. North Carolina Reportable Bacterial Sexually Transmitted Diseases (STDs) by Gender, 2018

Bacterial STDs	Gender		Total*
	Men	Women	
Chlamydia	21,184	45,579	66,763
Gonorrhea	12,084	11,509	23,593
Syphilis			
Primary Syphilis	306	51	357
Secondary Syphilis	633	109	742
Early Non-Primary, Non-Secondary	665	150	815
Late or Unknown duration Syphilis	753	326	1,079
Congenital Syphilis [^]	--	--	19
Nongonococcal urethritis (NGU)	4,313	--	4,313
Pelvic inflammatory disease (PID)	--	215	215
Chancroid	0	0	0
Granuloma Inguinale	0	0	0
Lymphogranuloma venereum	0	0	0
Total	39,938	57,939	97,877

*Total includes cases with missing gender for congenital syphilis (N= 19).

[^]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 1, 2019).

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

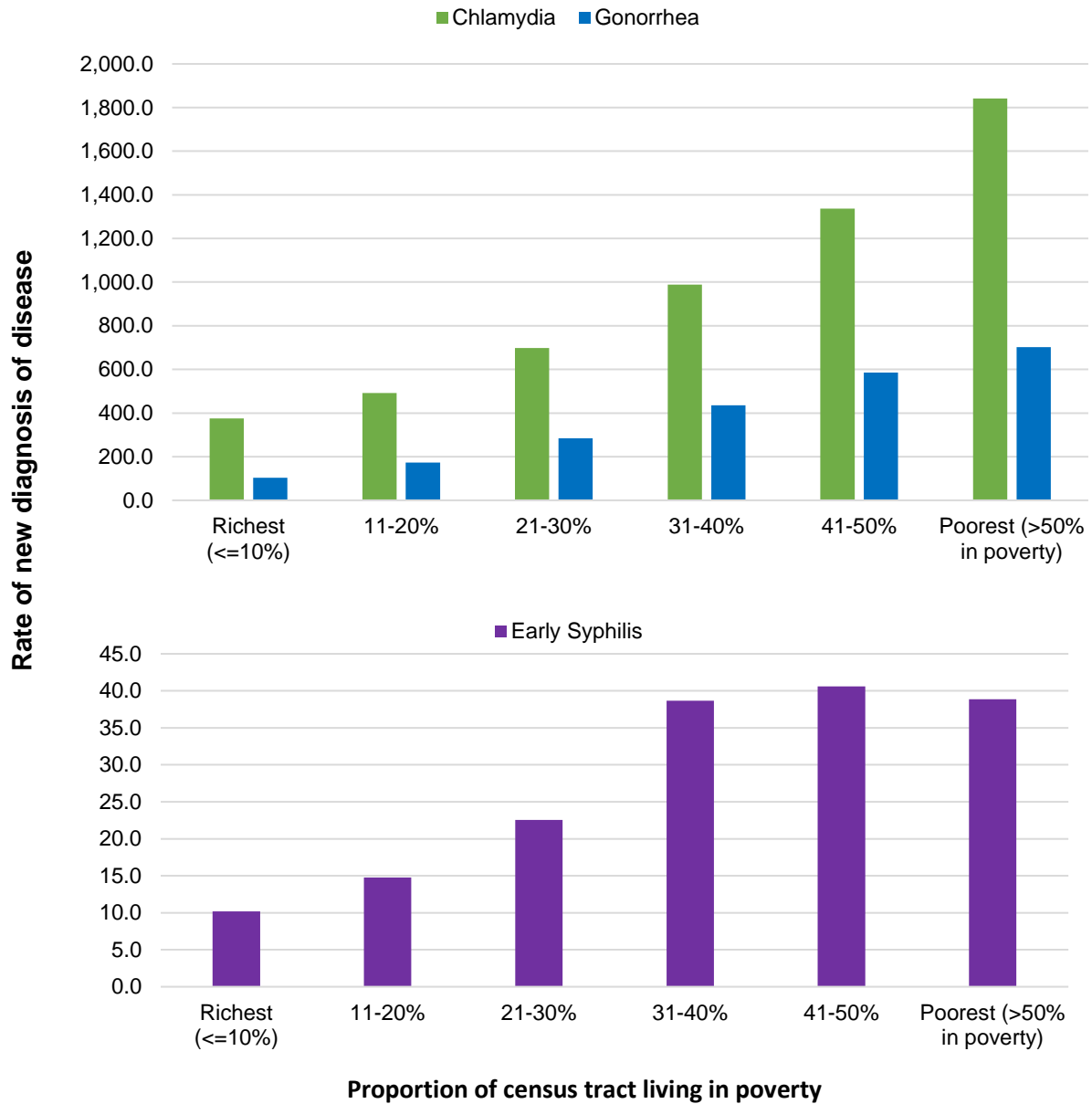
While the North Carolina surveillance data shows higher STD rates in some racial and ethnic groups, factors such as poverty and large gaps in wealth distribution may be driving these differences.²⁹ People who cannot afford basic needs may also have trouble accessing quality sexual health services, and 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 2018, 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 (2013-2017) 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 2018 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*, 2018

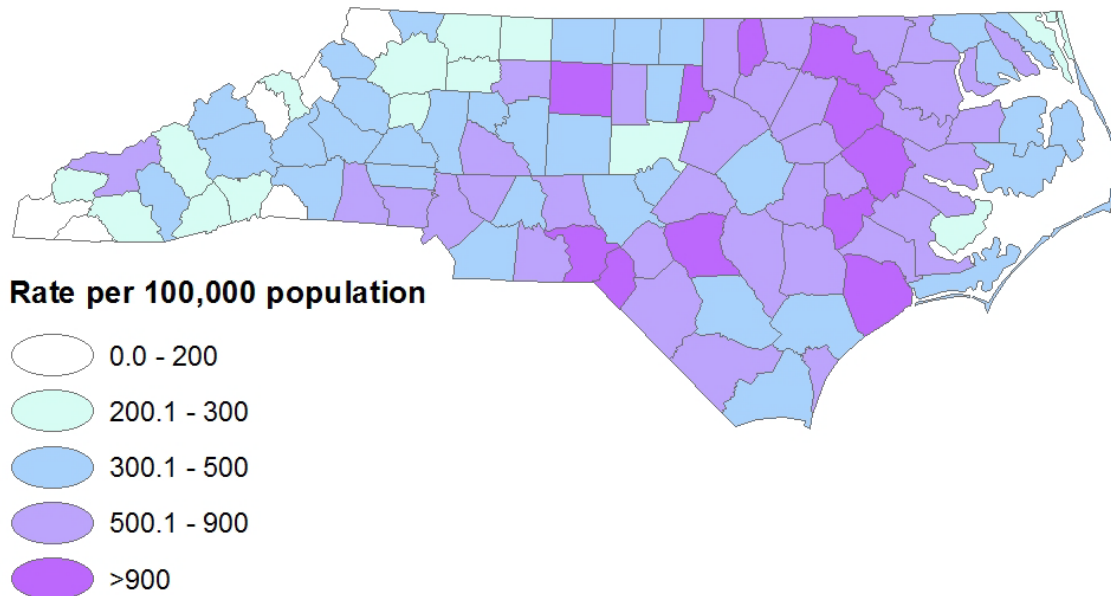


*Estimates of people living below the poverty line within a census tract and all population estimates obtained from the American Community Survey, 2013-2017 5-year estimate.

Data Sources: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019), and 2013-2017 American Community Survey (ACS) 5-year estimates (accessed from <https://www.census.gov/programs-surveys/acs/>).

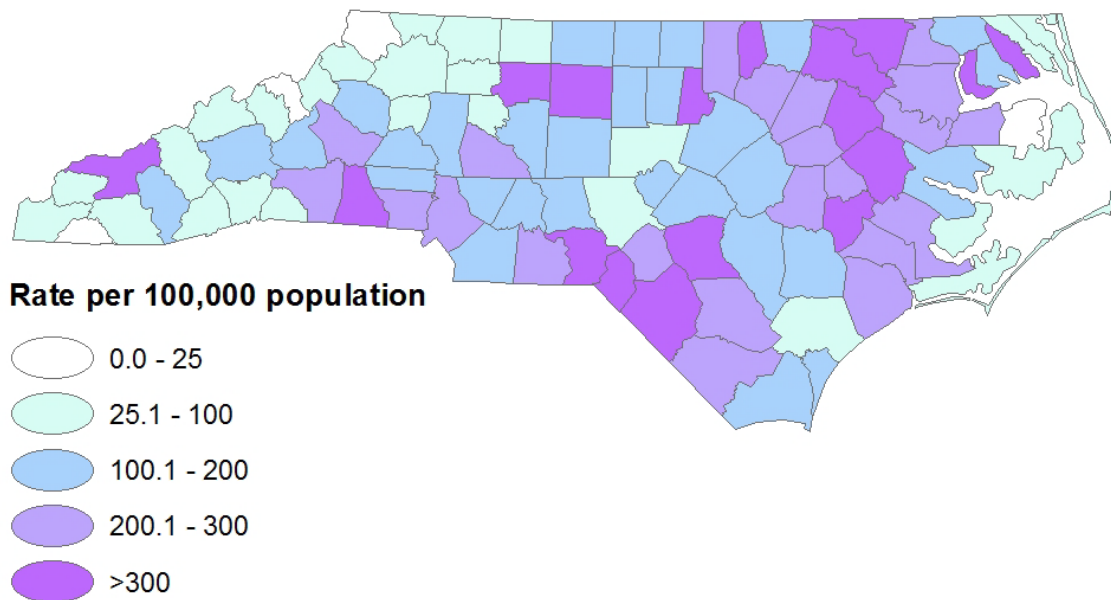
Chlamydia, Gonorrhea, and Syphilis Annual Rate Maps by County of Residence at Diagnosis, 2018

Figure 2. Newly Diagnosed Chlamydia Rates in North Carolina by County of Residence at Diagnosis, 2018



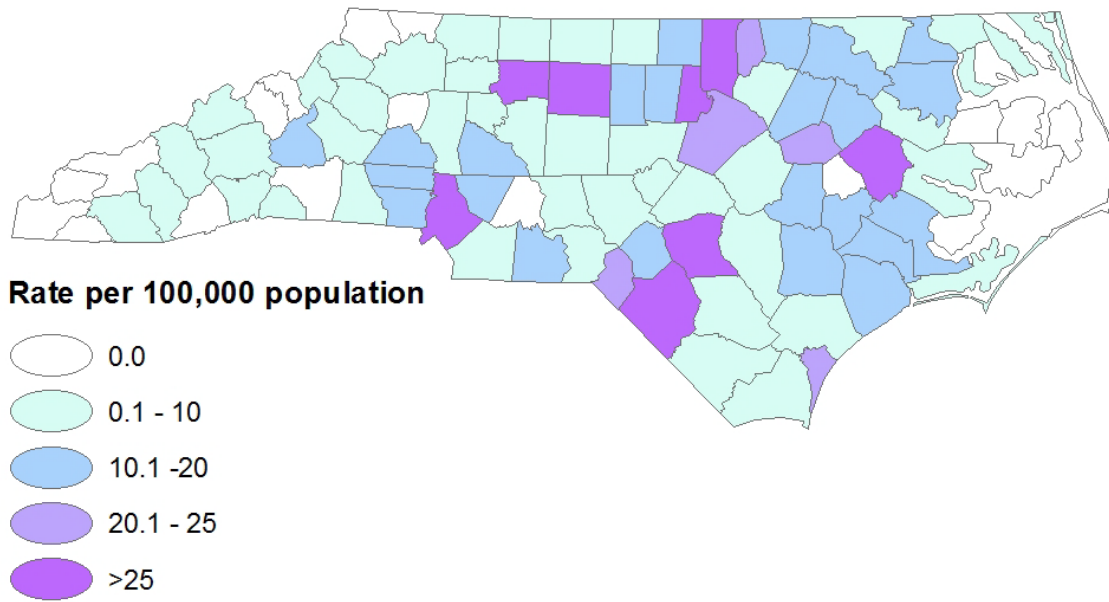
Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

