



Status of Sexually Transmitted Infections
(chlamydia, gonorrhea, syphilis, and HIV)
In Knox County, Tennessee

October 2018

EXECUTIVE SUMMARY

The 2018 Status of Sexually Transmitted Infections (STI) Report describes the burden of STIs in Knox County, Tennessee. The purpose of this report is to serve individuals who work in the health field, educate the community about STIs, and inform intervention and prevention work. This report provides an overview of reportable STIs and specifically includes chlamydia, gonorrhea, syphilis and HIV. Highlights include:

Chlamydia

- Most frequently reported STI in Knox County
- Increasing every year since 2013; higher than U.S. incidence
- Incidence is greatest among women ages 15-24
- Disproportionally affects black females

Gonorrhea

- Incidence has more than doubled since 2013; almost twice as high as U.S. incidence
- Nearly half of all gonorrhea cases in 2017 occurred in the 20-29 age group
- Disproportionally greater among the black population than the white population

Syphilis

- Incidence is greater than Tennessee but less than U.S.
- Incidence greatest among black men and all men ages 25-29
- Average of 42 cases are reported every year in Knox County

HIV

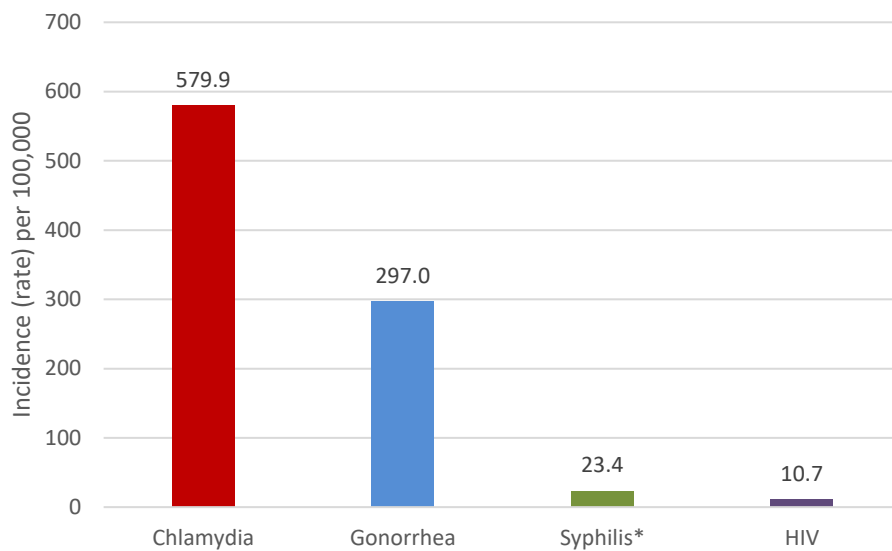
- Incidence has remained relatively stable since 2010 with a slight increase from 8.6 to 10.7 from 2015 to 2017
- Concern exists about possible HIV outbreaks due to increased intravenous drug use in Knox County

BACKGROUND

Knox County Health Department epidemiologists routinely gather, analyze and report data on current and emerging health issues that affect our community. This report includes the most current data for Knox County (2017), Tennessee (2017) and the U.S. (2017). The national report Healthy People 2020, from the Department of Health and Human Services, is used for national benchmarks.

The most common reportable STI in Knox County is chlamydia, followed by gonorrhea, syphilis and HIV. Other STIs may be more prevalent in Knox County, such as human papillomavirus (HPV), herpes and trichomoniasis, but rates are difficult to determine because not all STIs are reportable diseases.

Figure 1. Incidence of Sexually Transmitted Infections, Knox County (2017)



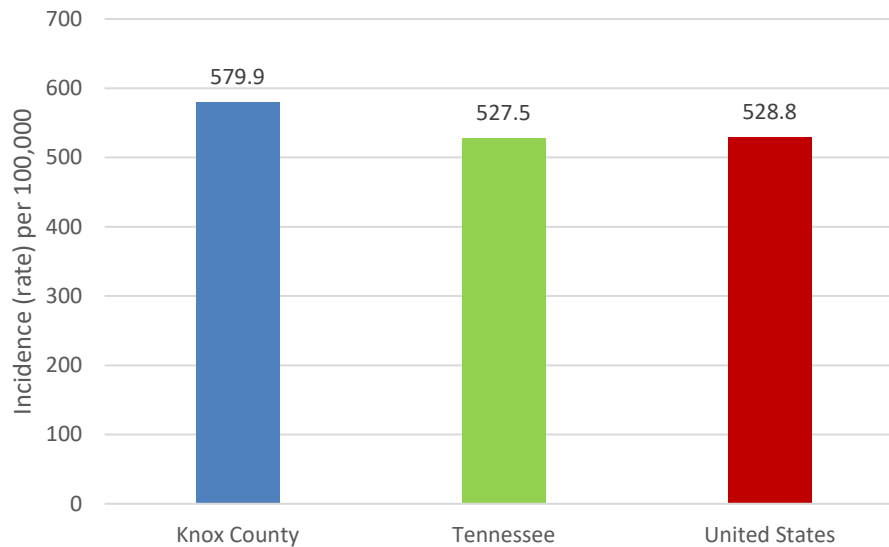
Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

