

# PUBLIC HEALTH REFERENCE SHEET

## Chlamydia



<b>Name</b>	<i>Chlamydia trachomatis</i>
<b>Reservoir &amp; Transmission</b>	Humans; sexual contact with the penis, vagina, mouth, or anus of an infected partner. Neonatal infection results from exposure to the mother's infected cervix.
<b>Incubation Period</b>	Poorly defined, probably 7–14 days or longer
<b>Common Symptoms</b>	Mostly asymptomatic. In males, manifests as urethritis, and in females as cervicitis are most common manifestations.
<b>Gold Standard Diagnostic Test</b>	Nucleic acid amplification tests offer >90% sensitivity and high specificity and can be used with noninvasive and minimally invasive specimens, including vaginal swabs and urine specimens.
<b>Risk Groups</b>	Sexually active persons, especially adolescents and young adults, and those with concurrent or multiple sex partners
<b>Geographic Significance</b>	Most common Sexually Transmitted Infection (STI) in the United States; can be found worldwide

### What is chlamydia?

Chlamydia is a common Sexually Transmitted Infection (STI) caused by infection with *Chlamydia trachomatis*. It can cause cervicitis, urethritis, and proctitis. In women, these infections can lead to pelvic inflammatory disease (PID), tubal factor infertility, ectopic pregnancy, and chronic pelvic pain. Lymphogranuloma venereum (LGV) is another type of STI caused by *C. trachomatis*. LGV is the cause of recent proctitis outbreaks among gay, bisexual, and other men who have sex with men (MSM) worldwide.

### What is the occurrence of chlamydia?

The CDC estimates that there were 4 million chlamydial infections in 2018. Chlamydia is also the most frequently reported bacterial sexually transmitted infection in the United States. It is difficult to account for many cases of chlamydia. Most people with the infection have no symptoms and do not seek testing.

Chlamydia is most common among young people. Almost two-thirds of new chlamydia infections occur among youth aged 15–24 years. It is estimated that 1 in 20 sexually active females aged 14–24 years have chlamydia.

Disparities persist among racial and ethnic minority groups. In 2020, chlamydia rates for African Americans/Blacks were six times that of Whites. Chlamydia is also common among MSM. Among MSM screened for rectal chlamydial infection, positivity ranges from 3.0% to 10.5%. Among MSM screened for pharyngeal chlamydial infection, positivity has ranges from 0.5% to 2.3%. Depending on the affected anatomical site/exposure to chlamydia the Military Treatment Facilities will test lab samples from swabs collected from all anatomical sites.

### How is chlamydia transmitted?

Chlamydia spreads through vaginal, anal, or oral sex with someone with the infection. Semen does not have to be present to get or spread the infection.

Pregnant people can give chlamydia to their baby during childbirth. This can cause ophthalmia neonatorum (conjunctivitis) or pneumonia in some infants. Rectal or genital infection can persist 1 year or longer in infants infected at birth. However, sexual abuse should be a consideration among young children with vaginal, urethral, or rectal infection beyond the neonatal period.

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People treated for chlamydia can get the infection again if they have sex with a person with chlamydia.

### Who is at risk for chlamydia?

Sexually active people can get chlamydia through vaginal, anal, or oral sex without a condom with a partner who has chlamydia. It is a very common STI, especially among young people.

Sexually active young people are at high risk of getting chlamydia for behavioral, biological, and cultural reasons. Some don't always use condoms. Some may move from one monogamous relationship to another during the likely infectivity period of chlamydia. This can increase the risk of transmission. Teenage girls and young women may have cervical ectopy (where cells from the endocervix are present on the ectocervix). Cervical ectopy may increase susceptibility to chlamydial infection. High chlamydia prevalence among young people also may reflect barriers to accessing STI prevention services. These barriers can include lack of transportation, cost, and perceived stigma.

MSM are also at risk for infection since chlamydia can spread by oral or anal sex. Among MSM screened for rectal infection, positivity ranges from 3.0% to 10.5%. Among MSM screened for pharyngeal infection, positivity ranges from 0.5% to 2.3%.