Figure 3. Newly Diagnosed Gonorrhea Rates in North Carolina by County of Residence at Diagnosis, 2018



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

Figure 4. Newly Diagnosed Early Syphilis (Primary, Secondary, and Early Non-Primary Non-Secondary) Rates in North Carolina by County of Residence at Diagnosis, 2018



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

County Totals and Rates for Chlamydia, Gonorrhea, and Syphilis 2018

Table 1. Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018 2

Table 2. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018 5

Table 3. Newly Diagnosed Early Syphilis (Primary, Secondary, and Early Latent) Annual Rates in North Carolina by Rank Order, and Year of Diagnosis, 2017-2018..... 8

Table 4. Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2018..... 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, 2014-2018..... 14

Table 1. Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Alamance	727	467.7	802	510.5	835	520.6	905	553.4	936	562.4
Alexander	79	213.6	62	167.7	90	242.3	67	180.4	75	200.8
Alleghany	17	156.0	19	174.9	14	128.1	27	244.9	38	340.5
Anson	177	681.5	171	667.4	174	691.0	166	667.3	181	727.6
Ashe	20	74.7	25	93.9	43	161.6	41	153.0	40	147.6
Avery	8	45.4	12	68.7	32	183.7	33	188.5	30	171.4
Beaufort	232	490.2	230	485.4	254	536.2	254	539.8	290	616.0
Bertie	124	610.2	161	798.3	130	669.0	154	799.0	164	862.0
Bladen	191	555.5	150	439.4	182	540.0	166	496.0	144	433.9
Brunswick	250	211.3	316	258.6	351	277.9	400	306.0	443	324.0
Buncombe	808	324.3	872	346.1	998	391.4	1,104	429.3	1,139	439.6
Burke	201	225.1	269	301.2	285	318.7	333	369.5	356	393.9
Cabarrus	769	401.6	814	414.9	922	457.6	976	472.1	1,135	537.0
Caldwell	184	225.3	199	244.1	210	256.8	240	293.0	289	352.3
Camden	29	282.2	21	204.2	23	221.1	24	227.3	38	354.8
Carteret	186	271.0	227	330.4	194	281.9	225	326.5	241	346.6
Caswell	66	289.3	106	464.5	92	404.1	122	539.1	98	431.8
Catawba	516	332.6	499	320.8	585	373.9	623	394.8	656	413.5
Chatham	162	243.0	185	271.0	158	226.9	195	273.7	212	289.9
Cherokee	36	133.0	28	103.3	38	136.7	42	150.1	52	183.2
Chowan	90	620.5	80	561.4	87	612.6	101	719.4	95	677.2
Clay	17	161.0	10	94.2	14	130.3	18	163.6	22	197.5
Cleveland	447	460.7	489	504.7	508	523.6	567	583.2	665	681.0
Columbus	232	407.9	285	502.9	314	557.9	310	553.7	298	535.4
Craven	644	618.8	701	681.2	729	709.4	815	793.2	819	795.8
Cumberland	3,133	942.6	3,133	945.7	3,368	1,010.5	3,656	1,103.7	4,062	1,222.3
Currituck	68	274.0	75	298.7	67	261.2	61	231.7	77	284.4
Dare	88	252.2	98	276.6	69	192.9	108	299.0	112	306.8
Davidson	501	306.6	637	389.4	681	414.2	666	402.9	692	415.3
Davie	115	278.7	105	252.1	131	312.4	137	323.3	131	306.6
Duplin	225	378.5	225	382.1	218	367.9	275	467.2	322	547.1
Durham	2,160	731.7	2,284	759.4	2,428	789.1	2,741	878.8	2,863	903.9
Edgecombe	556	1,013.2	584	1,086.6	497	932.9	503	953.4	522	1,003.7
Forsyth	2,424	665.0	2,485	676.5	2,631	708.9	2,534	674.4	2,848	751.3
Franklin	266	424.3	253	397.6	271	419.5	330	499.8	348	515.1
Gaston	1,167	554.2	1,155	542.3	1,282	591.6	1,384	629.6	1,577	707.7
Gates	41	352.5	44	381.6	45	389.0	46	399.5	39	337.0
Graham	20	231.9	17	197.7	17	198.9	21	246.1	17	200.4
Granville	314	541.4	392	673.7	487	829.7	477	803.4	459	763.5
Greene	97	461.5	135	644.3	157	744.8	147	700.7	169	804.3
Guilford	3,565	695.9	4,137	799.6	4,611	878.2	4,992	942.8	5,161	967.1

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 1, 2019).

Table 1 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Halifax	422	798.7	415	795.4	370	714.1	419	817.1	492	972.8
Harnett	486	383.6	558	435.8	606	463.9	694	524.8	760	566.3
Haywood	109	184.3	131	219.7	133	220.2	139	227.7	169	272.7
Henderson	224	203.1	205	183.2	286	251.5	326	282.4	337	288.7
Hertford	186	756.7	210	861.4	166	685.5	155	647.8	194	820.0
Hoke	265	513.7	326	618.3	353	666.4	388	716.6	400	730.4
Hyde	8	142.9	23	423.7	17	312.5	24	455.7	18	344.2
Iredell	491	294.9	583	344.0	612	354.7	768	437.3	729	408.6
Jackson	122	298.2	136	329.4	154	361.7	206	476.9	205	473.1
Johnston	498	275.5	715	386.2	728	381.4	838	426.6	883	435.7
Jones	27	274.1	37	378.1	41	427.0	61	635.3	49	508.5
Lee	273	459.4	276	464.3	333	557.4	327	539.9	286	465.4
Lenoir	396	679.7	372	641.4	449	784.1	474	836.8	541	966.5
Lincoln	195	245.5	253	314.1	226	278.6	257	312.0	324	386.8
Macon	84	248.4	80	234.8	70	204.4	98	283.0	101	286.2
Madison	36	169.9	55	260.2	56	262.2	53	245.6	71	326.2
Martin	114	486.4	124	533.1	131	566.6	144	632.2	170	749.9
McDowell	115	255.5	157	349.1	164	365.4	177	391.9	146	320.8
Mecklenburg	6,948	687.6	7,889	763.5	7,984	755.6	8,837	820.3	9,205	841.5
Mitchell	15	98.9	13	86.3	35	233.5	33	220.3	36	240.0
Montgomery	106	388.4	112	407.9	125	457.5	156	570.4	141	517.0
Moore	283	304.9	304	323.4	343	359.6	327	336.3	391	396.2
Nash	608	645.3	603	642.8	645	686.4	641	681.8	680	723.3
New Hanover	1,000	463.0	1,114	507.7	1,171	520.9	1,259	550.6	1,216	523.5
Northampton	144	697.0	128	623.2	114	566.0	130	652.8	176	894.5
Onslow	1,244	648.5	1,521	787.9	1,742	906.4	1,782	914.6	2,093	1,058.8
Orange	530	377.7	636	449.9	692	483.9	779	541.1	690	472.5
Pamlico	42	326.2	19	149.1	21	164.5	43	339.8	33	260.5
Pasquotank	232	588.2	275	697.8	279	707.6	328	830.9	323	814.9
Pender	153	273.7	151	262.8	198	336.7	225	370.3	205	329.8
Perquimans	48	354.6	38	282.2	53	395.3	76	564.6	60	447.0
Person	161	411.5	198	505.0	210	534.4	240	609.2	177	448.0
Pitt	1,608	918.9	1,703	967.1	1,910	1,077.7	2,097	1,174.0	2,050	1,139.4
Polk	31	152.2	20	98.0	40	196.2	47	229.1	37	179.5
Randolph	459	322.1	416	291.7	420	293.4	469	327.6	509	355.1
Richmond	334	729.6	367	807.7	372	826.3	438	977.1	407	906.7
Robeson	1,037	768.5	1,107	823.3	1,222	916.2	1,269	957.1	1,156	876.9
Rockingham	258	281.0	290	316.3	377	412.7	354	389.7	419	462.0
Rowan	741	536.4	760	548.4	736	527.6	928	660.3	951	673.2
Rutherford	185	277.9	188	283.2	223	336.3	244	366.5	284	425.0

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 1, 2019).

Table 1 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Sampson	266	416.8	285	448.1	327	516.4	282	444.6	323	507.7
Scotland	312	874.8	284	803.8	304	860.4	313	889.9	314	902.0
Stanly	196	323.3	224	369.4	248	407.9	239	388.9	268	431.7
Stokes	133	287.1	120	260.0	118	257.2	101	221.0	115	252.9
Surry	158	218.0	167	232.0	185	257.1	213	295.3	207	287.7
Swain	60	421.3	113	788.7	109	768.0	88	616.9	118	828.4
Transylvania	94	285.2	65	196.0	62	185.6	71	209.9	77	225.0
Tyrrell	17	412.6	9	217.5	16	397.5	16	382.5	18	435.7
Union	635	291.6	775	349.1	806	356.0	816	352.6	988	418.8
Vance	484	1,086.7	452	1,016.2	492	1,105.6	471	1,062.9	491	1,101.3
Wake	4,557	456.7	4,967	485.8	5,524	526.9	6,093	568.4	6,500	595.1
Warren	140	686.8	131	648.1	123	618.3	109	548.6	123	621.0
Washington	66	528.2	81	659.5	84	693.0	83	690.6	90	758.9
Watauga	132	251.9	175	329.8	203	375.3	268	486.5	274	489.8
Wayne	758	608.2	789	634.1	831	667.7	796	645.8	918	744.8
Wilkes	156	228.0	167	244.5	153	223.2	176	257.1	184	268.4
Wilson	536	661.7	485	596.7	468	575.2	516	632.6	666	817.6
Yadkin	73	192.9	80	212.6	76	201.8	72	191.3	86	229.1
Yancey	33	188.1	21	119.6	24	136.2	29	163.7	34	189.9
North Carolina	49,976	503.1	54,390	542.1	58,182	572.8	62,988	613.3	66,763	643.0

*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 1, 2019).