*Includes primary, secondary, early latent and late latent cases of syphilis

CHLAMYDIA

Chlamydia is the most commonly reported notifiable sexually transmitted infection in the U.S. and is the most prevalent STI in Knox County. In 2017, more than 1.7 million cases of chlamydia were reported to the Centers for Disease Control and Prevention (CDC) from across the nation. Incidence of chlamydia is highest in southern states including Tennessee. The 2017 chlamydia incidence of Knox County (579.9 cases per 100,000 population) is higher than the 2017 chlamydia incidence of Tennessee (527.5 cases per 100,000 population) and the U.S. (528.8 cases per 100,000 population).⁽¹⁾

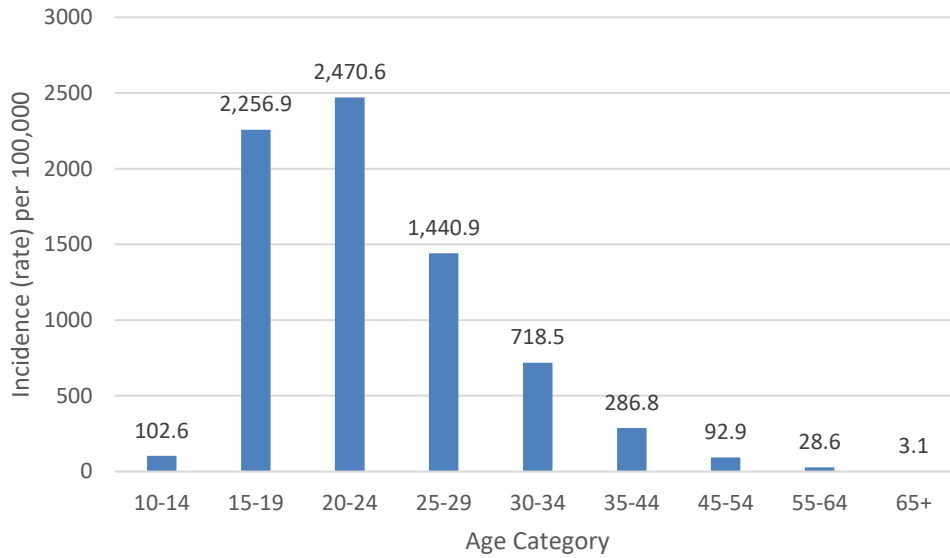
Figure 2. Chlamydia Incidence in Knox County, Tennessee and the U.S. (2017)



Sources: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM); CDC

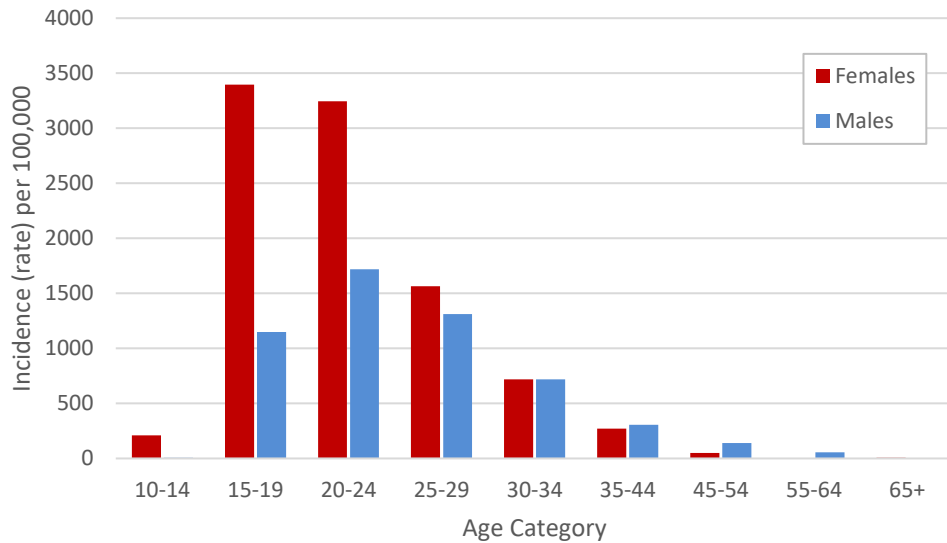
Nationally, chlamydia incidence is greatest among females ages 15-24, and similar trends are observed in Knox County.⁽¹⁾ Females ages 15-19 in Knox County experience an incidence of chlamydia (3,395.6 cases per 100,000 females) that is nearly triple the incidence among males of the same age category (1,148.1 cases per 100,000 males).