### What are the signs and symptoms of chlamydia?

Some refer to chlamydia as a "silent" infection. This is because most people with the infection have no symptoms or abnormal physical exam findings. Studies find that the proportion of people with chlamydia who develop symptoms vary by setting and study methodology. Two modeling studies estimate that about 10% of men and 5–30% of women with a confirmed infection develop symptoms. The incubation period of chlamydia is unclear. Given the relatively slow replication cycle of the organism, symptoms may not appear until several weeks after exposure in people who develop symptoms.

In women, the bacteria initially infect the cervix. This may cause signs and symptoms of cervicitis (e.g., mucopurulent endocervical discharge, easily induced endocervical bleeding). It also can infect the urethra. This may cause signs and symptoms of urethritis (e.g., pyuria, dysuria, urinary frequency). Infection can spread from the cervix to the upper reproductive tract (i.e., uterus, fallopian tubes), causing PID. PID may be asymptomatic ("subclinical PID") or acute, with typical symptoms of abdominal and/or pelvic pain. Signs of cervical motion tenderness and uterine or adnexal tenderness also may occur during examination.

Men with symptoms typically have urethritis, with a mucoid or watery urethral discharge and dysuria. Some men develop epididymitis (with or without symptomatic urethritis) with unilateral testicular pain, tenderness, and swelling.

Chlamydia can infect the rectum in men and women, either directly (through receptive anal sex), or possibly via spread from the cervix and vagina in a woman with cervical chlamydial infection. While these infections are often asymptomatic, they can cause symptoms of proctitis (e.g., rectal pain, discharge, and/or bleeding). Sexually acquired chlamydial conjunctivitis can occur in both men and women through contact with infected genital secretions. While chlamydia can also be found in the throats of women and men having oral sex with an infected partner, it is typically asymptomatic and not thought to be an important cause of pharyngitis.

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### What are potential complications of chlamydia?

The initial damage that chlamydia causes is often unnoticed. However, chlamydial infections can lead to serious health problems with both short- and long-term consequences. In women, untreated chlamydia can spread into the uterus or fallopian tubes and cause PID.

Symptomatic PID occurs in about 10 to 15% of women with untreated chlamydia. However, chlamydia can also cause subclinical inflammation of the upper genital tract (“subclinical PID”). Both acute and subclinical PID can cause long-term damage to the fallopian tubes, uterus, and surrounding tissues. The damage can lead to chronic pelvic pain, tubal factor infertility, and potentially fatal ectopic pregnancy.

Some patients with chlamydial PID develop perihepatitis, or “Fitz-Hugh-Curtis Syndrome,” an inflammation of the liver capsule and surrounding peritoneum, which can cause right upper quadrant pain. In pregnant women, untreated chlamydia has been associated with pre-term delivery, ophthalmia neonatorum (conjunctivitis), and pneumonia in the newborn. Reactive arthritis can occur in men and women following symptomatic or asymptomatic chlamydial infection. This is sometimes part of a triad of symptoms (with urethritis and conjunctivitis), formerly referred to as Reiter’s Syndrome.

Untreated chlamydia can cause pre-term delivery, the newborn may develop ophthalmia neonatorum (conjunctivitis), and pneumonia. Neonatal prophylaxis against gonococcal conjunctivitis routinely performed at birth does not effectively prevent chlamydial conjunctivitis.

### How is chlamydia diagnosed?

Chlamydia is diagnosed with nucleic acid amplification tests (NAATs), cell culture, and other types of tests. NAATs are the most sensitive tests to use on easy-to-obtain specimens. This includes vaginal swabs (either clinician- or patient-collected) or urine.

To diagnose genital chlamydia in women using a NAAT, vaginal swabs are the optimal specimen. Urine is the specimen of choice for men. Urine is an effective alternative specimen type for women. Self-collected vaginal swab specimens perform as well as other approved specimens using NAATs. Patients may prefer self-collected vaginal swabs or urine-based screening to more invasive specimen collection. Adolescent girls may be good candidates for self-collected vaginal swab- or urine-based screening.

