Utah Department of Health & Human Services

Chlamydia

Disease plan

Quick links

Last updated: January 12, 2023, by Nikki Baer

Questions about this disease plan?

Contact the Utah Department of Health and Human Services Office of Communicable Diseases: 801-538-6191.

Please note: Utah DHHS acknowledges transgender and gender non-conforming/binary individuals. In this disease plan 'male' refers to individuals with male anatomy and 'female' refers to individuals with female anatomy to coincide with the language currently used by the CDC.

Chlamydia critical clinician information

Clinical evidence

Signs/symptoms

- The majority of women are asymptomatic, but may present with findings typical of cervicitis:
  - Vaginal discharge
  - Abnormal vaginal bleeding
  - Pelvic inflammatory disease
- The majority of men are asymptomatic, but may present with findings typical of urethritis and/or proctitis:
  - Urethral discharge that is mucoid or watery
  - Dysuria
  - Epididymitis
  - Rectal pain
  - Rectal discharge
- Common syndromes to women and men:
  - Conjunctivitis
  - Dysuria

Period of communicability

- It is unclear how long those with untreated infection may carry the disease. A systematic review of 10 studies detected persistent chlamydia for months in 56–89% of cases and for at least one year in 46–57% of cases.

Incubation period

- In those with asymptomatic disease, it is unclear how long the incubation period is.
- In those with symptomatic disease, incubation ranges from 7 to 21 days following infection.

Mode of transmission

- Sexual: person-to-person via vaginal, anal, or oral sex
- Vertical: from infected mother to her unborn baby via the bloodstream

Laboratory testing

Type of lab test/timing of specimen collection

- Nucleic acid amplification testing (NAAT)

Type of specimens

- Women
  - First-catch urine
  - Vaginal swab
  - Endocervical swab
  - Rectal swab
  - Pharyngeal swab
- Men
  - First-catch urine
  - Urethral swab
  - Rectal swab
  - Pharyngeal swab

Treatment recommendations

Type of treatment

- Doxycycline (100 mg BID for 7 days) is preferred for non-pregnant patients.
- Azithromycin (1 g orally in a single dose) may be used in pregnant patients or those allergic to doxycycline.
- Amoxicillin (500 mg orally TID for 7 days) can be used as an alternative in pregnant patients

Time period to treat

- Doxycycline: 7 days
- Azithromycin: single-dose
- Amoxicillin: 7 days

Prophylaxis

- All contacts of cases of chlamydia exposed within 90 days of examination should receive treatment.

Contact management

Isolation of case

- Doxycycline: cases should avoid sexual contact until 24 hours after the course of antibiotics is completed and their sex partners have completed treatment.
- Azithromycin: cases should avoid sexual contact for 7 days after the single-dose therapy is administered and 7 days after their sex partners have been treated.
- Amoxicillin: cases should avoid sexual contact until 24 hours after the course of antibiotics is completed and their sex partners have completed treatment.

Quarantine of contacts

- Not applicable

Infection control procedures

- Standard body substance precautions

Why is chlamydia important to public health?

Chlamydia is one of the leading reportable diseases in Utah and the United States (U.S.). Chlamydia is easily transmitted through infected fluids, and is the leading cause of preventable infertility in women. Pregnant people who have chlamydia can pass this infection on to the child during vaginal delivery. Pelvic inflammatory disease (PID) is a serious complication of chlamydia in women, and can lead to infertility and chronic pelvic pain. In men, epididymitis, a testicular condition, is a concern for untreated chlamydia. Chlamydia is easily treated; medication is fairly low cost and easily accessible.

Disease and epidemiology

Clinical description

Chlamydia is a common sexually transmitted infection (STI) caused by the bacteria *Chlamydia trachomatis*, which can be transmitted during vaginal, anal, or oral sex. Most frequently, no noticeable symptoms are present; about three quarters of infected women and about half of infected men have no symptoms. Symptomatic females can have mucopurulent endocervical discharge, dysuria (painful urination), and pain in the lower abdomen. Males with urethral infections may have a mucoid or clear urethral discharge and dysuria. Men may develop epididymitis. Infection of the rectum may also occur and is often asymptomatic. Perinatal infections may result in inclusion conjunctivitis or *ophthalmia neonatorum* (red, irritable eyes with a sticky discharge) and pneumonia in newborns.