Figure 3. Chlamydia Incidence in Knox County, by age category (2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

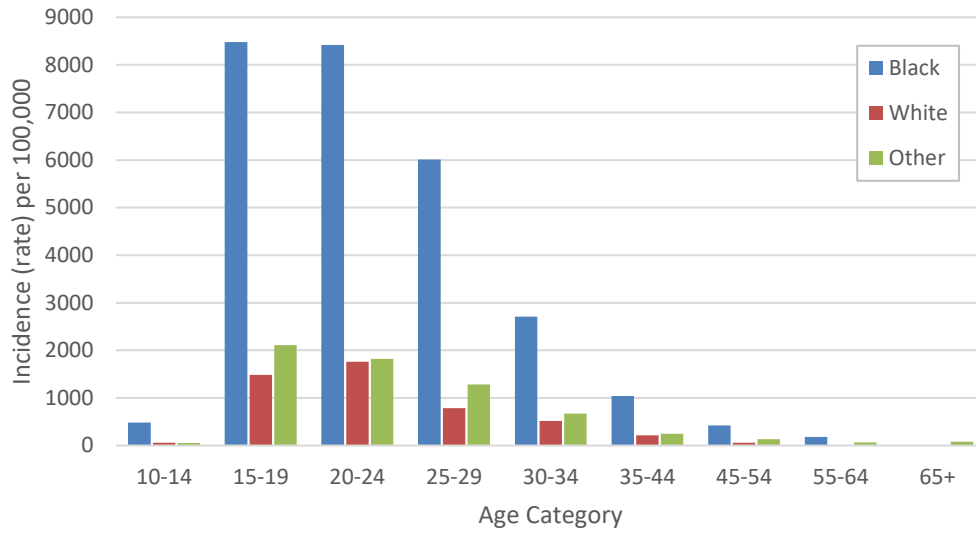
Figure 4. Chlamydia Incidence in Knox County, by sex and age (2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

Chlamydia incidence is greater among the black population (2,402.1 cases per 100,000 blacks) than among the white population (387.0 cases per 100,000 whites) in Knox County. Black individuals ages 15-34 experienced an incidence that is significantly greater compared to white individuals or persons of all other races.

Figure 5. Chlamydia Incidence in Knox County, by age and race (2017)

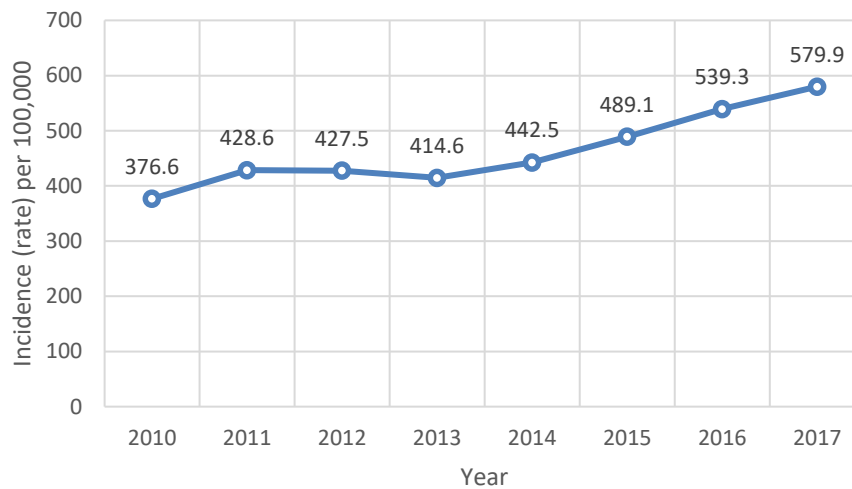


Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

Females ages 15-24 represent 44.5 percent of all chlamydia cases reported in 2017. Although more cases are reported among white females in this age category, black females experience a greater burden of disease.

Chlamydia incidence has consistently increased since 2013. Cases have increased 39.9 percent; this increase reflects 741 additional cases (1,858 cases reported in 2013 and 2,599 cases reported in 2017).

Figure 6. Chlamydia Incidence in Knox County, by year (2010-2017)

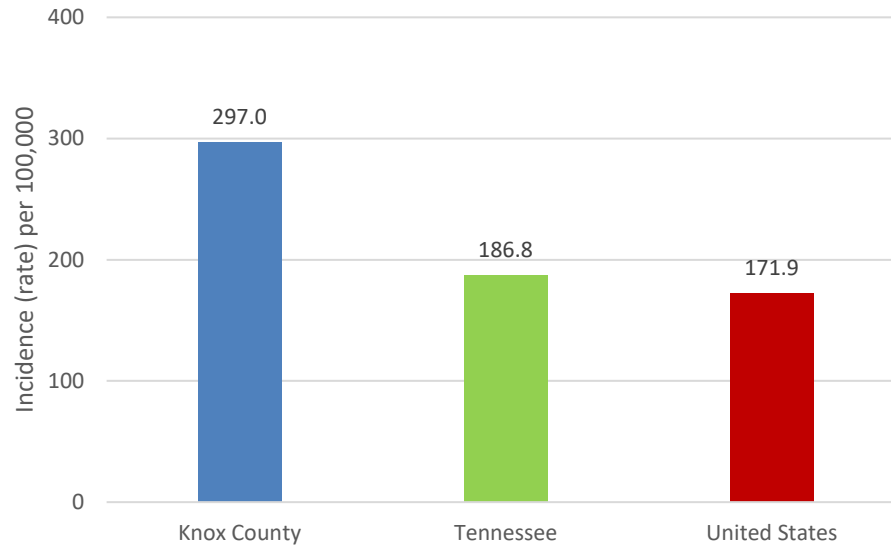


Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

GONORRHEA

The CDC received 555,608 reports of gonorrhea cases in 2017.⁽²⁾ An increase in cases was reported in all regions of the U.S. from 2015 to 2017. The incidence of gonorrhea in Knox County (297 cases per 100,000 population) is greater than the incidence in Tennessee (186.8 cases per 100,000 population) and in the U.S. (171.9 cases per 100,000 population).

