

HIV and Sexually Transmitted Infections

Sexually transmitted infections (STIs) continue to be a significant public health issue in the United States. In fact, most sexually active people will have an STI at some point during their lifetime (Satterwhite et al., 2013). Including HIV infections, there are an estimated 19–20 million new STIs annually in the U.S. (CDC, 2013). The prevalence of STIs in the U.S. population in 2008 was estimated at around 110 million infections with lifetime direct medical costs estimated at \$16 billion (CDC, 2013).

Anyone who is sexually active risks exposure to an STI. Having unprotected (without use of a latex condom)vaginal or anal sex increases risk of STI transmission. Oral sex, without usage of a latex condom or dental dam, can also transmit infection. Additional risk factors including having sexual contact with multiple partners and substance use, which can inhibit judgment and increase risky behaviors.

STIs are often asymptomatic and treatment may be delayed. Thus, screening for STIs is an important part of routine health care (CDC, 2014o). Unlike HIV, most STIs are curable with treatment. However, antimicrobial resistance has emerged as an issue for the treatment of some STIs.

Chlamydia, Syphilis and Gonorrhea

In Illinois, chlamydia, gonorrhea, and syphilis are reportable conditions. Because individuals diagnosed with STIs may practice high-risk behaviors, IDPH conducts interventions targeting these high-risk individuals (see section, “IDPH HIV Programs”). Interventions include HIV testing and expedited partner therapy, among others.

Chlamydia

Chlamydia, caused by the bacterium *Chlamydia trachomatis*, is the most common sexually transmitted bacterial infection in the United States (CDC, 2014h). Most chlamydial infections are asymptomatic though some men (~10%) and women (~10-30%) may develop symptoms (CDC, 2014c).

Untreated chlamydial infection can cause pelvic inflammatory disease in women, which can lead to chronic pelvic pain and infertility. Chlamydial infection has also been linked to problems during pregnancy and, newborns may become infected during birth, which can lead to eye or lung infections. CDC recommends that all pregnant women be screened for chlamydia (CDC, 2014c).

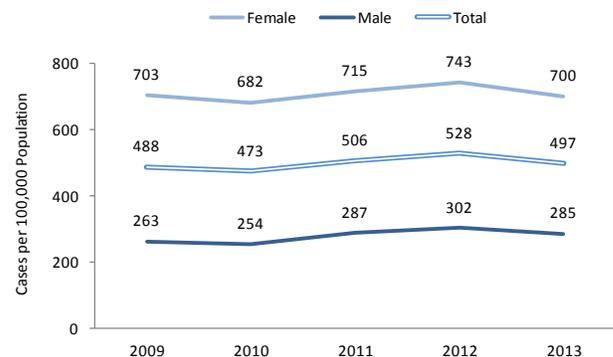
Illinois

In 2013, there were 63,797 cases of chlamydia reported in Illinois or 497 cases per 100,000 population. Illinois had the 12th highest rate of chlamydia infection among the 50 states in 2013 (CDC, 2014h).

Sex

Females account for the majority of reported chlamydial infections. This is likely due to higher screening rates among women. However, with increased availability of urine testing, men are increasingly being tested for and diagnosed with chlamydial infection (CDC, 2014h). In 2013, reported rates of chlamydial infections were over two-fold higher among Illinois women than men with 0.7 chlamydial infections diagnosed per 100 females.

Figure 1. Rate of Reported Chlamydia Cases by Sex, Illinois, 2009–2013

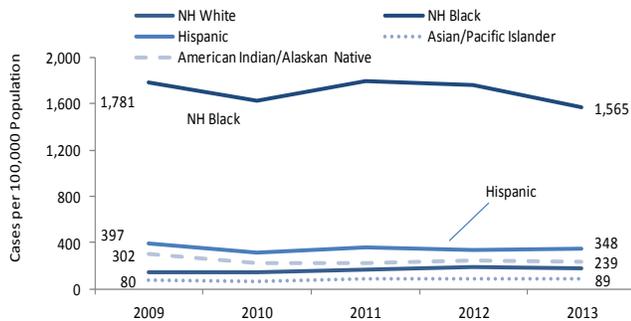


Source: Illinois Department of Public Health STD Program Data, 2015

Race/Ethnicity

Despite a decline in the rate of chlamydial infections from 2009 to 2013, non-Hispanic (NH) blacks continued to have the highest infection rate among all racial/ethnic groups in Illinois. In 2013, the rate among NH blacks was seven-fold higher than among NH whites and four-fold higher than among Hispanics. In 2013, there were 1.5 chlamydial infections for every 100 NH black Illinois residents.