In up to 40 percent of untreated women with chlamydia, the infection can spread into the uterus or fallopian tubes and cause PID. Infected women are also up to five times more likely to become infected with HIV, if exposed. Complications among men are rare. Infection sometimes spreads to the epididymis, causing pain, fever, and, rarely, sterility.

C. *trachomatis* serovars L1, L2, and L3 cause a specific type of chlamydial infection called lymphogranuloma venereum (LGV). Symptomatic LGV is divided into three stages: primary, secondary, and late. Primary LGV presents as a small ulcer at the site of infection (genital, rectal, or oral). Secondary LGV can include cervical, inguinal, and/or femoral lymphadenopathy that can rupture, or an anorectal syndrome which presents as proctocolitis. Late LGV involves complications such as genital elephantiasis, lymph node scarring, chronic colorectal fistulas and strictures, perirectal abscesses, and/or anal fissures. LGV can also be asymptomatic.

Causative agent

Chlamydia trachomatis is an intracellular bacterial pathogen.

Differential diagnosis

The differential diagnosis for chlamydia depends on the particular clinical syndrome and includes other sexually transmitted pathogens such as *Neisseria gonorrhoeae, Trichomonas vaginalis, and Mycoplasma gentalium.* Among men who have sex with men with infectious proctitis, the differential diagnosis includes *N. gonorrohoeae,* herpes simplex virus*,* and *Treponema pallidum* infections.

Laboratory identification

A person with one or more of the laboratory findings listed below is confirmed to have chlamydia:

- Isolation of *C. trachomatis* by culture of a clinical specimen, OR
- Detection of *C. trachomatis* by nucleic acid amplification (e.g., PCR) in a clinical specimen, OR
- Detection of LGV-specific antigen or nucleic acid in a clinical specimen.

Nucleic acid amplification test (NAAT) for *C. trachomatis* is the most sensitive test currently available. It is the preferred method for diagnostic evaluation and can be performed on either endocervical, vaginal or urine samples.

> **Utah Public Health Laboratory (UPHL):** The UPHL provides NAAT testing for both gonorrhea and chlamydia.

Chlamydia is typically identified by testing endocervical, vaginal, male urethra or urine specimens. In women, *C. trachomatis* urogenital infection can be diagnosed by testing first-catch urine or by collecting swab specimens from the endocervix or vagina. In men, diagnosis *of C. trachomatis* urethral infection can be made by testing a urethral swab or first-catch urine specimen. Rectal and oropharyngeal *C. trachomatis* infection in persons who engage in receptive anal or oral intercourse can be diagnosed by testing at the anatomic site of exposure.

Annual screening of all sexually active women younger than 25 years of age is recommended, as is screening of women older than 25 with risk factors (e.g., those who have a new sex partner or multiple sex partners, and those who report their sex partner may have a concurrent sex partner). The screening of sexually active young men should be considered in clinical settings with a high prevalence of chlamydia (e.g., adolescent clinics, correctional facilities, and STI clinics) or in populations with a high burden of infection (e.g., men who have sex with men [MSM]). Annual

screening for rectal chlamydia should be performed in MSM who report rectal exposure. Rectal screening can be considered for females based on reported sexual behaviors and exposure.

All pregnant people should be routinely screened for *C. trachomatis* during the first prenatal visit. Women younger than 25 years of age and those at increased risk for chlamydia (e.g., women who have a new or more than one sex partner) also should be retested during the third trimester to prevent maternal postnatal complications and chlamydial infection in the infant. Women found to have chlamydial infection during the first trimester should be retested within approximately 3–6 months, preferably in the third trimester. People at risk of infection who were not screened for *C. trachomatis* during pregnancy or who did not receive prenatal care should be screened at delivery.

Except in pregnant people, a test-of-cure (i.e., repeat testing 3–4 weeks after therapy is completed) is not advised for persons treated with the recommended or alternative regimens, unless therapeutic adherence is in question, symptoms persist, or reinfection is suspected. Moreover, the use of chlamydial NAAT testing less than three weeks after completion of therapy is not recommended because false-positive results might occur due to the continued presence of nonviable organisms.