Rectal or pharyngeal infection is diagnosed by testing at the anatomic exposure site. While useful for these specimens, culture is not widely available. Most tests, including NAATs, are not FDA-cleared for use with rectal or pharyngeal swab specimens. NAATs have better sensitivity and specificity compared with culture for the detection of *C. trachomatis* at rectal sites.

### How is chlamydia treated?

The primary antibiotics are doxycycline for 7 days or a single dose of azithromycin. Patients treated with a 7-day course of antibiotics should not have sex until they complete treatment, and their symptoms resolve. Patients treated with single-dose antibiotics should not have sex for 7 days. Although treatment will cure the infection, it will not repair any long-term damage caused by the disease. If a person’s symptoms continue for more than a few days after receiving treatment, they should be reevaluated. Single-dose antibiotics should be considered in patients with history of questionable medication compliance and pregnant individuals.

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Repeat infection with chlamydia is common. Women whose sex partners do not receive appropriate treatment are at high risk for re-infection. Having multiple chlamydial infections increases a woman's risk of serious reproductive health problems (e.g., PID and ectopic pregnancy). A healthcare provider should retest those with chlamydia about 3 months after treatment of an initial infection. Retesting is necessary even if their partners receive successful treatment. If clinically indicated, retesting for "test of cure" should be done after 4 weeks, as premature retesting can still be positive even with successful treatment.

Infants with chlamydia may develop conjunctivitis and/or pneumonia. Healthcare providers can treat infection in infants with antibiotics. Chlamydia infection should be considered in an infant less than 3 months of age with pneumonia if the mother has a history of untreated chlamydia infection or no prenatal care.

In some states, healthcare providers may give people diagnosed with chlamydia an extra course of treatment or prescription for their sex partner(s), called "expedited partner therapy" (EPT). Partners should still seek medical care, regardless of whether they receive EPT.

### **How can chlamydia be prevented?**

The only way to completely avoid chlamydia is to not have vaginal, anal, and oral sex. Using condoms correctly every time someone has sex can reduce the risk of getting or giving chlamydia. A long-term, mutually monogamous relationship with a partner who has been tested and does not have chlamydia reduces risk of disease.

Screening of women for *C. trachomatis* has been shown to reduce the risk of PID. Routine, periodic screening for chlamydia is recommended for defined groups in some countries. In the U.S., chlamydia screening is recommended yearly for all sexually active women aged 25 years and younger, older women with risk factors (e.g., new or multiple sex partners), and men who have receptive anal sex, as well as the first prenatal care visit for all pregnant women. More frequent screening may be performed based on patient risk factors.

Screening and treatment of chlamydia in pregnant women is the best method for preventing neonatal chlamydial disease. All pregnant women should be screened for chlamydia at their first prenatal visit. Pregnant women under 25 and those at increased risk for chlamydia (e.g., women who have a new or more than one sex partner) should be screened again in their third trimester. Pregnant women with chlamydial infection should be retested 4 weeks and 3 months after completion of recommended treatment.

The CDC recommends annual chlamydia screening of all sexually active women younger than 25, as well as older women with risk factors such as new or multiple partners, or a sex partner who has an STI.

Routine screening is not recommended for men; however, screening should be considered for 1) active young men in clinical settings with a high prevalence of chlamydia (e.g., adolescent clinics, correctional facilities), 2) sexually active MSM who have insertive intercourse and may be at risk for urethral chlamydial infection, 3) MSM who have receptive anal intercourse for rectal infection. Screening for pharyngeal infection is not recommended. MSM, including those with HIV, should receive more frequent chlamydia screening at 3- to 6-month intervals if risk behaviors persist or if they or their sexual partners have multiple partners.

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Individuals with HIV should be tested at initial work-up and at least annually.

### What are some public health considerations?

- Report co-infections with other organisms, like gonorrhea, separately.
- Case contact investigations include partners for anal, vaginal, or oral sex within 60 days before symptom onset or diagnosis.

### References:

“Chlamydia,” Centers for Disease Control and Prevention. last reviewed April 12, 2022.

<https://www.cdc.gov/std/chlamydia/>

Defense Health Agency. 2022. *Armed Forces Reportable Medical Events Guidelines and Case Definitions*.

<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington DC: APHA Press.

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