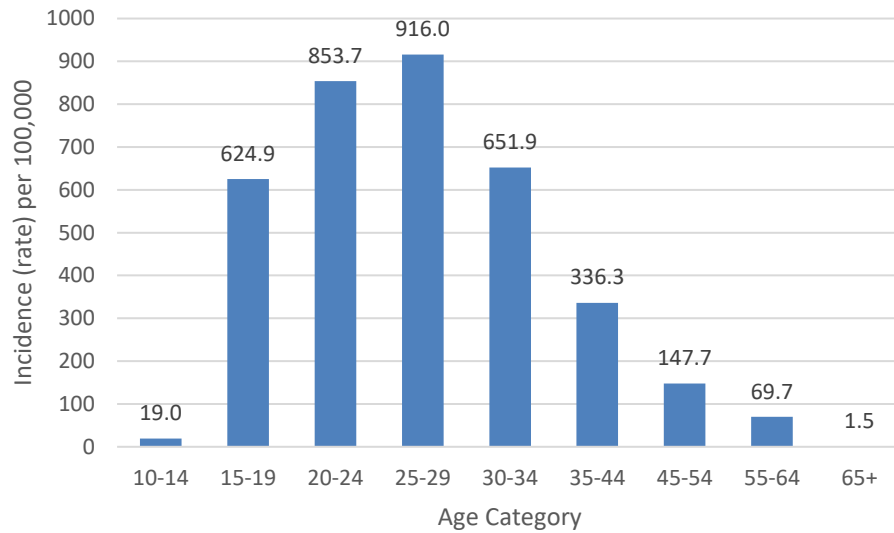
Figure 7. Gonorrhea Incidence in Knox County, Tennessee and the U.S. (2017)



Sources: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM); CDC

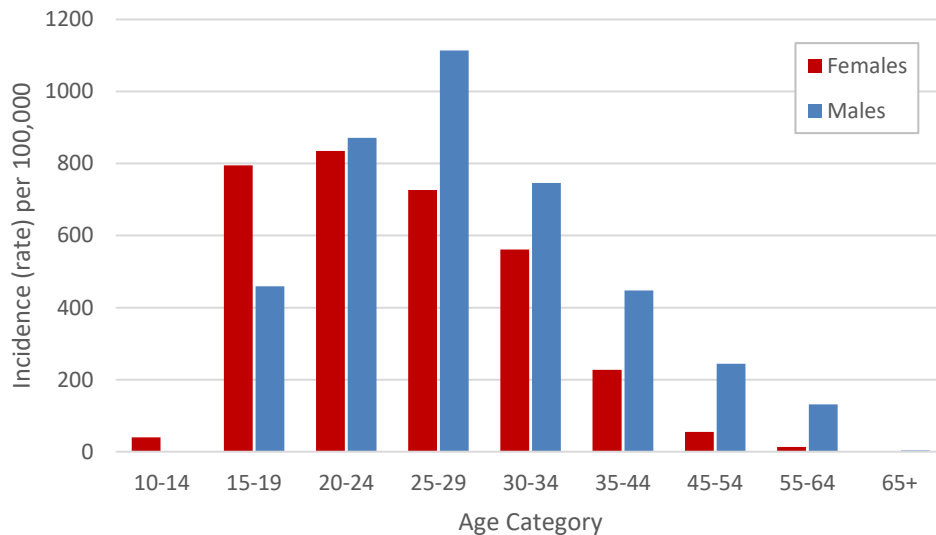
In Knox County, females ages 15-29 and males ages 20-34 experience the greatest incidence of gonorrhea. The Healthy People 2020 goal is to reduce gonorrhea incidence in females ages 15-44 to 252 cases per 100,000 population and reduce the incidence of gonorrhea to 195 cases per 100,000 among males in the same age category.⁽³⁾ Incidence in Knox County among females ages 15-44 is 1,681.7 per 100,000 females and six times greater than the Healthy People 2020 target. Incidence among males ages 15-44 is 980.6 per 100,000 males, nearly five times greater than the Healthy People 2020 target.