Figure 2. Rate of Reported Chlamydia Cases by Race/Ethnicity, Illinois, 2009–2013



Source: Illinois Department of Public Health STD Program Data, 2015

Age at Diagnosis

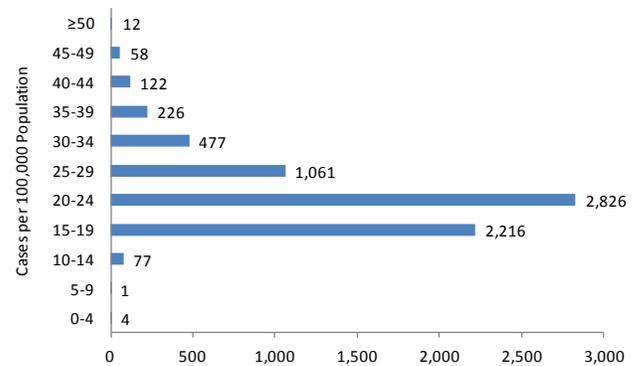
Chlamydial infection rates peak in young adults aged 20–24 years. In 2013, almost 3% of young adults in Illinois aged 20–24 years were diagnosed with chlamydia.

Sexually active youth are at higher risk of acquiring chlamydia for a combination of behavioral, biological, and cultural reasons. In 2013, among sexually active Illinois high school students, 42% reported not using a condom during last sexual intercourse (see section, “Youth”) (CDC, 2014a). Youth may face barriers, such as transportation or stigma, that can reduce access to STI prevention services (CDC, 2014c). Teenage girls and young women are at increased risk due to cervical changes that can increase susceptibility to STIs. (CDC, 2014c).

Did You Know?

Youth (15–24 years) account for 50% of all new STIs in the U.S., although they represent just 25% of the sexually experienced population.

Figure 3. Rate of Reported Chlamydia Cases by Age at Diagnosis, Illinois, 2013



Source: Illinois Department of Public Health STD Program Data, 2015

Syphilis

Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*. Syphilis is transmitted person-to-person by direct contact with a syphilitic sore, known as a chancre (primary syphilis). Chancres occur mainly in the genital and rectal areas but can also occur on the lips and in the mouth. Transmission can occur during vaginal, anal, or oral sex and pregnant women with the disease can transmit it to their unborn child (CDC, 2014q). Syphilis can be successfully treated with appropriate antibiotics; however, treatment does not reverse organ damage that may have been caused by the bacterium (CDC, 2014q).

Untreated syphilis develops in stages and symptoms vary with each stage. The first stage is development of the chancre, normally at the location where the bacteria entered the body. The chancre is painless and can be hidden within the vagina or rectum, making it difficult to detect. Secondary syphilis occurs a few weeks after the chancre heals and can present as a non-itchy rash. Other symptoms of secondary syphilis include sore throat, fever, and swollen lymph nodes. These signs and symptoms may disappear within a few weeks or can reoccur.

Without treatment, the disease moves from the second stage to the asymptomatic latent stage. The asymptomatic stage has two phases: early latent stage (within 1 year of infection) and late latent stage (after 1 year). Late latent syphilis is noninfectious. Symptoms may never return or may progress to tertiary (late) syphilis, which occurs in about 15–30% of untreated individuals. In the

tertiary stage, the disease may damage the brain, nerves, bones, and other organs and may result in death. Tertiary syphilis usually occurs three or more years after the original, untreated infection (CDC, 2014q).

Among pregnant women, untreated syphilis can result in complications during pregnancy including fetal death. Children born with congenital syphilis can experience serious health effects. CDC recommends that all pregnant women be screened for syphilis.