Table 2. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Alamance	301	193.7	321	204.3	378	235.7	274	167.6	262	157.4
Alexander	12	32.4	5	13.5	15	40.4	26	70.0	21	56.2
Alleghany	1	9.2	0	0.0	1	9.2	2	18.1	6	53.8
Anson	70	269.5	96	374.7	99	393.1	62	249.2	69	277.4
Ashe	1	3.7	0	0.0	6	22.5	4	14.9	6	22.1
Avery	1	5.7	1	5.7	6	34.4	5	28.6	7	40.0
Beaufort	42	88.7	60	126.6	60	126.7	77	163.7	75	159.3
Bertie	41	201.8	59	292.6	39	200.7	48	249.0	51	268.1
Bladen	57	165.8	44	128.9	76	225.5	91	271.9	75	226.0
Brunswick	82	69.3	112	91.6	136	107.7	135	103.3	170	124.3
Buncombe	246	98.7	300	119.1	252	98.8	452	175.7	402	155.2
Burke	22	24.6	40	44.8	69	77.1	165	183.1	188	208.0
Cabarrus	165	86.2	159	81.0	251	124.6	256	123.8	326	154.3
Caldwell	27	33.1	23	28.2	57	69.7	105	128.2	149	181.6
Camden	4	38.9	3	29.2	3	28.8	7	66.3	9	84.0
Carteret	23	33.5	40	58.2	44	63.9	41	59.5	39	56.1
Caswell	20	87.7	34	149.0	38	166.9	39	172.3	27	119.0
Catawba	105	67.7	127	81.6	123	78.6	294	186.3	267	168.3
Chatham	32	48.0	53	77.6	39	56.0	56	78.6	40	54.7
Cherokee	3	11.1	6	22.1	8	28.8	13	46.5	19	66.9
Chowan	20	137.9	7	49.1	27	190.1	37	263.5	47	335.0
Clay	5	47.3	1	9.4	2	18.6	1	9.1	2	18.0
Cleveland	125	128.8	152	156.9	253	260.8	349	359.0	414	424.0
Columbus	87	153.0	94	165.9	100	177.7	216	385.8	132	237.2
Craven	129	123.9	169	164.2	226	219.9	185	180.0	229	222.5
Cumberland	1,116	335.8	1,015	306.4	1,249	374.7	1,485	448.3	1,488	447.7
Currituck	7	28.2	9	35.8	10	39.0	15	57.0	21	77.6
Dare	8	22.9	28	79.0	9	25.2	27	74.8	20	54.8
Davidson	133	81.4	248	151.6	285	173.4	282	170.6	293	175.9
Davie	31	75.1	26	62.4	39	93.0	46	108.6	39	91.3
Duplin	43	72.3	77	130.7	84	141.7	89	151.2	95	161.4
Durham	752	254.7	739	245.7	959	311.7	1,073	344.0	1,107	349.5
Edgecombe	197	359.0	200	372.1	187	351.0	237	449.2	278	534.6
Forsyth	937	257.0	1,046	284.7	1,051	283.2	966	257.1	1,170	308.6
Franklin	95	151.5	87	136.7	68	105.3	127	192.3	155	229.4
Gaston	282	133.9	299	140.4	476	219.6	534	242.9	657	294.8
Gates	6	51.6	12	104.1	20	172.9	13	112.9	14	121.0
Graham	4	46.4	2	23.3	1	11.7	3	35.2	5	58.9
Granville	69	119.0	96	165.0	105	178.9	133	224.0	137	227.9
Greene	32	152.3	43	205.2	46	218.2	49	233.6	53	252.2
Guilford	1,273	248.5	1,656	320.1	1,770	337.1	1,917	362.0	1,969	369.0

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 1, 2019).

Table 2 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Halifax	87	164.7	179	343.1	109	210.4	163	317.9	180	355.9
Harnett	105	82.9	147	114.8	163	124.8	193	146.0	244	181.8
Haywood	26	44.0	25	41.9	14	23.2	42	68.8	51	82.3
Henderson	45	40.8	52	46.5	57	50.1	102	88.3	106	90.8
Hertford	38	154.6	48	196.9	40	165.2	46	192.3	67	283.2
Hoke	92	178.3	140	265.5	151	285.1	158	291.8	151	275.7
Hyde	0	0.0	4	73.7	2	36.8	6	113.9	3	57.4
Iredell	113	67.9	148	87.3	152	88.1	364	207.3	222	124.4
Jackson	44	107.6	31	75.1	24	56.4	83	192.2	65	150.0
Johnston	115	63.6	196	105.9	201	105.3	261	132.9	245	120.9
Jones	12	121.8	20	204.4	18	187.5	19	197.9	20	207.5
Lee	57	95.9	80	134.6	144	241.1	98	161.8	79	128.6
Lenoir	155	266.0	162	279.3	157	274.2	202	356.6	235	419.8
Lincoln	33	41.6	41	50.9	59	72.7	76	92.3	98	117.0
Macon	13	38.4	14	41.1	13	38.0	14	40.4	32	90.7
Madison	9	42.5	10	47.3	5	23.4	15	69.5	16	73.5
Martin	31	132.3	25	107.5	33	142.7	32	140.5	62	273.5
McDowell	13	28.9	31	68.9	34	75.8	100	221.4	70	153.8
Mecklenburg	2,392	236.7	2,575	249.2	2,782	263.3	3,190	296.1	3,193	291.9
Mitchell	1	6.6	0	0.0	11	73.4	7	46.7	2	13.3
Montgomery	33	120.9	25	91.1	43	157.4	34	124.3	30	110.0
Moore	70	75.4	59	62.8	94	98.5	89	91.5	81	82.1
Nash	192	203.8	243	259.0	223	237.3	307	326.6	282	299.9
New Hanover	357	165.3	360	164.1	476	211.8	408	178.4	387	166.6
Northampton	41	198.5	43	209.4	37	183.7	72	361.6	65	330.4
Onslow	239	124.6	225	116.6	306	159.2	379	194.5	519	262.5
Orange	122	86.9	184	130.1	175	122.4	229	159.1	189	129.4
Pamlico	12	93.2	5	39.2	10	78.3	12	94.8	6	47.4
Pasquotank	60	152.1	62	157.3	60	152.2	88	222.9	128	322.9
Pender	55	98.4	53	92.2	72	122.4	46	75.7	58	93.3
Perquimans	19	140.3	8	59.4	16	119.3	13	96.6	23	171.4
Person	47	120.1	61	155.6	79	201.0	75	190.4	49	124.0
Pitt	404	230.9	565	320.8	662	373.5	687	384.6	645	358.5
Polk	6	29.5	2	9.8	9	44.1	12	58.5	9	43.7
Randolph	114	80.0	156	109.4	184	128.5	153	106.9	177	123.5
Richmond	59	128.9	99	217.9	105	233.2	114	254.3	174	387.6
Robeson	372	275.7	360	267.7	517	387.6	591	445.7	507	384.6
Rockingham	93	101.3	101	110.2	174	190.5	180	198.1	144	158.8
Rowan	224	162.2	169	121.9	203	145.5	255	181.4	346	244.9
Rutherford	66	99.1	44	66.3	83	125.2	153	229.8	179	267.9

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 1, 2019).

Table 2 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014		2015		2016		2017		2018	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Sampson	71	111.3	88	138.4	129	203.7	98	154.5	107	168.2
Scotland	107	300.0	73	206.6	89	251.9	156	443.5	155	445.3
Stanly	41	67.6	45	74.2	70	115.1	59	96.0	70	112.8
Stokes	15	32.4	15	32.5	32	69.7	25	54.7	40	88.0
Surry	18	24.8	15	20.8	34	47.2	46	63.8	43	59.8
Swain	24	168.5	24	167.5	24	169.1	36	252.3	50	351.0
Transylvania	19	57.7	13	39.2	7	21.0	15	44.3	24	70.1
Tyrrell	2	48.5	1	24.2	0	0.0	4	95.6	1	24.2
Union	119	54.7	210	94.6	267	117.9	203	87.7	286	121.2
Vance	187	419.9	143	321.5	219	492.1	255	575.5	266	596.7
Wake	1,262	126.5	1,453	142.1	1,626	155.1	2,081	194.1	2,147	196.6
Warren	26	127.5	23	113.8	34	170.9	35	176.2	38	191.9
Washington	21	168.1	16	130.3	16	132.0	20	166.4	26	219.2
Watauga	18	34.4	18	33.9	28	51.8	22	39.9	35	62.6
Wayne	246	197.4	358	287.7	384	308.6	337	273.4	314	254.8
Wilkes	15	21.9	8	11.7	27	39.4	48	70.1	52	75.8
Wilson	199	245.7	293	360.5	230	282.7	259	317.5	240	294.6
Yadkin	13	34.3	14	37.2	17	45.1	24	63.8	19	50.6
Yancey	2	11.4	2	11.4	2	11.4	9	50.8	8	44.7
North Carolina	14,977	150.8	17,053	170.0	19,599	193.0	22,736	221.4	23,593	227.2

*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 1, 2019).

Table 3. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Rank Order^b, and Year of Diagnosis, 2016-2018

Rank ^b	County	2016 Cases	2016 Rate ^c	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2016-2018 Average Rate ^b
1	Durham	122	39.6	124	39.8	176	55.6	45.0
2	Mecklenburg	499	47.2	460	42.7	425	38.9	42.9
3	Guilford	171	32.6	185	34.9	151	28.3	31.9
4	Cumberland	79	23.7	79	23.8	117	35.2	27.6
5	Edgecombe	16	30.0	17	32.2	6	11.5	24.6
6	Nash	33	35.1	19	20.2	15	16.0	23.8
7	Forsyth	84	22.6	82	21.8	100	26.4	23.6
8	Pitt	47	26.5	30	16.8	49	27.2	23.5
9	Wake	251	23.9	250	23.3	252	23.1	23.4
10	Wilson	14	17.2	19	23.3	19	23.3	21.3
11	Robeson	26	19.5	23	17.3	34	25.8	20.9
12	Vance	13	29.2	5	11.3	9	20.2	20.2
13	Northampton	8	39.7	3	15.1	1	5.1	20.0
14	Alamance	47	29.3	22	13.5	27	16.2	19.7
15	Granville	10	17.0	8	13.5	16	26.6	19.0
16	Scotland	9	25.5	3	8.5	7	20.1	18.0
17	Gaston	40	18.5	36	16.4	41	18.4	17.7
18	Lenoir	15	26.2	5	8.8	10	17.9	17.6
19	Jones	2	20.8	2	20.8	1	10.4	17.3
20	New Hanover	13	5.8	52	22.7	50	21.5	16.7
21	Halifax	7	13.5	10	19.5	8	15.8	16.3
22	Anson	4	15.9	3	12.1	4	16.1	14.7
23	Buncombe	37	14.5	46	17.9	26	10.0	14.1
24	Bertie	2	10.3	3	15.6	3	15.8	13.9
25	Wayne	20	16.1	16	13.0	14	11.4	13.5
26	Hoke	4	7.6	9	16.6	8	14.6	12.9
27	Person	4	10.2	5	12.7	6	15.2	12.7
28	Catawba	9	5.8	19	12.0	28	17.6	11.8
29	Onslow	18	9.4	23	11.8	28	14.2	11.8
30	Craven	10	9.7	10	9.7	16	15.5	11.7
31	Martin	3	13.0	3	13.2	2	8.8	11.7
32	Rowan	15	10.8	18	12.8	16	11.3	11.6
33	Hertford	2	8.3	3	12.5	3	12.7	11.2
34	Sampson	6	9.5	9	14.2	6	9.4	11.0
35	Haywood	8	13.2	9	14.7	3	4.8	10.9
36	Cabarrus	17	8.4	23	11.1	25	11.8	10.5
37	Orange	11	7.7	15	10.4	17	11.6	9.9
38	Montgomery	3	11.0	4	14.6	1	3.7	9.8
39	Johnston	21	11.0	18	9.2	18	8.9	9.7
40	Rockingham	7	7.7	13	14.3	6	6.6	9.5
41	Columbus	3	5.3	11	19.6	2	3.6	9.5
42	Jackson	7	16.4	3	6.9	2	4.6	9.3

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 1, 2019).