Figure 8. Gonorrhea Incidence in Knox County, by age (2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

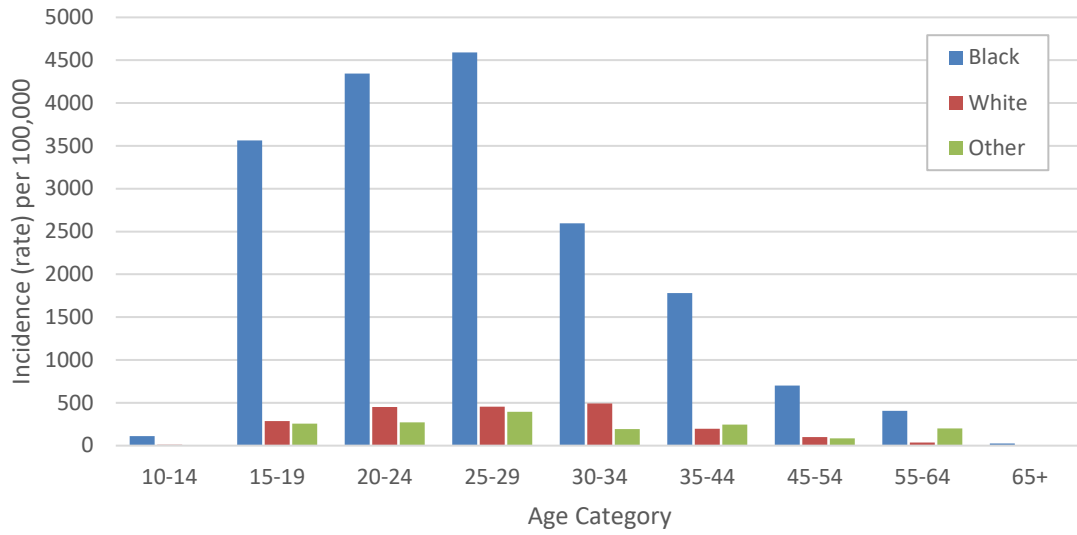
Figure 9. Gonorrhea Incidence in Knox County, by sex and age (2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

Nearly half of all gonorrhea cases in 2017 occurred in the 20-29 age group. Gonorrhea incidence in Knox County is disproportionately greater among the black population than the white population (1,600 cases per 100,000 black individuals versus 170 cases per 100,000 white individuals). Incidence is greatest in the 25-29 age group but is disproportionately greater among black individuals (4,589.9 cases per 100,000 black individuals) than white individuals in the same age category (456.5 cases per 100,000 white individuals).

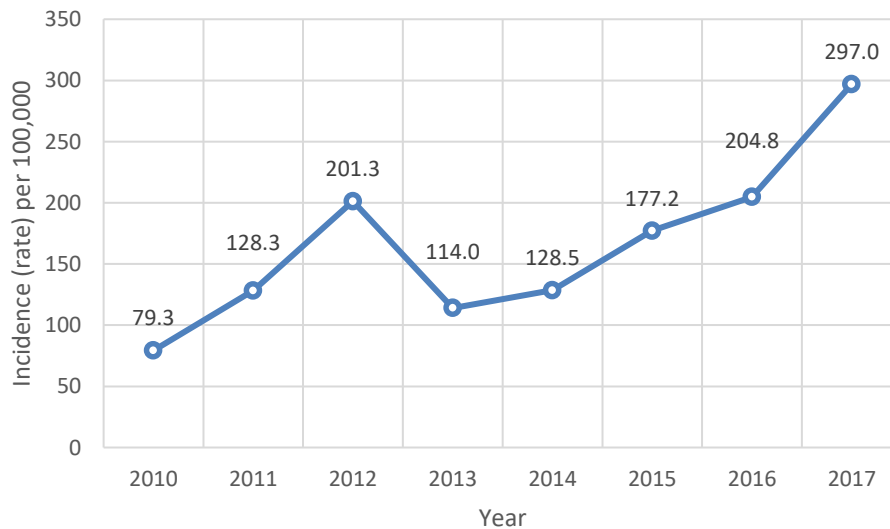
Figure 10. Gonorrhea Incidence in Knox County, by age and race (2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

In Knox County, gonorrhea incidence has increased by 160 percent from 2013 to 2017. This increase reflects 820 additional cases (511 cases in 2013 and 1,331 cases in 2017).

Figure 11. Gonorrhea Incidence in Knox County, by year (2010-2017)



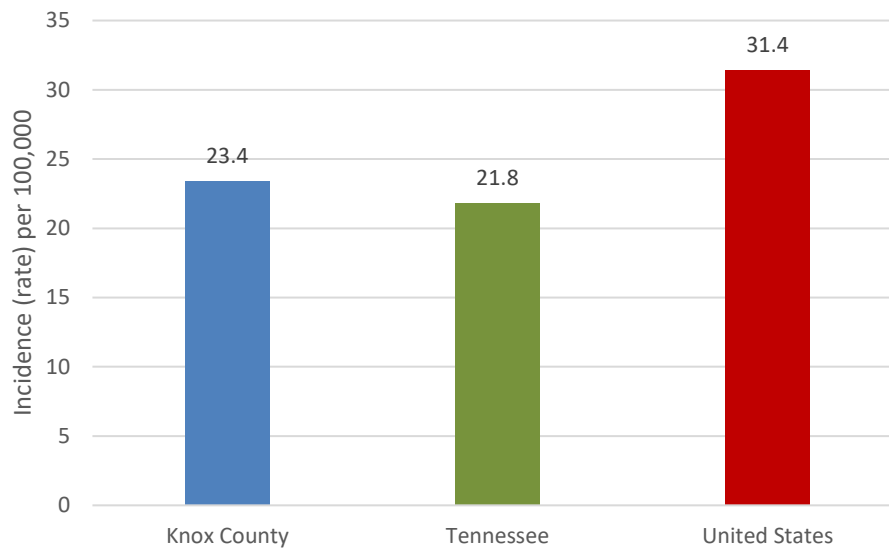
Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

