

## CHLAMYDIA TRACHOMATIS

### REPORTING INFORMATION

- **Class B2:** Report by the end of the business week in which the case or suspected case presents and/or a positive laboratory result to the local public health department where the patient resides. If patient residence is unknown, report to the local public health department in which the reporting health care provider is located.
- Reporting Form(s) and/or Mechanism: [Ohio Confidential Reportable Disease form](#) (HEA 3334, rev. 1/09), [Positive Laboratory Findings for Reportable Disease form](#) (HEA 3333, rev. 8/05), the local health department via the Ohio Disease Reporting System (ODRS), or telephone.
- Additional reporting information, with specifics regarding the key fields for ODRS Reporting can be located in [Section 7](#).

### AGENT

*Chlamydia trachomatis* (CT) is an obligate intracellular organism sensitive to antibiotics with other properties characteristic of bacteria. Most genital isolates belong to immunotypes D through K.

### CASE DEFINITIONS

#### Clinical Description

Infection with *Chlamydia trachomatis* may result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection is often asymptomatic in women. Perinatal infections may result in inclusion conjunctivitis and pneumonia among newborns. Other syndromes caused by *C. trachomatis* include lymphogranuloma venereum and trachoma.

#### Laboratory Criteria for Diagnosis

- Isolation of *C. trachomatis* by culture or
- Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid.

#### Case Classification

Suspect: A clinically compatible case without laboratory confirmation.

Confirmed: A clinically compatible case that is laboratory confirmed.

Not a Case: This status will not generally be used when reporting a case, but may be used to reclassify a report if investigation revealed that it was not a case

### SIGNS AND SYMPTOMS

#### Genital

In men, infection is more often asymptomatic than gonococcal urethral infection and symptoms are usually milder. Symptoms usually include dysuria, frequency, and mucoid to purulent discharge. Clinical syndromes associated with *C. trachomatis* include epididymitis, proctitis, conjunctivitis, and Reiter's syndrome.

In women, *C. trachomatis* may produce no specific symptoms. When symptoms are present, the most common are mucopurulent discharge and fragility. Clinical syndromes associated with infection in women include acute urethral syndrome, Bartholin's glanditis, cervicitis, cervical dysplasia, pelvic inflammatory disease (PID), conjunctivitis, perihepatitis, and arthritis.

### **Pelvic Inflammatory Disease (PID)**

The patient may present with pain and tenderness involving the lower abdomen, cervix, uterus, and adnexae, possibly combined with fever, chills, elevated white blood cell (WBC) count and erythrocyte sedimentation rate (ESR). The diagnosis is likely if the patient has multiple sexual partners, a history of PID, uses an intrauterine device (IUD) or is in the first 5-10 days of her menstrual cycle.

### **Neonatal Conjunctivitis**

Infected infants demonstrate purulent conjunctivitis 5-17 days following delivery. The clinical picture is similar to gonococcal ophthalmia neonatorum, except that the latter infection is more destructive and usually presents before the fifth day of life. Although neonatal conjunctivitis is considered to be a mild disease, evidence indicates that corneal scarring can occur if treatment is not given within the first two weeks of life.

### **Infant Pneumonitis**

Symptoms usually consist of coughing spells, dyspnea, and minimal fever within 3-16 weeks of birth.

### **Lymphogranuloma Venereum**

Initial symptom is a primary lesion, a transient papule, a small erosion, or a vesicle. It is usually painless. The lesion then ulcerates with gradual enlargement and destruction of underlying tissue. Healing occurs with scarring and can result in obstruction of the urethra and adhesions within the vagina. Lymphatic involvement is common in the drainage area of the primary lesion. Inguinal adenopathy can develop buboes, which are firm, lobulated swellings with adherent bluish-red overlying skin.

### **Ocular Trachoma**

Ocular trachoma is characterized by conjunctivitis, frequently persistent and with reinfection, resulting in corneal vascularization and conjunctival scarring. The conjunctival scarring causes trichiasis (in-turned eyelashes) and entropion (lid deformity), which lead to chronic corneal abrasion, visual impairment and blindness. Rare in the United States. *C. trachomatis* serovars A, B, Ba, and C are associated with ocular trachoma.

### **DIAGNOSIS**

See case definition.

### **Laboratory Tests**

Tissue Culture isolation rates are higher from patients with clinical symptoms. Inter-urethral specimens can be obtained for chlamydia from asymptomatic men. It is not uncommon to isolate chlamydia from asymptomatic women.

Monoclonal antibody (Micro-Trac by Syva) and ELISA (Chlamydiazyme by Abbott) tests are rapid, accurate, and available commercially for on-site usage.