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, 2016-2018

Rank ^b	County	2016 Cases	2016 Rate ^c	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2016-2018 Average Rate ^b
43	Lincoln	10	12.3	4	4.9	9	10.7	9.3
44	Burke	7	7.8	15	16.6	2	2.2	8.9
45	McDowell	4	8.9	2	4.4	6	13.2	8.8
46	Caswell	3	13.2	1	4.4	2	8.8	8.8
47	Union	16	7.1	30	13.0	15	6.4	8.8
48	Washington	2	16.5	1	8.3	0	0.0	8.3
49	Pender	4	6.8	7	11.5	4	6.4	8.3
50	Richmond	6	13.3	3	6.7	2	4.5	8.2
51	Greene	3	14.2	2	9.5	0	0.0	7.9
52	Duplin	3	5.1	4	6.8	7	11.9	7.9
53	Henderson	8	7.0	14	12.1	5	4.3	7.8
54	Iredell	10	5.8	15	8.5	16	9.0	7.8
55	Lee	7	11.7	4	6.6	3	4.9	7.7
56	Pasquotank	3	7.6	3	7.6	3	7.6	7.6
57	Harnett	10	7.7	8	6.1	12	8.9	7.5
58	Cleveland	6	6.2	8	8.2	8	8.2	7.5
59	Beaufort	6	12.7	1	2.1	3	6.4	7.1
60	Bladen	0	0.0	4	12.0	3	9.0	7.0
61	Randolph	12	8.4	11	7.7	7	4.9	7.0
62	Brunswick	7	5.5	13	9.9	7	5.1	6.9
63	Davidson	11	6.7	15	9.1	8	4.8	6.9
64	Warren	1	5.0	1	5.0	2	10.1	6.7
65	Caldwell	4	4.9	6	7.3	6	7.3	6.5
66	Hyde	0	0.0	1	19.0	0	0.0	6.3
67	Madison	2	9.4	0	0.0	2	9.2	6.2
68	Surry	4	5.6	4	5.5	5	6.9	6.0
69	Stanly	3	4.9	8	13.0	0	0.0	6.0
70	Macon	1	2.9	2	5.8	3	8.5	5.7
71	Davie	2	4.8	2	4.7	3	7.0	5.5
72	Chatham	5	7.2	4	5.6	2	2.7	5.2
73	Polk	0	0.0	1	4.9	2	9.7	4.9
74	Chowan	0	0.0	1	7.1	1	7.1	4.8
75	Rutherford	4	6.0	5	7.5	0	0.0	4.5
76	Franklin	2	3.1	2	3.0	5	7.4	4.5
77	Watauga	2	3.7	3	5.4	2	3.6	4.2
78	Transylvania	2	6.0	2	5.9	0	0.0	4.0
79	Currituck	0	0.0	2	7.6	1	3.7	3.8

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 1, 2019).

Table 3 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Rank Order^b, and Year of Diagnosis, 2016-2018

Rank ^b	County	2016 Cases	2016 Rate ^c	2017 Cases	2017 Rate ^c	2018 Cases	2018 Rate ^c	2016-2018 Average Rate ^b
80	Yadkin	2	5.3	1	2.7	1	2.7	3.5
81	Moore	4	4.2	4	4.1	2	2.0	3.4
82	Gates	0	0.0	0	0.0	1	8.6	2.9
83	Dare	2	5.6	1	2.8	0	0.0	2.8
84	Pamlico	1	7.8	0	0.0	0	0.0	2.6
85	Wilkes	1	1.5	2	2.9	2	2.9	2.4
86	Carteret	2	2.9	1	1.5	2	2.9	2.4
87	Swain	1	7.0	0	0.0	0	0.0	2.3
88	Mitchell	0	0.0	1	6.7	0	0.0	2.2
89	Stokes	1	2.2	1	2.2	1	2.2	2.2
90	Avery	0	0.0	0	0.0	1	5.7	1.9
91	Yancey	0	0.0	1	5.6	0	0.0	1.9
92	Alexander	1	2.7	1	2.7	0	0.0	1.8
93	Ashe	1	3.8	0	0.0	0	0.0	1.3
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	Cherokee	0	0.0	0	0.0	0	0.0	0.0
94	Clay	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	Tyrrell	0	0.0	0	0.0	0	0.0	0.0
N/A	NORTH CAROLINA	1,903	18.7	1,919	18.7	1,914	18.4	18.6

^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 1, 2019).

Table 4. Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2018

County	Primary, Secondary, and Early ^a		Unknown Duration, or Late ^b		Total	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Alamance	27	16.2	9	5.4	36	21.6
Alexander	0	0.0	2	5.4	2	5.4
Alleghany	0	0.0	1	9.0	1	9.0
Anson	4	16.1	4	16.1	8	32.2
Ashe	0	0.0	0	0.0	0	0.0
Avery	1	5.7	0	0.0	1	5.7
Beaufort	3	6.4	1	2.1	4	8.5
Bertie	3	15.8	3	15.8	6	31.5
Bladen	3	9.0	3	9.0	6	18.1
Brunswick	7	5.1	3	2.2	10	7.3
Buncombe	26	10.0	16	6.2	42	16.2
Burke	2	2.2	5	5.5	7	7.7
Cabarrus	25	11.8	9	4.3	34	16.1
Caldwell	6	7.3	4	4.9	10	12.2
Camden	0	0.0	2	18.7	2	18.7
Carteret	2	2.9	2	2.9	4	5.8
Caswell	2	8.8	3	13.2	5	22.0
Catawba	28	17.6	5	3.2	33	20.8
Chatham	2	1.3	4	5.5	6	8.2
Cherokee	0	0.0	0	0.0	0	0.0
Chowan	1	7.1	0	0.0	1	7.1
Clay	0	0.0	0	0.0	0	0.0
Cleveland	8	8.2	2	2.0	10	10.2
Columbus	2	3.6	2	3.6	4	7.2
Craven	16	15.5	15	14.6	31	30.1
Cumberland	117	35.2	71	21.4	188	56.6
Currituck	1	3.7	0	0.0	1	3.7
Dare	0	0.0	3	8.2	3	8.2
Davidson	8	4.8	12	7.2	20	12.0
Davie	3	7.0	2	4.7	5	11.7
Duplin	7	11.9	5	8.5	12	20.4
Durham	176	55.6	98	30.9	274	86.5
Edgecombe	6	11.5	12	23.1	18	34.6
Forsyth	100	26.4	41	10.8	141	37.2
Franklin	5	7.4	4	5.9	9	13.3
Gaston	41	18.4	19	8.5	60	26.9
Gates	1	8.6	2	17.3	3	25.9
Graham	0	0.0	0	0.0	0	0.0
Granville	16	26.6	7	11.6	23	38.3
Greene	0	0.0	2	9.5	2	9.5
Guilford	151	28.3	71	13.3	222	41.6

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 1, 2019).

Table 4 (Continued). Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2018

County	Primary, Secondary, and Early ^a		Unknown Duration, or Late ^b		Total	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Halifax	8	15.8	6	11.9	14	27.7
Harnett	12	8.9	5	3.7	17	12.7
Haywood	3	4.8	2	3.2	5	8.1
Henderson	5	4.3	4	3.4	9	7.7
Hertford	3	12.7	10	42.3	13	54.9
Hoke	8	14.6	9	16.4	17	31.0
Hyde	0	0.0	0	0.0	0	0.0
Iredell	16	9.0	6	3.4	22	12.3
Jackson	2	4.6	1	2.3	3	6.9
Johnston	18	8.9	13	6.4	31	15.3
Jones	1	10.4	0	0.0	1	10.4
Lee	3	4.9	3	4.9	6	9.8
Lenoir	10	17.9	6	10.7	16	28.6
Lincoln	9	10.7	2	2.4	11	13.1
Macon	3	8.5	1	2.8	4	11.3
Madison	2	9.2	1	4.6	3	13.8
Martin	2	8.8	1	4.4	3	13.2
McDowell	6	13.2	1	2.2	7	15.4
Mecklenburg	425	38.9	184	16.8	609	55.7
Mitchell	0	0.0	1	6.7	1	6.7
Montgomery	1	3.7	2	7.3	3	11.0
Moore	2	2.0	5	5.1	7	7.1
Nash	15	16.0	9	9.6	24	25.5
New Hanover	50	21.5	23	9.9	73	31.4
Northampton	1	5.1	3	15.2	4	20.3
Onslow	28	14.2	14	7.1	42	21.2
Orange	17	11.6	14	9.6	31	21.2
Pamlico	0	0.0	0	0.0	0	0.0
Pasquotank	3	7.6	6	15.1	9	22.7
Pender	4	6.4	1	1.6	5	8.0
Perquimans	0	0.0	0	0.0	0	0.0
Person	6	15.2	5	12.7	11	27.8
Pitt	49	27.2	18	10.0	67	37.2
Polk	2	9.7	0	0.0	2	9.7
Randolph	7	4.9	4	2.8	11	7.7
Richmond	2	4.5	5	11.1	7	15.6
Robeson	34	25.8	18	13.7	52	39.4
Rockingham	6	6.6	4	4.4	10	11.0
Rowan	16	11.3	13	9.2	29	20.5
Rutherford	0	0.0	2	3.0	2	3.0

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 1, 2019).

Table 4 (Continued). Newly Diagnosed Syphilis Annual Rates in North Carolina by Stage of Infection and County of Diagnosis, 2018

County	Primary, Secondary, and Early ^a		Unknown Duration, or Late ^b		Total	
	Cases	Rate ^c	Cases	Rate ^c	Cases	Rate ^c
Sampson	6	9.4	8	12.6	14	22.0
Scotland	7	20.1	7	20.1	14	40.2
Stanly	0	0.0	4	6.4	4	6.4
Stokes	1	2.2	0	0.0	1	2.2
Surry	5	6.9	1	1.4	6	8.3
Swain	0	0.0	0	0.0	0	0.0
Transylvania	0	0.0	0	0.0	0	0.0
Tyrrell	0	0.0	0	0.0	0	0.0
Union	15	6.4	12	5.1	27	11.4
Vance	9	20.2	15	33.6	24	53.8
Wake	252	23.1	152	13.9	404	37.0
Warren	2	10.1	0	0.0	2	10.1
Washington	0	0.0	1	8.4	1	8.4
Watauga	2	3.6	0	0.0	2	3.6
Wayne	14	11.4	11	8.9	25	20.3
Wilkes	2	2.9	0	0.0	2	2.9
Wilson	19	23.3	21	25.8	40	49.1
Yadkin	1	2.7	1	2.7	2	5.3
Yancey	0	0.0	0	0.0	0	0.0
North Carolina	1,914	18.4	1,079	10.4	2,993	28.8

^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 1, 2019).