SYPHILIS

In 2017, more than 101,000 cases of syphilis (all stages: primary, secondary, early latent, late latent and congenital) were reported to the CDC. Nearly 32 percent of all syphilis cases were primary or secondary syphilis.⁽⁴⁾

Syphilis incidence in Knox County (23.4 cases per 100,000 population) is lower than the incidence in the U.S. (31.4 cases per 100,000) and greater than Tennessee (21.8 cases per 100,000 population).⁽⁴⁾

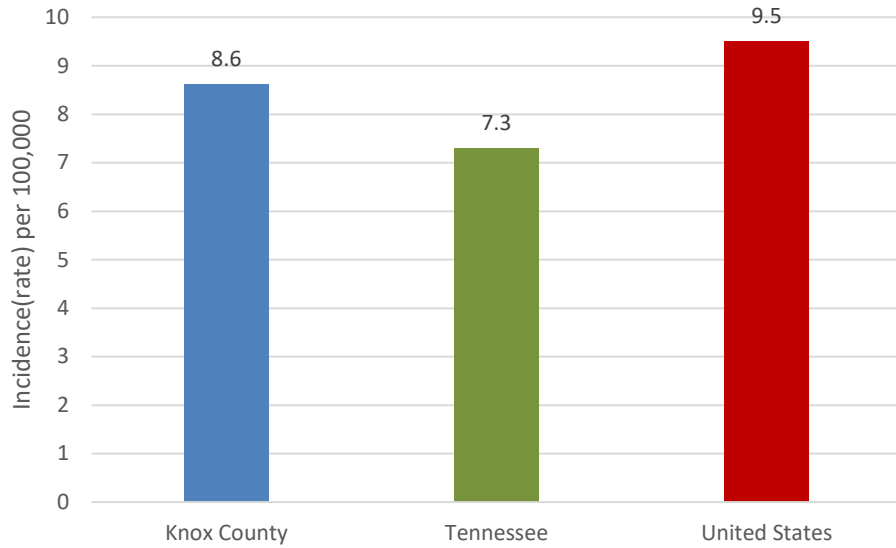
Figure 12. Syphilis Incidence (all stages*) in Knox County, Tennessee, and the U.S. (2017)



Sources: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM); CDC
*All stages of syphilis include primary, secondary, early latent and late latent cases.

The Healthy People 2020 goal is to reduce the rate of primary and secondary syphilis in females to 1.3 cases per 100,000 females and to reduce the rate in males to 6.8 cases per 100,000 males.⁽³⁾ In 2017, 38 cases (an incidence of 8.6 cases per 100,000 population) of primary and secondary syphilis were reported to the Knox County Health Department. All cases of primary and secondary syphilis that were reported were among men. The incidence of primary and secondary syphilis for males was 17.7 cases per 100,000 males, more than double the Healthy People 2020 target.

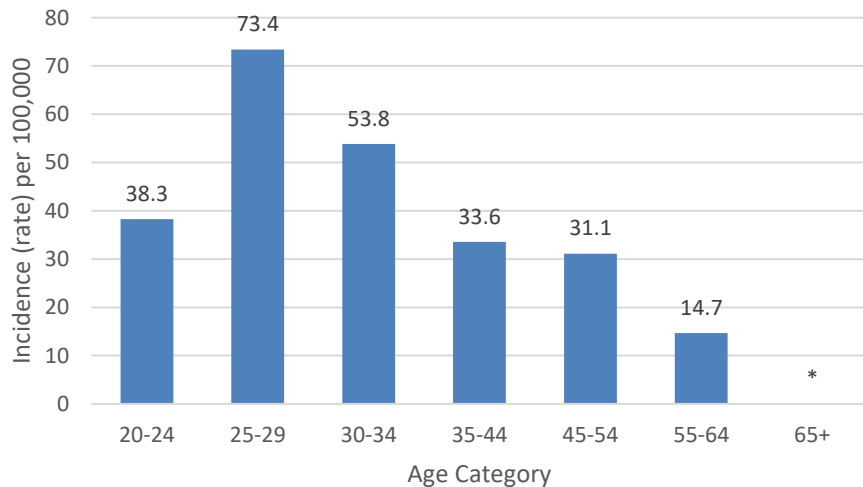
Figure 13. Incidence of Primary and Secondary Syphilis, Knox County, Tennessee and the U.S. (2017)



Sources: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM); CDC

The incidence of syphilis (all stages) in Knox County is greatest among individuals ages 25-34. Syphilis incidence in Knox County is higher among males (41.5 cases per 100,000 males) than females (6.2 cases per 100,000 females). Congenital syphilis has increased in the United States since 2013 (an increase of 153 percent from 362 cases in 2013 to 918 cases in 2017). However, Tennessee has not seen a significant increase during that same timeframe. Additionally, less than five cases have been reported in Knox County between 2013 and 2017.