Treatment

The following treatment is recommended for uncomplicated chlamydial infections of the cervix, urethra, rectum, and pharynx:

Doxycycline, 100 mg orally twice a day for 7 days

Alternative regimens

Azithromycin, 1 gram orally in a single dose
OR
Levofloxacin 500 mg orally once daily for 7 days*

Pregnancy treatment considerations

Azithromycin, 1 gram orally in a single dose

Alternative regimens in pregnancy

Amoxicillin 500 mg orally three times a day for 7 days

***Doxycycline and levofloxacin are contraindicated in pregnant people. However, clinical experience and studies suggest azithromycin is safe and effective. Repeat testing to document the test-of-cure three weeks after completion of therapy in pregnant people.**

For additional treatment options, visit www.cdc.gov/std/treatment-guidelines for the Sexually Transmitted Infections Treatment Guidelines, 2021.

Expedited partner therapy (EPT) is the clinical practice of treating the sex partners of patients diagnosed with chlamydia by providing prescriptions or medications to the patient to take to his/her partner without the healthcare provider first examining the partner. EPT is legal in Utah; for details see Utah's EPT law.

Case fatality

Chlamydia is not fatal.

Reservoir

Humans are the only known natural hosts and reservoirs of *C. trachomatis* infection.

Transmission

Chlamydia is transmitted by direct sexual contact either through oral, vaginal, or rectal sex. Chlamydia can also be transmitted at birth through contact with an infected birth canal.

Susceptibility

Sexually active individuals are susceptible to infection.

Incubation period

The incubation period of chlamydia is highly variable and poorly defined. For symptomatic patients, an incubation period of 7–14 days or longer is estimated.

Period of communicability

The period of communicability is unknown, and may be prolonged in untreated individuals.

Epidemiology

C. trachomatis infection is one of the leading reportable diseases in the U.S. It is among the most prevalent of all STIs, and since 1994, has comprised the largest proportion of all STIs reported to the Centers for Disease Control and Prevention (CDC). Studies also demonstrate the high prevalence of chlamydial infections in the general U.S. population. In 2020, a total of 1,579,885 chlamydial infections were reported to CDC in 50 states and the District of Columbia, which corresponds to a rate of 481.3 cases per 100,000 population.

In Utah, 11,228 cases of chlamydia were reported in 2021. The rate of chlamydia has been steadily increasing with 336 cases per 100,000 persons reported in 2021, an 8.23% increase from the 2016 rate. During this period, chlamydia rates in females have been significantly higher than that of males, most likely a result of higher screening rates in women.

In 2021, 58% of the chlamydia cases reported in Utah were among persons 15-24 years of age, and the majority of chlamydial infections were identified in the four counties along the Wasatch Front: Salt Lake (52% of cases), Utah (14%), Davis (9%), and Weber (9%). In 2021, the highest chlamydia rate among racial and ethnic groups was reported among people who are Black/African Americans (1,290 cases per 100,000 population), followed by Pacific Islanders (817 cases per 100,000), Hispanics (646 per 100,000), and American Indian/Alaska Natives (459 per 100,000).

Public health control measures

Public health responsibility

The state and/or local health department may:

- Investigate confirmed and suspect cases of chlamydia as determined by local chlamydia case investigation procedures.
- Complete and submit appropriate disease reporting forms which include the identified minimum fields.
- Provide education to the general public and clinicians regarding disease transmission and prevention.
- Identify clusters or outbreaks of this disease.
- Identify sources of exposure and stop further transmission.
- Facilitate early detection and effective treatment of patients and their contacts.