Table 5. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014				2015				2016				2017				2018			
	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	5	3.2	6	3.9	15	9.5	6	3.8	23	14.3	24	15.0	13	7.9	9	5.5	14	8.4	13	7.8
Alexander	0	0.0	0	0.0	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0	1	2.7	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	0	0.0	0	0.0	3	11.7	0	0.0	4	15.9	0	0.0	2	8.0	1	4.0	3	12.1	1	4.0
Ashe	0	0.0	0	0.0	0	0.0	2	7.5	1	3.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Avery	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	5.7	0	0.0
Beaufort	3	6.3	3	6.3	1	2.1	3	6.3	4	8.4	2	4.2	1	2.1	0	0.0	1	2.1	2	4.2
Bertie	0	0.0	0	0.0	0	0.0	0	0.0	1	5.1	1	5.1	2	10.4	1	5.2	1	5.3	2	10.5
Bladen	4	11.6	2	5.8	2	5.9	3	8.8	0	0.0	0	0.0	1	3.0	3	9.0	2	6.0	1	3.0
Brunswick	1	0.8	0	0.0	2	1.6	6	4.9	4	3.2	3	2.4	8	6.1	5	3.8	3	2.2	4	2.9
Buncombe	7	2.8	7	2.8	13	5.2	12	4.8	25	9.8	12	4.7	33	12.8	13	5.1	13	5.0	13	5.0
Burke	2	2.2	0	0.0	0	0.0	0	0.0	5	5.6	2	2.2	8	8.9	7	7.8	1	1.1	1	1.1
Cabarrus	4	2.1	4	2.1	19	9.7	7	3.6	6	3.0	11	5.5	11	5.3	12	5.8	15	7.1	10	4.7
Caldwell	0	0.0	0	0.0	4	4.9	1	1.2	3	3.7	1	1.2	2	2.4	4	4.9	2	2.4	4	4.9
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	0	0.0	2	2.9	3	4.4	0	0.0	2	2.9	0	0.0	0	0.0	1	1.5	2	2.9	0	0.0
Caswell	0	0.0	1	4.4	2	8.8	0	0.0	2	8.8	1	4.4	1	4.4	0	0.0	1	4.4	1	4.4
Catawba	2	1.3	5	3.2	3	1.9	9	5.8	3	1.9	6	3.8	11	7.0	8	5.1	21	13.2	7	4.4
Chatham	2	3.0	1	1.5	1	1.5	1	1.5	5	7.2	0	0.0	3	4.2	1	1.4	2	2.7	0	0.0
Cherokee	0	0.0	0	0.0	3	11.1	2	7.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Chowan	0	0.0	0	0.0	1	7.0	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	1	7.1	0	0.0
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	0	0.0
Cleveland	2	2.1	0	0.0	3	3.1	5	5.2	3	3.1	3	3.1	6	6.2	2	2.1	3	3.1	5	5.1
Columbus	0	0.0	1	1.8	6	10.6	4	7.1	1	1.8	2	3.6	7	12.5	4	7.1	1	1.8	1	1.8
Craven	4	3.8	6	5.8	10	9.7	9	8.7	6	5.8	4	3.9	5	4.9	5	4.9	8	7.8	8	7.8
Cumberland	51	15.3	24	7.2	80	24.1	37	11.2	52	15.6	27	8.1	47	14.2	32	9.7	63	19.0	54	16.2
Currituck	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.8	1	3.8	0	0.0	1	3.7
Dare	0	0.0	0	0.0	1	2.8	1	2.8	0	0.0	2	5.6	0	0.0	1	2.8	0	0.0	0	0.0
Davidson	4	2.4	3	1.8	10	6.1	2	1.2	5	3.0	6	3.6	8	4.8	7	4.2	3	1.8	5	3.0
Davie	1	2.4	0	0.0	1	2.4	0	0.0	2	4.8	0	0.0	2	4.7	0	0.0	2	4.7	1	2.3
Duplin	1	1.7	2	3.4	3	5.1	3	5.1	1	1.7	2	3.4	3	5.1	1	1.7	4	6.8	3	5.1

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, 2014-2018

County	2014				2015				2016				2017				2018			
	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	48	16.3	26	8.8	88	29.3	43	14.3	69	22.4	53	17.2	77	24.7	47	15.1	112	35.4	64	20.2
Edgecombe	7	12.8	4	7.3	13	24.2	11	20.5	9	16.9	7	13.1	8	15.2	9	17.1	3	5.8	3	5.8
Forsyth	31	8.5	18	4.9	49	13.3	36	9.8	55	14.8	29	7.8	57	15.2	25	6.7	54	14.2	46	12.1
Franklin	2	3.2	0	0.0	4	6.3	1	1.6	1	1.5	1	1.5	1	1.5	1	1.5	4	5.9	1	1.5
Gaston	6	2.8	3	1.4	12	5.6	10	4.7	26	12.0	14	6.5	20	9.1	16	7.3	21	9.4	20	9.0
Gates	1	8.6	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	8.6
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	1	1.7	0	0.0	7	12.0	1	1.7	6	10.2	4	6.8	3	5.1	5	8.4	13	21.6	3	5.0
Greene	3	14.3	1	4.8	0	0.0	1	4.8	1	4.7	2	9.5	2	9.5	0	0.0	0	0.0	0	0.0
Guilford	40	7.8	44	8.6	120	23.2	78	15.1	92	17.5	79	15.0	119	22.5	66	12.5	87	16.3	64	12.0
Halifax	1	1.9	0	0.0	1	1.9	3	5.7	6	11.6	1	1.9	5	9.8	5	9.8	2	4.0	6	11.9
Harnett	3	2.4	1	0.8	10	7.8	7	5.5	5	3.8	5	3.8	6	4.5	2	1.5	3	2.2	9	6.7
Haywood	1	1.7	1	1.7	0	0.0	1	1.7	7	11.6	1	1.7	7	11.5	2	3.3	2	3.2	1	1.6
Henderson	1	0.9	2	1.8	3	2.7	2	1.8	6	5.3	2	1.8	10	8.7	4	3.5	2	1.7	3	2.6
Hertford	3	12.2	1	4.1	0	0.0	0	0.0	1	4.1	1	4.1	0	0.0	3	12.5	1	4.2	2	8.5
Hoke	1	1.9	3	5.8	4	7.6	3	5.7	1	1.9	3	5.7	5	9.2	4	7.4	2	3.7	6	11.0
Hyde	0	0.0	1	17.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	19.0	0	0.0	0	0.0
Iredell	0	0.0	0	0.0	4	2.4	3	1.8	7	4.1	3	1.7	12	6.8	3	1.7	9	5.0	7	3.9
Jackson	0	0.0	1	2.4	6	14.5	2	4.8	6	14.1	1	2.3	3	6.9	0	0.0	1	2.3	1	2.3
Johnston	10	5.5	3	1.7	10	5.4	10	5.4	11	5.8	10	5.2	8	4.1	10	5.1	14	6.9	4	2.0
Jones	0	0.0	1	10.2	0	0.0	0	0.0	2	20.8	0	0.0	2	20.8	0	0.0	0	0.0	1	10.4
Lee	1	1.7	0	0.0	6	10.1	2	3.4	3	5.0	4	6.7	3	5.0	1	1.7	1	1.6	2	3.3
Lenoir	13	22.3	1	1.7	9	15.5	7	12.1	7	12.2	8	14.0	4	7.1	1	1.8	6	10.7	4	7.1
Lincoln	2	2.5	4	5.0	2	2.5	3	3.7	8	9.9	2	2.5	3	3.6	1	1.2	4	4.8	5	6.0
Macon	0	0.0	1	3.0	1	2.9	0	0.0	1	2.9	0	0.0	2	5.8	0	0.0	2	5.7	1	2.8
Madison	1	4.7	0	0.0	0	0.0	0	0.0	1	4.7	1	4.7	0	0.0	0	0.0	1	4.6	1	4.6
Martin	2	8.5	0	0.0	3	12.9	3	12.9	1	4.3	2	8.6	2	8.8	1	4.4	2	8.8	0	0.0
McDowell	0	0.0	0	0.0	1	2.2	1	2.2	4	8.9	0	0.0	2	4.4	0	0.0	4	8.8	2	4.4
Mecklenburg	175	17.3	92	9.1	260	25.2	150	14.5	301	28.5	198	18.7	269	25.0	191	17.7	250	22.9	175	16.0
Mitchell	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0
Montgomery	0	0.0	0	0.0	2	7.3	1	3.6	2	7.3	1	3.7	1	3.7	3	11.0	0	0.0	1	3.7
Moore	2	2.2	2	2.2	3	3.2	4	4.3	2	2.1	2	2.1	1	1.0	3	3.1	2	2.0	0	0.0

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Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

Table 5 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by County of Diagnosis and Year of Diagnosis, 2014-2018

County	2014				2015				2016				2017				2018			
	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	11	11.7	2	2.1	18	19.2	10	10.7	19	20.2	14	14.9	11	11.7	8	8.5	8	8.5	7	7.4
New Hanover	10	4.6	6	2.8	25	11.4	7	3.2	5	2.2	8	3.6	36	15.7	16	7.0	25	10.8	25	10.8
Northampton	1	4.8	1	4.8	0	0.0	0	0.0	2	9.9	6	29.8	3	15.1	0	0.0	1	5.1	0	0.0
Onslow	7	3.6	3	1.6	7	3.6	9	4.7	9	4.7	9	4.7	14	7.2	9	4.6	17	8.6	11	5.6
Orange	6	4.3	5	3.6	12	8.5	3	2.1	6	4.2	5	3.5	10	6.9	5	3.5	10	6.8	7	4.8
Pamlico	0	0.0	0	0.0	1	7.8	0	0.0	1	7.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pasquotank	0	0.0	3	7.6	2	5.1	1	2.5	1	2.5	2	5.1	3	7.6	0	0.0	3	7.6	0	0.0
Pender	1	1.8	1	1.8	4	7.0	6	10.4	2	3.4	2	3.4	5	8.2	2	3.3	1	1.6	3	4.8
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	1	2.6	0	0.0	3	7.7	1	2.6	4	10.2	0	0.0	4	10.2	1	2.5	4	10.1	2	5.1
Pitt	20	11.4	15	8.6	32	18.2	20	11.4	26	14.7	21	11.8	19	10.6	11	6.2	26	14.5	23	12.8
Polk	1	4.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.9	0	0.0	2	9.7	0	0.0
Randolph	1	0.7	3	2.1	9	6.3	2	1.4	8	5.6	4	2.8	9	6.3	2	1.4	3	2.1	4	2.8
Richmond	0	0.0	0	0.0	0	0.0	2	4.4	1	2.2	5	11.1	2	4.5	1	2.2	1	2.2	1	2.2
Robeson	12	8.9	13	9.6	16	11.9	14	10.4	12	9.0	14	10.5	15	11.3	8	6.0	17	12.9	17	12.9
Rockingham	1	1.1	4	4.4	3	3.3	3	3.3	2	2.2	5	5.5	4	4.4	9	9.9	4	4.4	2	2.2
Rowan	6	4.3	5	3.6	6	4.3	5	3.6	11	7.9	4	2.9	13	9.3	5	3.6	9	6.4	7	5.0
Rutherford	0	0.0	0	0.0	3	4.5	2	3.0	4	6.0	0	0.0	2	3.0	3	4.5	0	0.0	0	0.0
Sampson	6	9.4	1	1.6	6	9.4	3	4.7	4	6.3	2	3.2	3	4.7	6	9.5	3	4.7	3	4.7
Scotland	1	2.8	1	2.8	3	8.5	3	8.5	4	11.3	5	14.2	2	5.7	1	2.8	4	11.5	3	8.6
Stanly	5	8.2	3	4.9	2	3.3	1	1.6	1	1.6	2	3.3	6	9.8	2	3.3	0	0.0	0	0.0
Stokes	0	0.0	0	0.0	2	4.3	0	0.0	0	0.0	1	2.2	0	0.0	1	2.2	0	0.0	1	2.2
Surry	0	0.0	0	0.0	2	2.8	1	1.4	2	2.8	2	2.8	3	4.2	1	1.4	1	1.4	4	5.6
Swain	0	0.0	0	0.0	0	0.0	0	0.0	1	7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Transylvania	1	3.0	0	0.0	0	0.0	0	0.0	1	3.0	1	3.0	0	0.0	2	5.9	0	0.0	0	0.0
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	5	2.3	3	1.4	9	4.1	6	2.7	9	4.0	7	3.1	18	7.8	12	5.2	11	4.7	4	1.7
Vance	9	20.2	1	2.2	7	15.7	2	4.5	9	20.2	4	9.0	2	4.5	3	6.8	7	15.7	2	4.5
Wake	112	11.2	69	6.9	146	14.3	102	10.0	128	12.2	123	11.7	129	12.0	121	11.3	150	13.7	102	9.3
Warren	2	9.8	1	4.9	0	0.0	1	4.9	0	0.0	1	5.0	1	5.0	0	0.0	1	5.0	1	5.0