Figure 14. Syphilis Incidence (all stages) in Knox County, by age (2017)

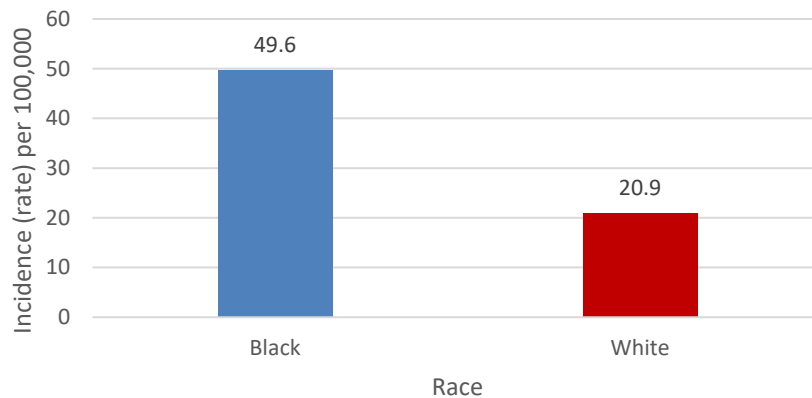


Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

*Case number was below five, therefore an incidence rate was not calculated.

Syphilis incidence among black males (82.5 cases per 100,000 black males) is greater than incidence among whites (41.5 cases per 100,000 white males). Syphilis cases among white females was 5.1 cases per 100,000. Syphilis cases among black females were too low to calculate a reliable incidence.

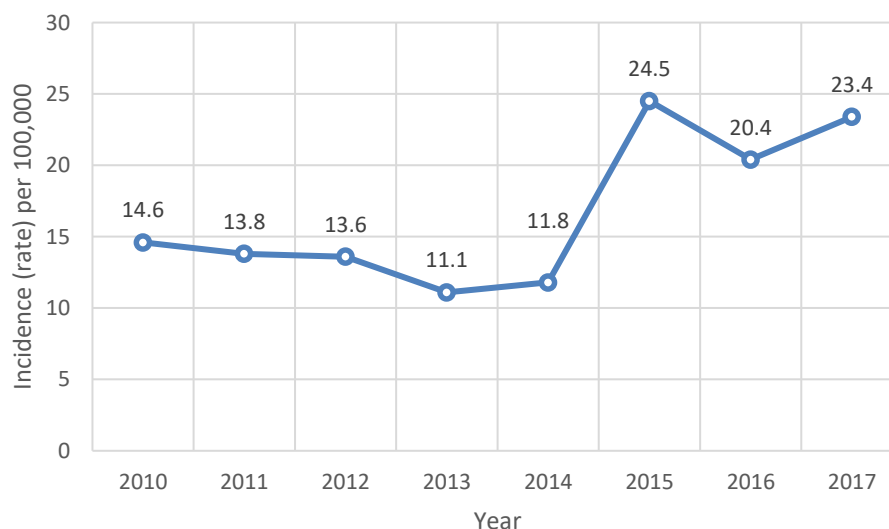
Figure 15. Syphilis Incidence (all stages) in Knox County, by race, 2017



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

Syphilis incidence more than doubled from 2014 to 2015, an increase of 56 cases. Cases among females increased from five cases in 2014 to 14 cases in 2015, while cases among men increased from 47 cases in 2014 to 95 cases in 2015. For 2017, 103 cases were reported.

Figure 16. Syphilis Incidence (all stages), Knox County, by year (2010-2017)



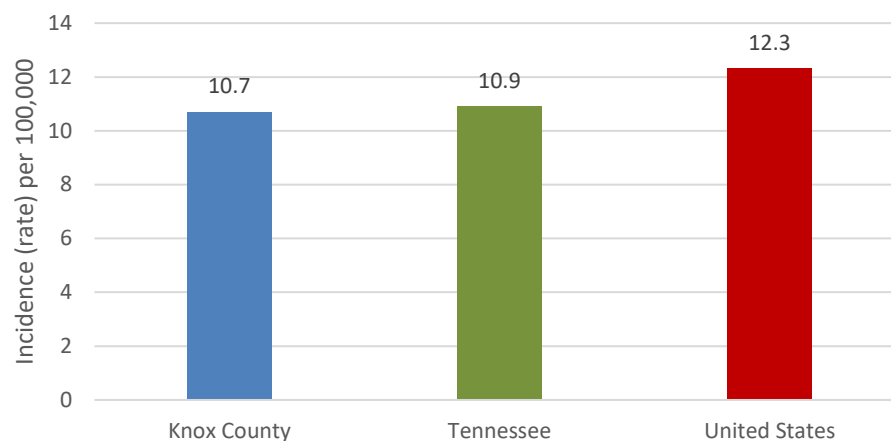
Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