Recent technological advances have provided DNA and RNA amplification tests, often urine based, thus avoiding specimen collection problems. Three methods currently approved by the FDA include Polymerase Chain Reaction (PCR), Ligase Chain Reaction (LCR), and Transcription Mediated Amplification (TMA). Amplification tests are highly sensitive to the presence of disease, with good results for specificity as well. At present, the high cost of these tests limits their usefulness to specific screening applications.

## **EPIDEMIOLOGY**

### **Source**

Humans, sexually transmitted except in cases of neonatal infection and trachoma.

### **Occurrence**

Infections caused by chlamydia are now recognized as the most prevalent of all STDs seen in the United States. An estimated 3-4 million infections occur each year. Approximately 50% of reported nongonococcal urethritis among men is due to chlamydia, 2.5 times that caused by gonorrhea. It is estimated this disease is responsible for half of the 500,000 cases of acute epididymitis each year.

In women, chlamydia infections play a major role as the chief cause of mucopurulent cervicitis (MPC), which ultimately accounts for up to one-half of the one million cases of pelvic inflammatory disease (PID) reported in the United States each year. The risk of PID is 3-4 times greater in women who use intrauterine devices (IUDs) than women who do not. Although the frequency of intercourse does not seem to increase the risk of PID, having intercourse with multiple partners is associated with an increased risk of PID.

Chlamydia infections in women are also responsible for large numbers of infant infections during pregnancy and following delivery, as well as ectopic pregnancy, urethral syndrome (dysuria-pyuria syndrome) and perihepatitis or Fitz-Hugh-Curtis syndrome.

Lymphogranuloma venereum is a sporadic disease in North America, Europe, Australia, and most of Asia and South America. It is endemic in east and West Africa, India, parts of South Asia and South America. The average reported number of cases in the United States is 595 annually. Most of the cases reported in non-endemic areas occur in sailors, soldiers, and travelers who visit or are living in endemic areas. It is more common in urban areas, among lower socioeconomic classes and those with multiple sexual partners.

### **Mode of Transmission**

Genital and oral infections are almost always sexually transmitted. Infection of neonates usually occurs at birth. Trachoma is usually transmitted through autoinoculation by the hands from genitalia to the eyes.

### **Period of Communicability**

Indefinite, until the patient is adequately treated and cured. Carriers are often asymptomatic.

### **Incubation Period**

- Adult genital infection: 7-21 days.
- PID: Most women remain asymptomatic for some time, usually until the next menstrual period.
- Conjunctivitis in infants: 5-17 days after delivery.
- Infant pneumonitis: 3-16 weeks of age.
- Lymphogranuloma venereum: 7-12 days, but may be as long as 1-12 weeks after exposure.

## **PUBLIC HEALTH MANAGEMENT**

### **Case**

#### Investigation

Epidemiologic investigation for source of infection and sexual contacts.

### Treatment

The case should refrain from sexual intercourse until effective treatment is completed. Consult the most recent CDC-published "STD Treatment Guidelines" for recommended therapy. Copies of the guidelines are available from the ODH HIV/STD Prevention Program and on the Internet at the CDC Web Site (<http://www.cdc.gov/STD/treatment>).

### Isolation

None, except drainage/secretion precautions for hospitalized patients.

### **Contacts**

Treatment of sexual partners identified through epidemiologic investigation is essential to prevent disease spread and to avoid repeat exposures. Re-exposure to an asymptomatic sex partner not treated simultaneously is the most common source of repeat infection.

### **Prevention and Control**

Prevention of LGV in non-endemic areas is predicated on the identification and treatment of sexual contacts to proven or suspected cases.

Prevention of neonatal conjunctivitis and infant pneumonitis includes third-trimester treatment of cervically infected mothers and their sexual partners. Ocular prophylaxis of the newborn with ointments of 1% tetracycline or 0.5% erythromycin is recommended.

**What is Chlamydia?**

Chlamydia is a common sexually transmitted disease (STD) caused by the bacterium, *Chlamydia trachomatis*, which can damage a woman's reproductive organs. Even though symptoms of chlamydia are usually mild or absent, serious complications that cause irreversible damage, including infertility, can occur "silently" before a woman ever recognizes a problem. Chlamydia also can cause discharge from the penis of an infected man.

**How common is chlamydia?**

Chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States. In 2006, 1,030,911 chlamydial infections were reported to CDC from 50 states and the District of Columbia. Under reporting is substantial because most people with chlamydia are not aware of their infections and do not seek testing. In addition, testing is not often done if patients are treated for their symptoms. An estimated 2,291,000 non-institutionalized U.S. civilians ages 14-39 are infected with Chlamydia based on the U.S. National Health and Nutrition Examination Survey. Women are frequently re-infected if their sex partners are not treated.

**How do people get chlamydia?**

Chlamydia can be transmitted during vaginal, anal, or oral sex. Chlamydia can also be passed from an infected mother to her baby during vaginal childbirth.