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, 2014-2018

County	2014				2015				2016				2017				2018			
	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	0	0.0	1	8.0	2	16.3	1	8.1	1	8.2	1	8.2	1	8.3	0	0.0	0	0.0	0	0.0
Watauga	2	3.8	0	0.0	0	0.0	0	0.0	2	3.7	0	0.0	2	3.6	1	1.8	2	3.6	0	0.0
Wayne	6	4.8	2	1.6	13	10.4	11	8.8	12	9.6	8	6.4	13	10.5	3	2.4	5	4.1	9	7.3
Wilkes	0	0.0	0	0.0	3	4.4	2	2.9	1	1.5	0	0.0	1	1.5	1	1.5	2	2.9	0	0.0
Wilson	9	11.1	4	4.9	12	14.8	12	14.8	5	6.1	9	11.1	12	14.7	7	8.6	12	14.7	7	8.6
Yadkin	0	0.0	1	2.6	0	0.0	1	2.7	1	2.7	1	2.7	1	2.7	0	0.0	1	2.7	0	0.0
Yancey	1	5.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.6	0	0.0	0	0.0
North Carolina	685	6.9	425	4.3	1,152	11.5	727	7.2	1,094	10.8	809	8.0	1,153	11.2	766	7.5	1,099	10.6	815	7.8

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Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

North Carolina State Totals and Rates of Chlamydia, Gonorrhea, and Syphilis by Selected Demographics, 2018

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Table 6. Number of Infants Diagnosed with Congenital Syphilis in North Carolina by Year of Birth, 2009-2018

Classification	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Presumptive/Probable	9	6	6	1	3	5	11	16	23	18
Confirmed-Live birth	0	0	0	0	1	0	0	1	0	0
Confirmed-Still birth	1	4	0	0	2	2	0	1	0	1
Total	10	10	6	1	5	7	11	18	23	19

Data Source: Sexually Transmitted Disease Management Information System (STD*MIS) and North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of May 1, 2019).

Table 7. Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014			2015			2016			2017			2018		
		Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b
Men	Less than 10	1	0.0	0.2	8	0.1	1.3	10	0.1	1.6	7	0.0	1.1	2	0.0	0.3
	10-14	34	0.3	10.2	38	0.3	11.5	38	0.2	11.5	29	0.1	8.6	32	0.2	9.5
	15-19	2,326	18.8	698.6	2,775	19.0	823.3	3,229	19.0	939.4	3,818	19.7	1,102.6	4,086	19.3	1,174.2
	20-24	5,099	41.2	1,381.8	5,832	40.0	1,578.1	6,700	39.5	1,822.3	7,471	38.6	2,056.5	8,002	37.8	2,215.4
	25-29	2,485	20.1	764.2	3,005	20.6	897.5	3,548	20.9	1,021.0	4,025	20.8	1,123.4	4,582	21.6	1,249.9
	30-34	1,116	9.0	356.0	1,347	9.2	429.3	1,533	9.0	483.3	1,765	9.1	549.1	1,970	9.3	602.7
	35-39	551	4.4	180.2	710	4.9	229.7	865	5.1	275.4	912	4.7	287.3	1,056	5.0	329.0
	40-44	368	3.0	110.8	367	2.5	113.0	419	2.5	133.0	532	2.8	171.1	616	2.9	198.6
	45-54	284	2.3	42.5	372	2.6	55.5	450	2.7	66.7	551	2.8	81.6	614	2.9	91.4
	55-64	101	0.8	17.2	103	0.7	17.1	152	0.9	24.7	185	1.0	29.6	183	0.9	28.8
	65 and older	19	0.2	3.0	23	0.2	3.5	29	0.2	4.2	36	0.2	5.1	41	0.2	5.6
	Unknown ^c	4	0.0	--	8	0.1	--	5	0.0	--	7	0.0	--	0	0.0	--
Total		12,388	100.0	256.2	14,588	100.0	298.6	16,978	100.0	343.3	19,338	100.0	386.9	21,184	100.0	419.4
Women	Less than 10	16	0.0	2.6	8	0.0	1.3	14	0.0	2.3	11	0.0	1.8	3	0.0	0.5
	10-14	388	1.0	121.4	347	0.9	108.9	342	0.8	107.2	357	0.8	110.7	369	0.8	113.3
	15-19	11,737	31.2	3,681.8	12,179	30.6	3,761.0	12,875	31.2	3,876.8	14,338	32.8	4,285.0	14,757	32.4	4,389.5
	20-24	15,518	41.3	4,545.0	16,144	40.6	4,764.6	16,350	39.7	4,837.4	16,865	38.6	5,018.6	17,353	38.1	5,154.2
	25-29	5,857	15.6	1,769.3	6,576	16.5	1,939.0	6,806	16.5	1,949.9	7,022	16.1	1,965.9	7,730	17.0	2,135.6
	30-34	2,194	5.8	673.5	2,457	6.2	754.2	2,679	6.5	815.4	2,747	6.3	826.9	2,918	6.4	864.0
	35-39	1,043	2.8	325.9	1,196	3.0	369.4	1,168	2.8	354.3	1,202	2.8	360.0	1,322	2.9	391.6
	40-44	467	1.2	134.8	469	1.2	138.2	492	1.2	149.5	558	1.3	171.0	592	1.3	181.0
	45-54	279	0.7	39.8	364	0.9	51.7	375	0.9	52.9	424	1.0	59.8	395	0.9	56.0
	55-64	70	0.2	10.7	47	0.1	7.0	73	0.2	10.7	96	0.2	13.8	125	0.3	17.7
	65 and older	7	0.0	0.8	6	0.0	0.7	11	0.0	1.2	18	0.0	2.0	14	0.0	1.5
	Unknown ^c	8	0.0	--	6	0.0	--	19	0.0	--	12	0.0	--	1	0.0	--
Total		37,584	100.0	737.3	39,799	100.0	773.1	41,204	100.0	790.6	43,650	100.0	827.9	45,579	100.0	854.7

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 1, 2019).

Table 7 (Continued). Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014			2015			2016			2017			2018		
		Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b
Total^d	Less than 10	17	0	1.4	16	0	1.3	24	0	1.9	18	0	1.4	5	0	0.4
	10-14	423	0.8	64.9	385	0.7	59.2	380	0.7	58.4	386	0.6	58.7	401	0.6	60.4
	15-19	14,063	28.1	2,157.8	14,955	27.5	2,263.0	16,104	27.7	2,382.8	18,156	28.8	2,666.5	18,843	28.2	2,754.1
	20-24	20,618	41.3	2,902.1	21,977	40.4	3,102.4	23,050	39.6	3,266.5	24,336	38.6	3,479.8	25,355	38	3,633.2
	25-29	8,343	16.7	1,271.4	9,582	17.6	1,421.7	10,354	17.8	1,486.5	11,047	17.5	1,544.0	12,312	18.4	1,689.9
	30-34	3,311	6.6	517.9	3,804	7	594.8	4,212	7.2	652.3	4,512	7.2	690.3	4,888	7.3	735.5
	35-39	1,594	3.2	254.7	1,906	3.5	301.2	2,033	3.5	315.8	2,114	3.4	324.6	2,378	3.6	361.1
	40-44	835	1.7	123.1	836	1.5	125.9	911	1.6	141.5	1,090	1.7	171.0	1,208	1.8	189.5
	45-54	563	1.1	41.1	736	1.4	53.5	825	1.4	59.6	975	1.5	70.4	1,009	1.5	73.2
	55-64	171	0.3	13.7	150	0.3	11.8	225	0.4	17.3	281	0.4	21.3	308	0.5	22.9
	65 and older	26	0.1	1.8	29	0.1	1.9	40	0.1	2.5	54	0.1	3.3	55	0.1	3.3
Unknown ^c	12	0.0	--	14	0.0	--	24	0.0	--	19	0.0	--	1	0.0	--	
Total^d		49,976	100.0	503.1	54,390	100.0	542.1	58,182	100.0	572.8	62,988	100.0	613.3	66,763	100.0	643.0

^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 includes 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 1, 2019).

Table 8. Newly Diagnosed Chlamydia Annual Rates in North Carolina by Gender^a, Race/Ethnicity, and Year of Diagnosis, 2014-2018

Gender	Race/Ethnicity	2014			2015			2016			2017			2018		
		Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b	Cases	%	Rate ^b
Men	American Indian/Alaska Native ^c	128	1.0	221.3	138	0.9	237.1	148	0.9	252.5	211	1.1	357.5	224	1.1	378.4
	Asian/Pacific Islander ^c	55	0.4	40.5	78	0.5	54.9	82	0.5	54.5	92	0.5	58.0	101	0.5	60.9
	Black/African American ^c	5,155	41.6	501.8	5,615	38.5	540.9	6,044	35.6	575.2	7,044	36.4	662.7	7,545	35.6	702.1
	Hispanic/Latino	719	5.8	156.4	822	5.6	173.9	887	5.2	182.4	1,037	5.4	207.3	1,221	5.8	236.8
	White/Caucasian ^c	1,724	13.9	54.6	2,031	13.9	64.0	2,210	13.0	69.1	2,799	14.5	87.0	2,888	13.6	89.3
	Multiple Races ^d	16	0.1	---	15	0.1	---	24	0.1	---	29	0.1	---	41	0.2	---
	Unknown/Unspecified ^d	4,591	37.1	---	5,889	40.4	---	7,583	44.7	---	8,126	42.0	---	9,164	43.3	---
	Total		12,388	100.0	256.2	14,588	100.0	298.6	16,978	100.0	343.3	19,338	100.0	386.9	21,184	100.0
Women	American Indian/Alaska Native ^c	608	1.6	977.2	591	1.5	944.2	620	1.5	981.4	681	1.6	1,068.6	625	1.4	973.4
	Asian/Pacific Islander ^c	202	0.5	138.0	258	0.6	169.0	234	0.6	145.4	276	0.6	163.2	268	0.6	151.4
	Black/African American ^c	15,015	40.0	1,287.0	14,949	37.6	1,267.9	14,306	34.7	1,198.2	14,986	34.3	1,240.6	15,471	33.9	1,266.3
	Hispanic/Latino	2,492	6.6	594.2	2,800	7.0	646.9	2,859	6.9	637.4	3,130	7.2	673.6	3,325	7.3	690.3
	White/Caucasian ^c	7,490	19.9	226.8	7,834	19.7	235.9	7,695	18.7	230.0	8,492	19.5	252.2	8,572	18.8	253.0
	Multiple Races ^d	78	0.2	--	117	0.3	--	111	0.3	--	118	0.3	--	101	0.2	--
	Unknown/Unspecified ^d	11,699	31.1	--	13,250	33.3	--	15,379	37.3	--	15,967	36.6	--	17,217	37.8	--
	Total		37,584	100.0	737.3	39,799	100.0	773.1	41,204	100.0	790.6	43,650	100.0	827.9	45,579	100.0
Total^e	American Indian/Alaska Native ^c	736	1.5	613.0	729	1.3	603.5	768	1.3	630.6	892	1.4	726.7	849	1.3	688.0
	Asian/Pacific Islander ^c	257	0.5	91.1	336	0.6	114.0	316	0.5	101.5	368	0.6	112.3	369	0.6	107.7
	Black/African American ^c	20,171	40.4	919.4	20,565	37.8	927.6	20,350	35.0	906.6	22,030	35.0	970.1	23,016	34.5	1,002.3
	Hispanic/Latino	3,211	6.4	365.3	3,622	6.7	400.0	3,746	6.4	400.8	4,167	6.6	431.8	4,546	6.8	455.8
	White/Caucasian ^c	9,214	18.4	142.7	9,865	18.1	151.9	9,905	17.0	151.4	11,291	17.9	171.5	11,460	17.2	173.0
	Multiple Races ^d	94	0.2	--	132	0.2	--	135	0.2	--	147	0.2	--	142	0.2	--
	Unknown/Unspecified ^d	16,293	32.6	--	19,141	35.2	--	22,962	39.5	--	24,093	38.3	--	26,381	39.5	--
	Total^e		49,976	100.0	503.1	54,390	100.0	542.1	58,182	100.0	572.8	62,988	100.0	613.3	66,763	100.0