Prevention

- Emphasis should be placed on early detection and effective treatment for patients and their contacts.
- Educate the community in general health promotion measures:
    - Provide health and sex education that teaches the importance of delaying sexual activity until the onset of sexual maturity as well as the importance of establishing mutually monogamous relationships and reducing the numbers of sexual partners;
    - Discourage multiple sexual partners and anonymous or casual sexual activity;
    - Teach methods of personal prophylaxis applicable before, during, and after exposure, especially the correct and consistent use of condoms;
    - Protect the community by controlling STIs in sex workers and their clients.
- Ensure the availability of healthcare facilities for early diagnosis and treatment:
    - Encourage the use of healthcare facilities through public education about symptoms of sexually transmitted infections and modes of transmission;
    - Ensure services are culturally appropriate and readily accessible and acceptable, regardless of economic status;
    - Provide adequate partner notification;

- Conduct routine annual screening of sexually active adolescent females;
- Provide annual screening to women who are younger than 25 years of age and to women 25 years of age or older who have sex with more than one partner, have a new partner, and/or use barrier contraceptives inconsistently. Both males and females with other STIs should also be screened;
- Screen all pregnant people during their first prenatal visit. Pregnant people younger than 25 years of age, at increased risk for chlamydia (e.g., people who have a new or more than one sex partner), and/or are found to have chlamydial infection during the first trimester should be retested during the third trimester. People who did not receive prenatal care should be screened at delivery;
- Screen those who are diagnosed with chlamydia for HIV, gonorrhea, and syphilis;
- Conduct annual rectal screening for MSM who have had a rectal exposure;
- Offer pre-exposure prophylaxis (PrEP) to HIV negative MSM with a rectal chlamydia diagnosis;
- Test and adequately treat individuals who engage in commercial sex work and illicit drug use.

Chemoprophylaxis

All sexual partners of infected patients should receive prophylaxis as well as infants born to untreated people with chlamydia. For dosage information, see the treatment section of this document.

Vaccine

None.

Isolation and quarantine requirements

Isolation:

Doxycycline (preferred treatment)	Avoid sexual contact until 24 hours after completing the full antibiotic regimen.
Azithromycin (alternative treatment)	Avoid sexual contact until 7 days after completing single dose treatment.
All treatments	Avoid sexual contact as recommended per treatment above AND until all symptoms have resolved AND all sexual partners have been fully treated and abstained the appropriate time frames.

Quarantine: Not applicable.

Case investigation

Reporting

Chlamydia is a reportable disease. Providers should report cases who meet the following criteria using the case report form:

Table of criteria to determine whether a case should be reported to public health authorities

Criterion	Reporting chlamydia
Clinical presentation	
Urethral discharge	C
Dysuria	C
Epididymal tenderness	C
Purulent cervical discharge	C
Lower abdominal pain	C
Low back pain	C
Urinary frequency	C
Pelvic inflammatory disease	C
Vaginal discharge	C
Rectal pain	C
Rectal discharge	C
Rectal bleeding	C
Pharyngitis	C
Pneumonia	C
Conjunctivitis	C
Health record contains a diagnosis of infection caused by *Chlamydia trachomatis*	S
Laboratory evidence	
Isolation of *C. trachomatis* by culture of a clinical specimen	S
Detection of LGV-specific antigen or nucleic acid in a clinical specimen	S
Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid	S
Epidemiological risk factors	
Sexual contact with a partner infected with *C. trachomatis*	C
New or multiple sexual partners	C

Notes:

S = This criterion alone is sufficient to report a case.

C = This finding corroborates (i.e., supports) the diagnosis of, or is associated with, *C. trachomatis*, but is not included in the case definition and is not required for reporting.

Case definition

Epidemiologists classify infections according to the following:

Criteria for defining a case of chlamydia

Criterion	Case definition: Confirmed
Clinical presentation	
Healthcare record contains a diagnosis of infection caused by *C. trachomatis*	O
Laboratory findings	
Isolation of *C. trachomatis* by culture of a clinical specimen	O
Detection of LGV-specific antigen or nucleic acid in a clinical specimen	O
Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid	O

Notes:
O = At least one of these "O" criteria in each category in the same column is required to classify a case.

Chlamydia (most recently updated by CSTE in 2021)

Clinical description

Chlamydia is a sexually transmitted infection with a variable clinical course based on the serotype causing infection. Serovars D-K of *C. trachomatis* are the typical cause of chlamydial infections in the United States, and infection with *C. trachomatis* can result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection is often asymptomatic. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns. Other syndromes caused by *C. trachomatis* include lymphogranuloma venereum (LGV) and trachoma.