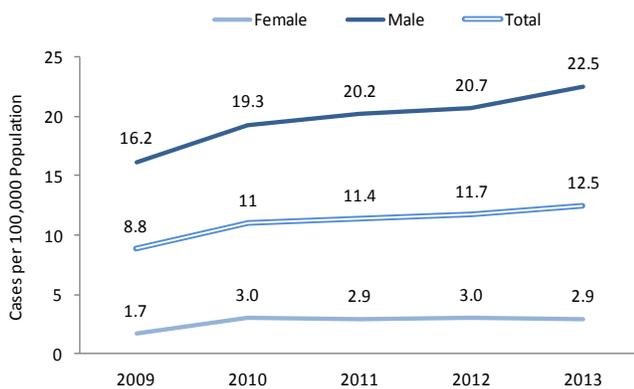
Illinois

In 2013, there were 2,661 cases of any stage of syphilis and 1,607 cases of early syphilis reported in Illinois. Twenty-three cases of congenital syphilis were reported or 13.9 cases per 100,000 live births (CDC, 2014h).

Sex

In Illinois, rates of early syphilis infection are much higher in males than females. Rates among Illinois males have increased steadily since 2009. Nationally, syphilis rates have been increasing overall, after a long period of decline. The rise in incidence has been attributed to increased cases among men who have sex with men (MSM). In 2013, MSM accounted for 75% of all primary and secondary syphilis cases in the U.S. (CDC, 2014q).

Figure 4. Rate of Reported Early Syphilis Cases by Sex, Illinois, 2009–2013



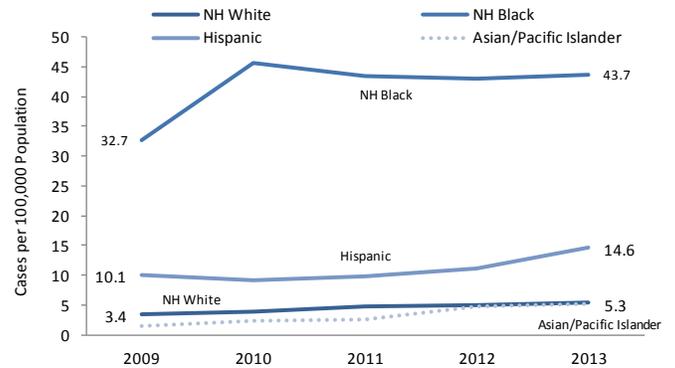
Note: Early syphilis is defined as syphilis diagnosed at the primary, secondary or early latent stage.

Source: Illinois Department of Public Health STD Program Data, 2015

Race/Ethnicity

NH blacks had the highest rates of early syphilis infections from 2009–2013. In 2013, the rate among NH blacks was 2.5 times higher than among Hispanics and eight times higher than among NH whites. From 2009–2013, early syphilis infection rates increased among all racial/ethnic groups in Illinois.

Figure 5. Rate of Reported Early Syphilis Cases by Race/Ethnicity, Illinois, 2009–2013



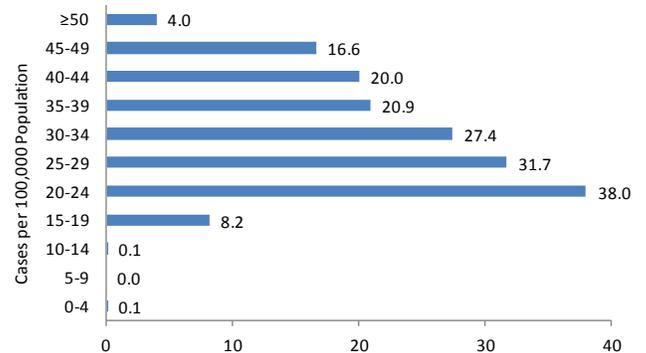
Note: Early syphilis is defined as syphilis diagnosed at the primary, secondary or early latent stage.

Source: Illinois Department of Public Health STD Program Data, 2015

Age at Diagnosis

In 2013, early syphilis infection rates peaked in youth aged 20–24 years. Among adults >24 years, infection rates declined with increasing age.

Figure 5. Rate of Reported Early Syphilis Cases by Age at Diagnosis, Illinois, 2013



Note: Early syphilis is defined as syphilis diagnosed at the primary, secondary or early latent stage.