^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.

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

^fTotals includes 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 1, 2019).

Table 9. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014			2015			2016			2017			2018		
		Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a
Men	Less than 10	2	0.0	0.3	0	0.0	0.0	1	0.0	0.2	0	0.0	0.0	0	0.0	0.0
	10-14	18	0.3	5.4	7	0.1	2.1	25	0.2	7.5	16	0.1	4.8	14	0.1	4.1
	15-19	942	13.7	282.9	1,139	13.4	337.9	1,288	12.8	374.7	1,470	12.6	424.5	1,482	12.3	425.9
	20-24	2,481	36.0	672.3	2,788	32.9	754.4	3,118	31.1	848.1	3,364	28.8	926.0	3,352	27.7	928.0
	25-29	1,480	21.5	455.2	1,932	22.8	577.0	2,345	23.4	674.8	2,673	22.9	746.1	2,772	22.9	756.1
	30-34	756	11.0	241.2	980	11.6	312.3	1,191	11.9	375.5	1,416	12.1	440.5	1,588	13.1	485.8
	35-39	461	6.7	150.7	606	7.2	196.1	727	7.2	231.4	877	7.5	276.3	1,053	8.7	328.1
	40-44	271	3.9	81.6	365	4.3	112.4	425	4.2	134.9	593	5.1	190.7	654	5.4	210.9
	45-54	345	5.0	51.7	449	5.3	66.9	618	6.2	91.6	849	7.3	125.7	739	6.1	110.0
	55-64	118	1.7	20.1	171	2.0	28.4	228	2.3	37.1	356	3.0	56.9	358	3.0	56.3
	65 and older	22	0.3	3.5	35	0.4	5.3	63	0.6	9.2	71	0.6	10.0	72	0.6	9.7
	Unknown ^b	0	0.0	--	1	0.0	--	3	0.0	--	0	0.0	--	0	0.0	--
Total		6,896	100.0	142.6	8,473	100.0	173.4	10,032	100.0	202.9	11,685	100.0	233.8	12,084	100.0	239.2
Women	Less than 10	5	0.1	0.8	6	0.1	1.0	6	0.1	1.0	3	0.0	0.5	3	0.0	0.5
	10-14	97	1.2	30.4	70	0.8	22.0	85	0.9	26.6	75	0.7	23.3	77	0.7	23.6
	15-19	2,117	26.2	664.1	2,166	25.2	668.9	2,335	24.4	703.1	2,740	24.8	818.9	2,715	23.6	807.6
	20-24	3,295	40.8	965.1	3,220	37.5	950.3	3,442	36.0	1,018.4	3,783	34.2	1,125.7	3,717	32.3	1,104.0
	25-29	1,453	18.0	438.9	1,738	20.3	512.5	1,970	20.6	564.4	2,274	20.6	636.6	2,487	21.6	687.1
	30-34	611	7.6	187.6	699	8.1	214.6	901	9.4	274.3	1,073	9.7	323.0	1,268	11.0	375.5
	35-39	256	3.2	80.0	354	4.1	109.3	443	4.6	134.4	554	5.0	165.9	616	5.4	182.5
	40-44	136	1.7	39.3	157	1.8	46.3	201	2.1	61.1	265	2.4	81.2	293	2.5	89.6
	45-54	83	1.0	11.8	135	1.6	19.2	136	1.4	19.2	230	2.1	32.4	252	2.2	35.7
	55-64	24	0.3	3.7	26	0.3	3.9	38	0.4	5.6	48	0.4	6.9	69	0.6	9.8
	65 and older	1	0.0	0.1	6	0.1	0.7	7	0.1	0.8	5	0.0	0.5	12	0.1	1.3
	Unknown ^b	1	0.0	--	3	0.0	--	3	0.0	--	0	0.0	--	0	0.0	--
Total		8,079	100.0	158.5	8,580	100.0	166.7	9,567	100.0	183.6	11,050	100.0	209.6	11,509	100.0	215.8

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 1, 2019).

Table 9 (Continued). Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014			2015			2016			2017			2018		
		Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a
Total^c	Less than 10	7	0.0	0.6	6	0.0	0.5	7	0.0	0.6	3	0.0	0.2	3	0.0	0.2
	10-14	115	0.8	17.6	77	0.5	11.8	110	0.6	16.9	91	0.4	13.8	91	0.4	13.7
	15-19	3,059	20.4	469.4	3,305	19.4	500.1	3,623	18.5	536.1	4,210	18.5	618.3	4,197	17.8	613.4
	20-24	5,777	38.6	813.1	6,008	35.2	848.1	6,560	33.5	929.6	7,147	31.4	1,022.0	7,069	30.0	1,012.9
	25-29	2,934	19.6	447.1	3,670	21.5	544.5	4,315	22.0	619.5	4,947	21.8	691.4	5,259	22.3	721.8
	30-34	1,367	9.1	213.8	1,679	9.8	262.5	2,092	10.7	324.0	2,489	10.9	380.8	2,856	12.1	429.7
	35-39	717	4.8	114.6	960	5.6	151.7	1,170	6.0	181.7	1,431	6.3	219.7	1,669	7.1	253.4
	40-44	407	2.7	60.0	522	3.1	78.6	626	3.2	97.2	858	3.8	134.6	947	4.0	148.6
	45-54	428	2.9	31.2	584	3.4	42.5	754	3.8	54.5	1,080	4.8	78.0	991	4.2	71.9
	55-64	142	0.9	11.4	197	1.2	15.5	266	1.4	20.5	404	1.8	30.6	427	1.8	31.8
	65 and older	23	0.2	1.6	41	0.2	2.7	70	0.4	4.5	76	0.3	4.7	84	0.4	5.0
	Unknown ^b	1	0.0	--	4	0.0	--	6	0.0	--	0	0.0	--	0	0.0	--
Total^c		14,977	100.0	150.8	17,053	100.0	170.0	19,599	100.0	193.0	22,736	100.0	221.4	23,593	100.0	227.2

^aRate is expressed per 100,000 population.

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

^cTotal includes 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 1, 2019).

Table 10. Newly Diagnosed Gonorrhea Annual Rates in North Carolina by Gender, Race/Ethnicity, and Year of Diagnosis, 2014-2018

Gender	Race/Ethnicity	2014			2015			2016			2017			2018		
		Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a	Cases	%	Rate ^a
Men	American Indian/Alaska Native ^b	74	1.1	127.9	81	1.0	139.2	112	1.1	191.1	136	1.2	230.4	121	1.0	204.4
	Asian/Pacific Islander ^b	19	0.3	14.0	18	0.2	12.7	25	0.2	16.6	37	0.3	23.3	39	0.3	23.5
	Black/African American ^b	3,979	57.7	387.3	4,776	56.4	460.1	5,167	51.5	491.8	5,915	50.6	556.5	5,995	49.6	557.9
	Hispanic/Latino	204	3.0	44.4	238	2.8	50.4	379	3.8	78.0	389	3.3	77.8	409	3.4	79.3
	White/Caucasian ^b	769	11.2	24.4	937	11.1	29.5	1,042	10.4	32.6	1,446	12.4	44.9	1,480	12.2	45.7
	Multiple Races ^c	8	0.1	--	17	0.2	--	24	0.2	--	25	0.2	--	30	0.2	--
	Unknown/Unspecified ^c	1,843	26.7	--	2,406	28.4	--	3,283	32.7	--	3,737	32.0	--	4,010	33.2	--
Total		6,896	100.0	142.6	8,473	100.0	173.4	10,032	100.0	202.9	11,685	100.0	233.8	12,084	100.0	239.2
Women	American Indian/Alaska Native ^b	117	1.4	188.0	138	1.6	220.5	153	1.6	242.2	232	2.1	364.0	188	1.6	292.8
	Asian/Pacific Islander ^b	18	0.2	12.3	28	0.3	18.3	21	0.2	13.0	35	0.3	20.7	41	0.4	23.2
	Black/African American ^b	4,493	55.6	385.1	4,538	52.9	384.9	4,573	47.8	383.0	5,077	45.9	420.3	5,200	45.2	425.6
	Hispanic/Latino	195	2.4	46.5	248	2.9	57.3	274	2.9	61.1	261	2.4	56.2	329	2.9	68.3
	White/Caucasian ^b	1,087	13.5	32.9	1,242	14.5	37.4	1,406	14.7	42.0	1,979	17.9	58.8	2,090	18.2	61.7
	Multiple Races ^c	21	0.3	--	30	0.3	--	45	0.5	--	31	0.3	--	45	0.4	--
	Unknown/Unspecified ^c	2,148	26.6	--	2,356	27.5	--	3,095	32.4	--	3,435	31.1	--	3,616	31.4	--
Total		8,079	100.0	158.5	8,580	100.0	166.7	9,567	100.0	183.6	11,050	100.0	209.6	11,509	100.0	215.8
Total^d	American Indian/Alaska Native ^b	191	1.3	159.1	219	1.3	181.3	265	1.4	217.6	368	1.6	299.8	309	1.3	250.4
	Asian/Pacific Islander ^b	37	0.2	13.1	46	0.3	15.6	46	0.2	14.8	72	0.3	22.0	80	0.3	23.3
	Black/African American ^b	8,473	56.6	386.2	9,314	54.6	420.1	9,740	49.7	433.9	10,993	48.4	484.1	11,195	47.5	487.5
	Hispanic/Latino	399	2.7	45.4	486	2.8	53.7	653	3.3	69.9	650	2.9	67.4	738	3.1	74.0
	White/Caucasian ^b	1,856	12.4	28.7	2,179	12.8	33.5	2,448	12.5	37.4	3,425	15.1	52.0	3,570	15.1	53.9
	Multiple Races ^c	29	0.2	--	47	0.3	--	69	0.4	--	56	0.2	--	75	0.3	--
	Unknown/Unspecified ^c	3,992	26.7	--	4,762	27.9	--	6,378	32.5	--	7,172	31.5	--	7,626	32.3	--
Total^d		14,977	100.0	150.8	17,053	100.0	170.0	19,599	100.0	193.0	22,736	100.0	221.4	23,593	100.0	227.2

^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 includes 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 1, 2019).

