

## What are Chlamydia and Gonorrhea?

**Chlamydia and gonorrhea** are common sexually transmitted diseases (STDs) that are spread through sexual contact with the penis, vagina, mouth, or anus of an infected individual. Chlamydia and gonorrhea can also be transmitted from a mother with an untreated cervical infection to her newborn during childbirth (1).

Chlamydia is caused by infection with the obligate intracellular bacterium *Chlamydia trachomatis*, while gonorrhea is caused by infection with the bacterium *Neisseria gonorrhoeae*.

## Symptoms of Chlamydia

Most individuals infected with chlamydia remain asymptomatic, with only an estimated 10% of infected males showing symptoms and 5-30% of infected females (2). *C. trachomatis* initially infects the cervix of females and sometimes the urethra. In symptomatic females this can result in abnormal vaginal discharge, endocervical bleeding, increased urinary frequency, and dysuria. Symptomatic males generally develop urethritis resulting in urethral discharge, dysuria, and testicular pain. Chlamydia infections of the rectum may lead to rectal pain, discharge and/or bleeding (3). Sexually acquired chlamydial conjunctivitis can also occur in both males and females (4).

Untreated chlamydial infections in females can lead to pelvic inflammatory disease (PID), and PID-associated infertility, ectopic pregnancy, and chronic pelvic pain. Untreated chlamydia during pregnancy has been associated with pre-term delivery. Chlamydial infections can be passed to newborns during delivery, increasing the risk of conjunctivitis (18-44% of cases) and pneumonia (3-16% of cases) (5). Complications in untreated males are rare, but can include epididymitis and sterility. Chlamydial infections can also facilitate the transmission of HIV infection, and in rare cases can cause reactive arthritis (1).

## Symptoms of Gonorrhea

Males may exhibit symptoms of gonorrheal infection; however, most infected females remain asymptomatic, with an estimated 85-90% of infected males showing symptoms and only ~20% of infected females (6). In males, *N. gonorrhoeae* causes genitourinary infections resulting in dysuria, frequent urination, abnormal urethral discharges, and testicular pain and swelling (7). In symptomatic females, symptoms may be so mild that they are mistaken for a bladder or vaginal infection. Symptoms can include dysuria, abnormal vaginal discharge and endocervical bleeding. Rectal infections (in males and females) can lead to discharge from the rectum, itching, bleeding, or painful bowel movements, while pharyngeal infections are generally asymptomatic but may cause a sore throat (7).

Untreated gonorrheal infections in females can lead to pelvic inflammatory disease (PID), and PID-associated infertility, ectopic pregnancy, and chronic pelvic pain. Complications in males include epididymitis and prostatitis. Gonococcal bacteremia, pharyngitis, and arthritis may also occur. Untreated gonorrhea during pregnancy increases the risk of miscarriage and inflammation of the lining of the uterus (8). Gonorrheal infections can be passed to newborns during delivery, increasing the risk of eye infections (which may lead to blindness) and sepsis (which can lead to meningitis). Gonorrheal infections can also facilitate the transmission of HIV infection (7).



# Who is at risk of chlamydia and gonorrhea?

Any sexually active individual is at risk of chlamydial or gonorrheal infection, with an increased risk among younger individuals. Chlamydia and gonorrhoea are the most prevalent STDs in the United States. Annual chlamydia cases are estimated to be around 2.86 million (9), while 583,405 gonorrheal cases were reported to the CDC in 2018 (10).

# How are chlamydia and gonorrhoea diagnosed?

Modern nucleic acid amplification testing (NAAT) provides the most sensitivity and specificity for chlamydia and gonorrhea diagnoses. These can be performed on vaginal swabs (either clinician- or patient-collected) or urine.

# How are chlamydia and gonorrhoea treated?

Chlamydia is easily cured with antibiotics, and dual antibiotic treatment is recommended for gonorrheal infections due to antimicrobial resistance (11). However, repeat chlamydial and gonorrheal infections from sexual contact with an infected partner are common, increasing the risk of serious reproductive health complications. Antibiotics do not repair any permanent damage done by the disease.

### How do I reduce my risk?

Abstaining from vaginal, anal, or oral sex is the only way to completely avoid sexually transmitted diseases, such as chlamydia and gonorrhea. Other ways to reduce the risk include being in a long-term mutually monogamous relationship with a partner who has tested negative for STDs, and using latex condoms correctly.

## Where can I find more info?

Visit **www.genetrackdiagnostics.com** for full test information, including specimen collection requirements

### **CONTACT US:**

Email: support@genetrackdiagnostics.com Phone: 1-888-802-0703

#### NOTE:

This brochure is provided for general information purposes only. It is not intended to replace medical advice from a health professional.

### References

- 1. Sexually Transmitted Disease Surveillance, 2018. *CDC*. [Online] October 2019. https://www.cdc.gov/std/stats18/default.htm.
- Asymptomatic sexually transmitted diseases: the case for screening. Farley, T A, Cohen, D A and Elkins, W. 4, April 2003, Prev Med, Vol. 36, pp. 502-509.
- 3. *Chlamydia trachomatis Proctitis*. Quinn, T C, et al. 1981, N Engl J Med, Vol. 305, pp. 195-200.
- Ocular chlamydial infections: pathogenesis and emerging treatment strategies. Kalayoglu, M V. 1, March 2002, Curr Drug Targets Infect Disord, Vol. 2, pp. 85-91.
- Longitudinal studies of chlamydial infection in the first year of life. Hammerschlag, M R, et al. 6, 1982, Pediatr Infect Dis, Vol. 1, pp. 395-401.
- Gonorrhea Gonococcal Infection (clap, drip). New York State Department of Health. [Online] November 2006.
- Gonorrhea Detailed Fact Sheet. CDC. [Online] November 2019. https://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea-detailed.htm.
- 8. Gonorrhea. *American Sexual Health Association*. [Online] https://www.ashasexualhealth.org/gonorrhea/.
- Sexually transmitted infections among US women and men: prevalence and incidence estimates. Satterwhite, C L, et al. 3, 2013, Sexually Transmitted Diseases, Vol. 40, pp. 187-193.
- Sexually transmitted Disease Surveillance 2018, Gonorrhea. *CDC*.
  [Online] October 2019. https://www.cdc.gov/std/stats18/gonorrhea. htm.
- 11. *Sexually Transmitted Diseases Treatment Guidelines, 2015.* Workowski, K A and Bolan , G A. RR-03, June 5, 2015, MMWR Recomm Rep, Vol. 64, pp. 1-137.

- GENETRACK Diagnostics