Any sexually active person can be infected with chlamydia. The greater the number of sex partners, the greater the risk of infection. Because the cervix (opening to the uterus) of teenage girls and young women is not fully matured and is probably more susceptible to infection, they are at particularly high risk for infection if sexually active. Since chlamydia can be transmitted by oral or anal sex, men who have sex with men are also at risk for chlamydial infection.

**What are the symptoms of chlamydia?**

Chlamydia is known as a "silent" disease because about three quarters of infected women and about half of infected men have no symptoms. If symptoms do occur, they usually appear within 1 to 3 weeks after exposure.

In women, the bacteria initially infect the cervix and the urethra (urine canal). Women who have symptoms might have an abnormal vaginal discharge or a burning sensation when urinating. When the infection spreads from the cervix to the fallopian tubes (tubes that carry fertilized eggs from the ovaries to the uterus), some women still have no signs or symptoms; others have lower abdominal pain, low back pain, nausea, fever, pain during intercourse, or bleeding between menstrual periods. Chlamydial infection of the cervix can spread to the rectum.

Men with signs or symptoms might have a discharge from their penis or a burning sensation when urinating. Men might also have burning and itching around the opening of the penis. Pain and swelling in the testicles are uncommon.

Men or women who have receptive anal intercourse may acquire chlamydial infection in the rectum, which can cause rectal pain, discharge, or bleeding. Chlamydia can also be found in the throats of women and men having oral sex with an infected partner.

**What complications can result from untreated chlamydia?**

If untreated, chlamydial infections can progress to serious reproductive and other health problems with both short-term and long-term consequences. Like the disease itself, the damage that chlamydia causes is often "silent".

In women, untreated infection can spread into the uterus or fallopian tubes and cause pelvic inflammatory disease (PID). This happens in up to 40 percent of women with untreated chlamydia. PID can cause permanent damage to the fallopian tubes, uterus, and surrounding tissues. The damage can lead to chronic pelvic pain, infertility, and potentially fatal ectopic pregnancy (pregnancy outside the uterus). Women infected with chlamydia are up to five times more likely to become infected with HIV, if exposed.

To help prevent the serious consequences of chlamydia, screening at least annually for chlamydia is recommended for all sexually active women age 25 years and younger. An annual screening test also is recommended for older women with risk factors for chlamydia (a new sex partner or multiple sex partners). All pregnant women should have a screening test for chlamydia.

Complications among men are rare. Infection sometimes spreads to the epididymis (the tube that carries sperm from the testis), causing pain, fever, and, rarely, sterility. Rarely, genital chlamydial infection can cause arthritis that can be accompanied by skin lesions and inflammation of the eye and urethra (Reiter's syndrome).

**How does chlamydia affect a pregnant woman and her baby?**

In pregnant women, there is some evidence that untreated chlamydial infections can lead to premature delivery. Babies who are born to infected mothers can get chlamydial infections in their eyes and respiratory tracts. Chlamydia is a leading cause of early infant pneumonia and conjunctivitis (pink eye) in newborns.

**How is chlamydia diagnosed?**

There are laboratory tests to diagnose chlamydia. Some can be performed on urine; other tests require that a specimen be collected from a site such as the penis or cervix.

**What is the treatment for chlamydia?**

Chlamydia can be easily treated and cured with antibiotics. A single dose of azithromycin or a week of doxycycline (twice daily) is the most commonly used treatments. HIV-positive persons with chlamydia should receive the same treatment as those who are HIV negative.

All sex partners should be evaluated, tested, and treated. Persons with chlamydia should abstain from sexual intercourse until they and their sex partners have completed treatment, otherwise re-infection is possible.

Women whose sex partners have not been appropriately treated are at high risk for re-infection. Having multiple infections increases a woman's risk of serious reproductive health complications, including infertility. Retesting should be encouraged for women three to four months after treatment. This is especially true if a woman does not know if her sex partner received treatment.

**How can chlamydia be prevented?**

The surest way to avoid transmission of STDs is to abstain from sexual contact, or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected.

Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of chlamydia.

CDC recommends yearly chlamydia testing of all sexually active women age 25 or younger, older women with risk factors for chlamydial infections (those who have a new sex partner or multiple sex partners), and all pregnant women. An appropriate sexual risk assessment by a health care provider should always be conducted and may indicate more frequent screening for some women.

Any genital symptoms such as an unusual sore, discharge with odor, burning during urination, or bleeding between menstrual cycles could mean an STD infection. If a woman has any of these symptoms, she should stop having sex and consult a health care provider immediately. Treating STDs early can prevent PID. Women who are told they have an STD and are treated for it should notify all of their recent sex partners (sex partners within the preceding 60 days) so they can see a health care provider and be evaluated for STDs. Sexual activity should not resume until all sex partners have been examined and, if necessary, treated.