HIV

The CDC estimates that there are more than 970,000 people living with HIV infections in the U.S., and that 40,000 new infections occur each year. HIV incidence in 2016 was greatest in the southern region of the U.S. Nationally, black individuals and individuals ages 25-29 had the highest incidence of HIV (34.8 per 100,000 and 43.6 per 100,000 black individuals respectively).⁽⁵⁾

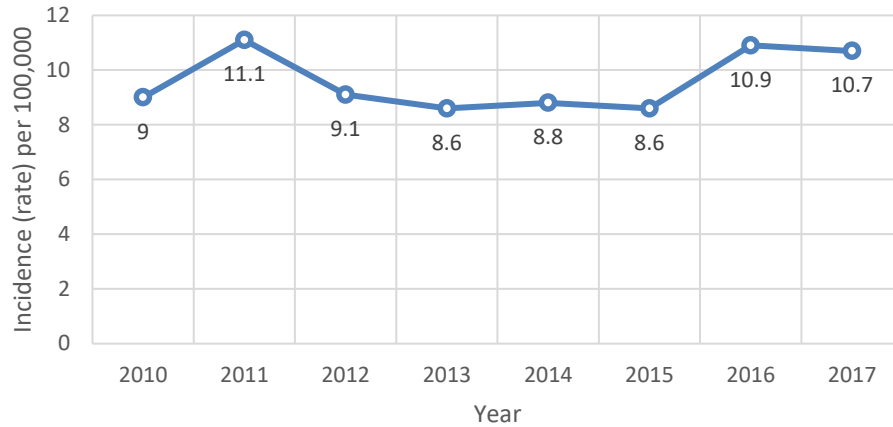
HIV incidence in Tennessee and the U.S. is greater than in Knox County.⁽⁵⁾ The majority of cases reported in Knox County are among males, with a greater incidence among black males (56.7 cases per 100,000 black males) than white males (11.4 cases per 100,000 white males). Incidence among females (6.6 cases per 100,000 females) was less than that among males (14.9 cases per 100,000 males).

Figure 17. HIV Incidence in Knox County (2017), Tennessee and the U.S. (2016)



Sources: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM); CDC

Figure 18. HIV Incidence in Knox County, by year (2010-2017)



Source: Knox County Health Department, Patient Reporting Investigation Surveillance Manager (PRISM)

HIV incidence in Knox County is greatest among individuals ages 30-34 (30.3 cases per 100,000) followed by the 35-44 age category (24.7 cases per 100,000). Incidence by race and by other age categories could not be calculated because of the low number of cases in each category.

An average of 42 cases are reported to the Knox County Health Department every year. Incidence of HIV ranged between 8.6 per 100,000 population and 11.1 per 100,000 population from 2010 to 2017.

CONCLUSION

Although cases of HIV/AIDS and syphilis have remained relatively unchanged when comparing data year-to-year, a continuous increase in gonorrhea and chlamydia is particularly concerning. Similar increases have been detected in the southeastern U.S. Investigating changes in risk factors and case demographics may reveal riskier sexual practices among individuals in at-risk age, race and gender categories.

The only method that is 100 percent effective at preventing STIs is abstinence. For sexually active individuals, the best methods for STI prevention include mutual monogamy, reduction in the number of sexual partners, consistent condom use, HPV vaccination and regular STI testing.⁽⁶⁾

The Knox County Health Department routinely screens for and treats STIs. Contact investigations are performed for chlamydia, gonorrhea, syphilis and HIV cases. Confidential STI testing is available at the Knox County Health Department, Monday through Friday, during normal business hours.

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Sources

1. (CDC) Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2017*. Atlanta: U.S. Department of Health and Human Services; 2018. *Chlamydia*. September 25, 2018. Retrieved from <https://www.cdc.gov/std/stats17/chlamydia.htm>.
2. (CDC) Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2017*. Atlanta: U.S. Department of Health and Human Services; 2018. *Gonorrhea*. September 25, 2018. Retrieved <https://www.cdc.gov/std/stats17/gonorrhea.htm>.
3. Office of Disease Prevention and Health Promotion. Healthy People 2020: Sexually Transmitted Diseases. April 2018. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases/objectives>
4. (CDC) Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2017*. Atlanta: U.S. Department of Health and Human Services; 2018. *Syphilis*. September 26, 2017. Retrieved from <http://www.cdc.gov/std/stats16/Syphilis.htm>.
5. (CDC) Centers for Disease Control and Prevention. *HIV Surveillance Report, 2016*; vol. 28. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published November 2017. Accessed April 29, 2018.
6. (CDC) Centers for Disease Control and Prevention. Sexually Transmitted Diseases (STDs). *Prevention*. March 31, 2016. Retrieved from www.cdc.gov/std/prevention/default.htm.