Table 11. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014				2015				2016				2017				2018			
		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	35	10.5	9	2.7	51	15.1	15	4.5	50	14.5	23	6.7	55	15.9	25	7.2	41	11.8	16	4.6
	20-24	150	40.6	91	24.7	251	67.9	133	36.0	199	54.1	110	29.9	230	63.3	109	30.0	180	49.8	114	31.6
	25-29	142	43.7	67	20.6	233	69.6	133	39.7	234	67.3	150	43.2	227	63.4	151	42.1	234	63.8	151	41.2
	30-34	84	26.8	53	16.9	123	39.2	104	33.1	154	48.5	89	28.1	134	41.7	97	30.2	131	40.1	124	37.9
	35-39	61	19.9	43	14.1	94	30.4	63	20.4	89	28.3	86	27.4	105	33.1	76	23.9	97	30.2	82	25.5
	40-44	51	15.4	33	9.9	93	28.6	45	13.9	69	21.9	49	15.6	80	25.7	50	16.1	67	21.6	42	13.5
	45-54	72	10.8	39	5.8	144	21.5	89	13.3	128	19.0	99	14.7	116	17.2	96	14.2	124	18.5	85	12.7
	55-64	17	2.9	18	3.1	51	8.5	21	3.5	50	8.1	32	5.2	64	10.2	38	6.1	59	9.3	40	6.3
	65 and older	8	1.3	1	0.2	5	0.8	10	1.5	13	1.9	8	1.2	10	1.4	6	0.8	6	0.8	11	1.5
Total		620	12.8	354	7.3	1,045	21.4	613	12.5	986	19.9	646	13.1	1,021	20.4	648	13.0	939	18.6	665	13.2
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	0	0.0	0	0.0	1	0.3	0	0.0	1	0.3	0	0.0	1	0.3	0	0.0
	15-19	4	1.3	6	1.9	11	3.4	6	1.9	14	4.2	16	4.8	11	3.3	23	6.9	18	5.4	17	5.1
	20-24	22	6.4	15	4.4	29	8.6	20	5.9	20	5.9	29	8.6	31	9.2	28	8.3	30	8.9	32	9.5
	25-29	10	3.0	17	5.1	22	6.5	27	8.0	26	7.4	46	13.2	33	9.2	20	5.6	42	11.6	34	9.4
	30-34	8	2.5	9	2.8	10	3.1	17	5.2	16	4.9	23	7.0	18	5.4	15	4.5	24	7.1	20	5.9
	35-39	6	1.9	4	1.3	11	3.4	12	3.7	10	3.0	14	4.2	10	3.0	8	2.4	14	4.1	12	3.6
	40-44	6	1.7	11	3.2	10	2.9	11	3.2	7	2.1	8	2.4	10	3.1	9	2.8	12	3.7	16	4.9
	45-54	6	0.9	6	0.9	14	2.0	13	1.8	9	1.3	17	2.4	13	1.8	10	1.4	14	2.0	11	1.6
	55-64	2	0.3	2	0.3	0	0.0	7	1.0	4	0.6	8	1.2	1	0.1	4	0.6	4	0.6	7	1.0
	65 and older	1	0.1	1	0.1	0	0.0	1	0.1	1	0.1	2	0.2	4	0.4	1	0.1	1	0.1	1	0.1
Total		65	1.3	71	1.4	107	2.1	114	2.2	108	2.1	163	3.1	132	2.5	118	2.2	160	3.0	150	2.8

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 1, 2019).

Table 11 (Continued). Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Age at Diagnosis, and Year of Diagnosis, 2014-2018

Gender	Age at Diagnosis (Year)	2014				2015				2016				2017				2018			
		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	0	0.0	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0
	15-19	39	6.0	15	2.3	62	9.4	21	3.2	64	9.5	39	5.8	66	9.7	48	7.0	59	8.6	33	4.8
	20-24	172	24.2	106	14.9	280	39.5	153	21.6	219	31.0	139	19.7	261	37.3	137	19.6	210	30.1	146	20.9
	25-29	152	23.2	84	12.8	255	37.8	160	23.7	260	37.3	196	28.1	260	36.3	171	23.9	276	37.9	185	25.4
	30-34	92	14.4	62	9.7	133	20.8	121	18.9	170	26.3	112	17.3	152	23.3	112	17.1	155	23.3	144	21.7
	35-39	67	10.7	47	7.5	105	16.6	75	11.9	99	15.4	100	15.5	115	17.7	84	12.9	111	16.9	94	14.3
	40-44	57	8.4	44	6.5	103	15.5	56	8.4	76	11.8	57	8.9	90	14.1	59	9.3	79	12.4	58	9.1
	45-54	78	5.7	45	3.3	158	11.5	102	7.4	137	9.9	116	8.4	129	9.3	106	7.7	138	10.0	96	7.0
	55-64	19	1.5	20	1.6	51	4.0	28	2.2	54	4.2	40	3.1	65	4.9	42	3.2	63	4.7	47	3.5
65 and older	9	0.6	2	0.1	5	0.3	11	0.7	14	0.9	10	0.6	14	0.9	7	0.4	7	0.4	12	0.7	
Total	685	6.9	425	4.3	1,152	11.5	727	7.2	1,094	10.8	809	8.0	1,153	11.2	766	7.5	1,099	10.6	815	7.8	

^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 1, 2019).

Table 12. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Race/Ethnicity, and Year of Diagnosis, 2014-2018

Gender	Race/Ethnicity	2014				2015				2016				2017				2018			
		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	5	8.6	5	8.6	8	13.7	5	8.6	6	10.2	4	6.8	7	11.9	2	3.4	7	11.8	6	10.1
	Asian/Pacific Islander ^d	5	3.7	0	0.0	7	4.9	3	2.1	9	6.0	2	1.3	12	7.6	4	2.5	6	3.6	5	3.0
	Black/African American ^d	359	34.9	202	19.7	644	62.0	377	36.3	567	54.0	398	37.9	604	56.8	367	34.5	570	53.0	394	36.7
	Hispanic/Latino	46	10.0	24	5.2	56	11.8	50	10.6	70	14.4	61	12.5	69	13.8	69	13.8	75	14.5	60	11.6
	White/Caucasian ^d	179	5.7	109	3.5	289	9.1	154	4.9	293	9.2	148	4.6	294	9.1	179	5.6	241	7.4	169	5.2
	Multiple Races ^e	9	--	5	--	20	--	14	--	24	--	14	--	17	--	16	--	17	--	13	--
	Unknown/Unspecified ^e	17	--	9	--	21	--	10	--	17	--	19	--	18	--	11	--	23	--	18	--
Total	620	12.8	354	7.3	1,045	21.4	613	12.5	986	19.9	646	13.1	1,021	20.4	648	13.0	939	18.6	665	13.2	
Women	American Indian/Alaska Native ^d	2	3.2	0	0.0	0	0.0	0	0.0	1	1.6	3	4.7	2	3.1	0	0.0	2	3.1	0	0.0
	Asian/Pacific Islander ^d	0	0.0	0	0.0	0	0.0	3	2.0	1	0.6	1	0.6	0	0.0	2	1.2	0	0.0	0	0.0
	Black/African American ^d	49	4.2	46	3.9	85	7.2	81	6.9	79	6.6	114	9.5	87	7.2	75	6.2	106	8.7	106	8.7
	Hispanic/Latino	1	0.2	9	2.1	3	0.7	4	0.9	1	0.2	7	1.6	3	0.6	10	2.2	7	1.5	12	2.5
	White/Caucasian ^d	10	0.3	15	0.5	15	0.5	22	0.7	20	0.6	30	0.9	31	0.9	25	0.7	42	1.2	26	0.8
	Multiple Races ^e	2	--	0	--	2	--	3	--	2	--	5	--	7	--	5	--	2	--	3	--
	Unknown/Unspecified ^e	1	--	1	--	2	--	1	--	4	--	3	--	2	--	1	--	1	--	3	--
Total	65	1.3	71	1.4	107	2.1	114	2.2	108	2.1	163	3.1	132	2.5	118	2.2	160	3.0	150	2.8	
Total [^]	American Indian/Alaska Native ^d	7	5.8	5	4.2	8	6.6	5	4.1	7	5.7	7	5.7	9	7.3	2	1.6	9	7.3	6	4.9
	Asian/Pacific Islander ^d	5	1.8	0	0.0	7	2.4	6	2.0	10	3.2	3	1.0	12	3.7	6	1.8	6	1.8	5	1.5
	Black/African American ^d	408	18.6	248	11.3	729	32.9	458	20.7	646	28.8	512	22.8	691	30.4	442	19.5	676	29.4	500	21.8
	Hispanic/Latino	47	5.3	33	3.8	59	6.5	54	6.0	71	7.6	68	7.3	72	7.5	79	8.2	82	8.2	72	7.2
	White/Caucasian ^d	189	2.9	124	1.9	304	4.7	176	2.7	313	4.8	178	2.7	325	4.9	204	3.1	283	4.3	195	2.9
	Multiple Races ^e	11	--	5	--	22	--	17	--	26	--	19	--	24	--	21	--	19	--	16	--
	Unknown/Unspecified ^e	18	--	10	--	23	--	11	--	21	--	22	--	20	--	12	--	24	--	21	--
Total[^]	685	6.9	425	4.3	1,152	11.5	727	7.2	1,094	10.8	809	8.0	1,153	11.2	766	7.5	1,099	10.6	815	7.8	

^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 1, 2019).

Table 13. Newly Diagnosed Early Syphilis^a Annual Rates in North Carolina by Gender, Risk of Exposure, and Year of Diagnosis, 2014-2018

Risk of Exposure	2014				2015				2016				2017				2018			
	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	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
WSM/W ^c	65	9.5	71	16.7	107	9.3	114	15.7	108	9.9	163	20.1	132	11.4	118	15.4	160	14.6	150	18.4
MSM ^d	392	57.2	234	55.1	692	60.1	436	60.0	596	54.5	429	53.0	630	54.6	448	58.5	583	53.0	466	57.2
MSM/W ^e	50	7.3	34	8.0	89	7.7	55	7.6	145	13.3	69	8.5	72	6.2	35	4.6	45	4.1	18	2.2
MSW only ^f	109	15.9	54	12.7	184	16.0	60	8.3	194	17.7	87	10.8	231	20.0	88	11.5	214	19.5	104	12.8
Unknown Men	69	10.1	32	7.5	80	6.9	62	8.5	51	4.7	61	7.5	88	7.6	77	10.1	97	8.8	77	9.4
Total	685	100.0	473	100.0	1,152	100.0	727	100.0	1,094	100.0	809	100.0	1,153	100.0	766	100.0	1,099	100.0	815	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 1, 2019).

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 *2018 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://wwwn.cdc.gov/nndss/conditions/syphilis/case-definition/2014/> and <https://wwwn.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 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://wwwn.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://wwwn.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://wwwn.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/>.