Source: Illinois Department of Public Health STD Program Data, 2015

Gonorrhea

Gonorrhea, the second most common bacterial STI, is caused by infection with the *Neisseria gonorrhoeae* bacterium. *N. gonorrhoeae* infects the mucous membranes of the reproductive tract. It can also infect the mucous membranes of the mouth, throat, eyes, and anus. Infections due to *N. gonorrhoeae*, like those resulting from *C. trachomatis*, can cause pelvic inflammatory disease. Gonorrhea is transmitted through sexual contact and also perinatally during childbirth (CDC, 2014f).

Nationally, gonorrhea infection rates decreased from the 1970s to the late 1990s. Since 2009, when rates reached a record low, rates have increased slightly. While a treatable infection, *N. gonorrhoeae* has progressively developed resistance to the antimicrobials used for treatment. Current treatment guidelines call for dual therapy using two antimicrobials with different mechanisms of action (CDC, 2015a).

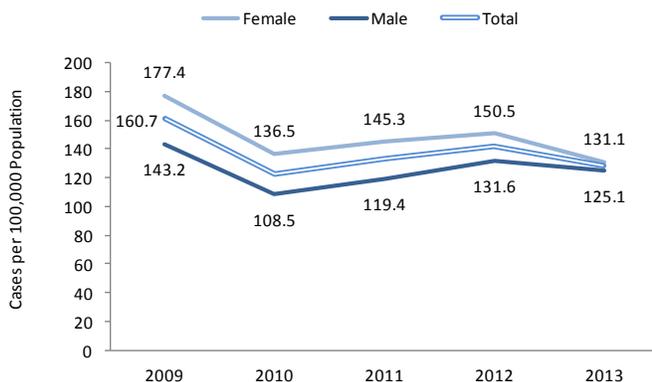
Illinois

In 2013, there were 16,646 gonorrhea cases reported in Illinois and Illinois had the 13th highest infection rate among the 50 states.

Sex

Gonorrhea rates among women and men were similar in 2013; however, there was a trend of a decline in rates among women and an increase among men from 2009–2013. This mirrors what was seen nationally (CDC, 2014h). The increase among men compared with a decrease among women may be due to increased transmission among men or increased case ascertainment (e.g., through increased extra-genital screening) (CDC, 2014h).

Figure 6. Rate of Reported Gonorrhea Cases by Sex, Illinois, 2009–2013

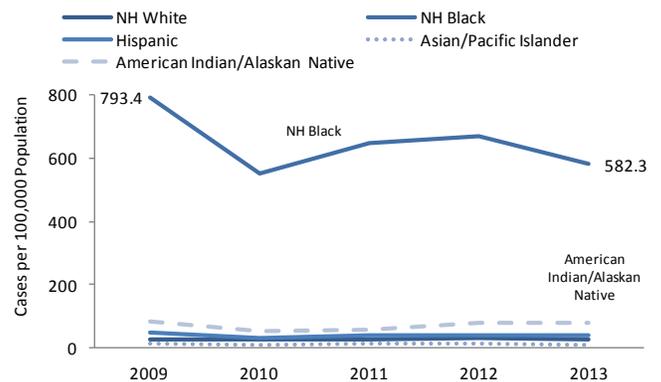


Source: Illinois Department of Public Health STD Program Data, 2015

Race/Ethnicity

Gonorrheal infection rates were 20-fold higher among NH blacks than NH whites in Illinois in 2013. Rates of gonorrheal infection have declined among NH blacks since 2009 while remaining relatively level among other racial/ethnic groups. The racial/ethnic group with the second highest infection rate in 2013 after NH blacks were American Indians/Alaskan Natives. Higher gonorrheal infection rates in this population have also been seen nationally (CDC, 2014h).