Laboratory criteria

- Isolation of *C. trachomatis* by culture, OR
- Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid, OR
- Detection of LGV-specific antigen or nucleic acid in a clinical specimen

Case classification

Confirmed: a case that meets laboratory evidence.

Probable: N/A

Suspect: N/A

Classification of *C. trachomatis* infection cases to identify LGV.

> *Verified:* a person with detection of LGV-specific antigen or nucleic acid in a clinical specimen, including asymptomatic cases.
>
> *Likely:* a person with demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid OR isolation of *C. trachomatis* by culture; AND who demonstrates clinical symptoms or signs consistent with LGV; AND has no negative test for LGV-specific antigen or nucleic acid in a clinical specimen

Case investigation process

- Contact the medical provider to gather patient demographics, clinical, and treatment information, as well as patient notification status.
- Conduct a client interview.
- Complete a case morbidity record (CMR) in UT-NEDSS/EpiTrax according to the minimum data set on the original patient.
- Conduct investigations on contact event(s) and create UT-NEDSS/Epitrax contact event(s) for contacts identified.
- Provide/facilitate treatment and follow-up for contacts.
- Complete CMR and contact event, if applicable.

Outbreaks

A chlamydia outbreak occurs when the observed rate of disease in a geographical area exceeds the normal (endemic) rate.

Identifying case contacts

Patients should be instructed to refer their sex partners for evaluation, testing, and treatment if they had sexual contact with the patient during the 90 days preceding onset of the patient's symptoms or chlamydia diagnosis. Although the exposure intervals defined for the identification of at-risk sex partners are based on limited evaluation, the most recent sex partner should be evaluated and treated, even if the time of the last sexual contact was more than 90 days before symptom onset or diagnosis.

Case contact management

Among heterosexual patients, if concerns exist that sex partners who are referred to evaluation and treatment will not seek services (or if other management strategies are impractical or unsuccessful), patient delivery of antibiotic therapy (expedited partner therapy or EPT) to their partners can be considered. Compared with standard partner referral, this approach, which

involves delivering a prescription or the medication itself, has been associated with a trend toward a decrease in rates of persistent or recurrent chlamydia. Patients must also inform their partners of their infection and provide them with written materials about the importance of seeking evaluation for any symptoms suggestive of complications (e.g., testicular pain in men and pelvic or abdominal pain in women). Patient-delivered partner therapy is not routinely recommended for MSM because of a high risk for coexisting infections, especially undiagnosed HIV infection, in their partners.

All contacts should be instructed to abstain from sexual intercourse until seven days after a single-dose regimen or 24 hours after completion of a seven-day regimen. Timely treatment of sex partners is essential to decrease the risk for re-infecting the index patient.

References

Centers for Disease Control and Prevention. (2021). Sexually transmitted infections treatment guidelines, 2021. MMWR *Recommendations and Reports, 70*(4). https://www.cdc.gov/std/treatment-guidelines/default.htm

Centers for Disease Control and Surveillance. (2021, August 30). *Chlamydia trachomatis infection 2022 case definition.* https://ndc.services.cdc.gov/case-definitions/chlamydia-trachomatis-infection-2022/#:~:text=Chlamydia%20is%20a%20common%20sexually,1%E2%80%933%20weeks%20after%20exposure

Centers for Disease Control and Prevention. (2022, April 12). *National Overview of STDs, 2020: Chlamydia.* https://www.cdc.gov/std/statistics/2020/overview.htm#Chlamydia

Cheong, H. C., Lee, C. Y. Q., Cheok, Y. Y., Tan, G. M. Y., Looi, C. Y., & Wong, W. F. (2019). Chlamydiaceae: Diseases in primary hosts and zoonosis. *Microorganisms*, *7*(5), 146. https://doi.org/10.3390%2Fmicroorganisms7050146

Council of State and Territorial Epidemiologists (CSTE). (2021). *Public health reporting and national notification for infection caused by Chlamydia trachomatis* [Position statement 21-ID-06]. https://cdn.ymaws.com/www.cste.org/resource/resmgr/ps/ps2021/21-ID-06_ChlamydiaLGV.pdf