Figure 7. Rate of Reported Gonorrhea Cases by Race/Ethnicity, Illinois, 2009–2013

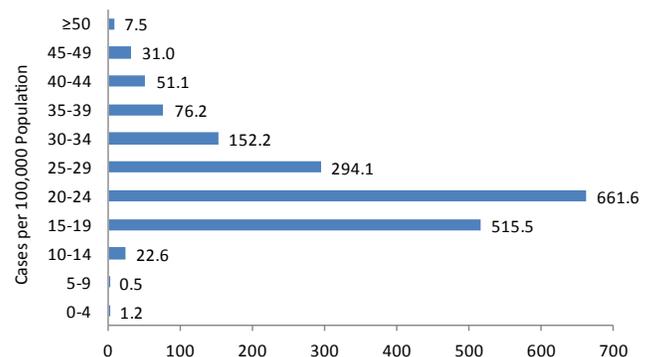


Source: Illinois Department of Public Health STD Program Data, 2015

Age at Diagnosis

As with other STIs, rates of gonorrheal infection peaked in youth 20–24 years. There were 0.7 gonorrheal infections diagnosed per 100 Illinois youth aged 20–24 years in 2013. After age 24 years, there was a decrease in infection rates with increasing age.

Figure 7. Rate of Reported Gonorrhea Cases by Age at Diagnosis, Illinois, 2013



Source: Illinois Department of Public Health STD Program Data, 2015

HIV and STI Co-Infection

Risk behaviors, such as having sex without a condom, and having multiple sexual partners, increase the risk of acquiring STIs, as well as HIV (CDC, 2015c). Having an existing STI can increase risk of HIV infection and transmission due to biological factors such as mucosal inflammation and ulcers which can increase HIV infectiousness, susceptibility or both (Galvin and Cohen, 2004). In Illinois, rates of HIV and STI co-infection are monitored to better understand the epidemiology of these diseases and to inform interventions.

Chlamydia and HIV

In 2014, there was limited co-infection of HIV and chlamydia—among the almost 59,000 individuals diagnosed with chlamydia in Illinois, <1% of cases were co-infected with HIV (n=609). Chlamydia is primarily diagnosed among adolescent girls and young women and, because this population does not have a high prevalence of HIV, limited overlap of these populations is expected.

Table 1. Number of Individuals Diagnosed with Chlamydia by Sex and HIV Infection Status, Illinois, 2014

	Male	Female	Total
HIV Negative	17,004	41,175	58,179
HIV Positive	530	79	609
Total	17,534	41,254	58,788

Note: Infections have been de-duplicated to exclude individuals with multiple chlamydial infections in the same year. Therefore, the total number of chlamydial infections in this table does not capture the total number of chlamydial infections reported to IDPH in 2014 n=64,454 .

Source: Illinois Department of Public Health STD Program Data, 2015

Although the majority (70%) of chlamydia cases were female, the majority (87%) of co-infected cases were male. Among males who tested positive for chlamydia, 3% were co-infected with HIV.

Syphilis and HIV

In 2014, there was a high rate of co-infection of HIV and syphilis—of the 1,644 individuals diagnosed with early syphilis, 35.6% were co-infected with HIV. Almost all individuals with co-infection (96%) were male. Nationally, there has been an increase of

syphilis and HIV co-infection among MSM (Zetola and Klausner, 2007).

Table 2. Number of Individuals Diagnosed with Early Syphilis by Sex and HIV Infection Status, Illinois, 2014

	Male	Female	Total
HIV Negative	851	207	1,058
HIV Positive	578	8	586
Total	1,429	215	1,644

Note: Early syphilis is defined a primary, secondary and early latent stages. Infections have been de-duplicated to exclude individuals with multiple infections of early syphilis in the same year. Therefore, the total number of early syphilis infections in this table does not capture the total number of early syphilis infections reported to IDPH in 2014 n=1,682 .

Source: Illinois Department of Public Health STD Program Data, 2015

Gonorrhea and HIV

In 2014, co-infection of gonorrhea and HIV was low with 4% of individuals diagnosed with gonorrhea co-infected with HIV. As seen with the other STIs, the majority of those co-infected were male. Among males infected with gonorrhea, 7.5% were co-infected with HIV while among females, the co-infection rate was 0.3%.

Table 3. Number of Individuals Diagnosed with Gonorrhea by Sex and HIV Infection Status, Illinois, 2014

	Male	Female	Total
HIV Negative	6,554	6,848	13,402
HIV Positive	527	22	549
Total	7,081	6,870	13,951

Note: Infections have been de-duplicated to exclude individuals with multiple gonorrheal infections in the same year. Therefore, the total number of infections in this table does not capture the total number of gonorrheal infections reported to IDPH in 2014 n=14,943.

Source: Illinois Department of Public Health STD Program Data, 2015

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