Utah Department of Health. (2020). *Sexually transmitted disease surveillance 2010–2019.* Utah Department of Health. https://ptc.health.utah.gov/wp-content/uploads/2021/10/2010-2019-Utah-STD-Surveillance-Report-1.pdf

Utah Department of Health. (2021). *HIV & STDs in Utah: 2020 surveillance update.* Utah Department of Health, HIV and STD Prevention and Surveillance Program. https://ptc.health.utah.gov/wp-content/uploads/2021/10/2020-HIV-and-STD-Surveillance-Update.pdf

Version control

V.03.15: Updated epidemiology information, added Utah-specific epidemiology. Updated treatment according to 2010 CDC treatment guidelines and included information regarding expedited partner therapy (EPT). Added minimum data set (MDS), added table of contents.

V.10.16: Updated minimum data set (MDS).

V.02.20: Critical clinician information and electronic laboratory reporting sections added to disease plan. Epidemiology section updated with current national and Utah-specific data. Updated minimum data set (MDS) and public health responsibility section to reflect current Utah procedures.

V.11.22: Updated epidemiology information and added LGV section and classification. Updated treatment and screening according to 2021 CDC treatment guidelines. Updated formatting to meet DHHS guidelines.

UT-NEDSS/EpiTrax minimum/required fields by tab

Demographic

- Last name
- First name
- State
- County
- ZIP code
- Date of birth
- Birth sex
- Ethnicity
- Race

Clinical

- Disease

Laboratory

- Lab
- Test type
- Organism
- Test result
- Specimen source
- Collection date

Reporting

- Date first reported to public health

Administrative

- State case status (completed by DHHS)

Electronic laboratory reporting processing rules

Chlamydia rules for entering test results

The following rules describe how laboratory results reported to public health should be added to new or existing events in UT-NEDSS/EpiTrax. These rules have been developed for the automated processing of electronic laboratory reports, although they apply to manual data entry, as well.

Test-specific rules

Test-specific rules describe what test type and test result combinations are allowed to create new morbidity events in UT-NEDSS/EpiTrax, and what test type and test result combinations are allowed to update existing events (morbidity or contact) in UT-NEDSS/Epi Trax.

Test type	Test result	Create a new event	Update an existing event
Culture	Positive	Yes	Yes
	Negative	No	Yes
	Other	No	Yes
IgA antibody	Positive	Yes	Yes
	Negative	No	Yes
IgG antibody	Positive	Yes	Yes
	Negative	No	Yes
IgM antibody	Positive	Yes	Yes
	Negative	No	Yes
PCR/amplification	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes
	Other	No	Yes

Whitelist rules

Whitelist rules describe how long an existing event can have new laboratory data appended to it. If a laboratory result falls outside the whitelist rules for an existing event, it should not be added to that event, and should be evaluated to determine if a new event (CMR) should be created.

Chlamydia morbidity whitelist rule

If there is a treatment start date:
If the specimen collection date of the laboratory result is 30 days or less after the last treatment start date, the laboratory result should be added to the morbidity event.

If there is no treatment start date:

If the specimen collection date of the laboratory result is 90 days or less after the event date, the laboratory result should be added to the morbidity event.

Chlamydia contact whitelist rule

If there is a treatment start date:
If the specimen collection date of the laboratory result is 30 days or less after the last treatment start date, the laboratory result should be added to the contact event.

If there is no treatment start date:
If the specimen collection date of the laboratory result is 90 days or less after the event date of the contact event, the laboratory result should be added to the contact event.

Graylist rule

We often receive laboratory results through ELR that cannot create cases, but can be useful if a case is created in the future. These laboratory results go to the graylist. The graylist rule describes how long an existing event can have an old laboratory result appended to it.

Chlamydia graylist rule

If the specimen collection date of the laboratory result is 30 days before to 7 days after the event date of the morbidity event, the laboratory result should be added to the morbidity event.

Other electronic laboratory processing rules

- If an existing event has a state case status of “not a case,” ELR will never add additional test results to that case. New labs will be evaluated to determine if a new CMR should be created.