

Chlamydia

1. DISEASE REPORTING

1.1 Purpose of Reporting and Surveillance

1. To assess trends in disease patterns, understand the impact of chlamydia and better target population-level disease prevention efforts.

1.2 Legal Reporting Requirements

1. Laboratories must report all positive test results indicative of Chlamydia infection to the Local Public Health Authority (LPHA) (OAR 333-018-0015 within one working day. Laboratories must report the name and telephone number of the reporting laboratory, the date the specimen was obtained, the name or description of the test and the test result. In addition, if the information is available to them, laboratories must report full name, date of birth, address, county, telephone number, and gender of the person from whom the specimen was collected, and the name, address and telephone number of the health care provider of the person from whom the laboratory specimen was obtained, and information required by the Oregon Health Authority's Manual for Mandatory Electronic Laboratory Reporting if electronic reporting is required under OAR 333-018-013.
2. Physicians and other reporters are required to report all laboratory-confirmed cases to the LPHA (OAR 333-018-0015).
 - a. In addition to their own name, address and telephone, reporters must report the name, address and telephone of the attending health care provider or treating health care provider, name, address and telephone of the affected person, and diagnosis or suspected condition and date of onset.
 - b. Reporters should be aware that LPHA's do not routinely notify sex partners (contacts) of chlamydia case-patients. Thus, practitioners should counsel patients to notify their partner(s), and give them information about testing and treatment for partners.

1.3 Local Public Health Authority Investigation Responsibilities

1. Review laboratory and health care provider case reports by the end of the calendar week in which initial laboratory or physician report is made. Report all confirmed cases to the Public Health Division HIV/STD/TB (HST) Program by recording the case in the Public Health Division's online integrated disease reporting system, Orpheus, or by faxing a completed case report form to HST. Paper case report forms can be found online at (<http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/ReportingCommunicableDisease/ReportingForms/Pages/index.aspx>)
2. Oregon Health Authority does not require LPHA's to collect or report any additional case investigation beyond information included with initial laboratory or provider report (i.e., HST does not require provider or case interview.)
3. HST recommends that LPHA's that wish to understand local chlamydia epidemiology to inform or assess public health interventions consider interviewing a representative sample of patients with reported cases of chlamydia and their health care providers.

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2.1 Etiologic Agent

Chlamydia trachomatis is a species of bacteria characterized by several subtypes, classified A through L. Subtypes D through K are the focus of this guideline because they are responsible for sexually-acquired genital infections in adults and perinatally transmitted infections in neonates and infants

2.2 Description of Illness

C. trachomatis subtypes D through K preferentially colonize columnar epithelial tissue. Sites of infection include the urogenital tract, rectum, pharynx, and occasionally the conjunctiva. Transmission from mother to newborn during childbirth is also possible. Asymptomatic infections are common among both men and women. Sexually transmitted Chlamydia infection manifests in men most commonly as urethritis, and in women as cervical infection. Symptomatic men might have mucopurulent urethral discharge, perhaps accompanied by dysuria, and women might have abnormal vaginal discharge, abnormal menses, pelvic pain, or dysuria. Serious complications include pelvic inflammatory disease (PID) and subsequent infertility or tubal pregnancy in women and epididymitis in men.

Untreated infections during pregnancy can result in premature delivery, including stillbirth. Newborns of women with untreated infection are at risk for conjunctival infection (ophthalmia neonatorum) and chlamydial pneumonia. Rectal infections can produce proctitis in either men or women, especially those engaging in receptive anal sex. Pharyngeal infections occur with CT, but do not appear to play a significant role in disease or transmission.

Clinically, Chlamydia infections can be difficult to distinguish from gonorrhea. Simultaneous chlamydial and gonococcal infections are not uncommon.

2.3 Reservoirs

Infected humans only.

2.4 Sources and Modes of Transmission

1. Sexual

The attack rate (proportion of exposed people who become infected) among exposed women is generally believed to be higher than the attack rate among exposed men. Non-sexual transmission among adults is unlikely. Anogenital or pharyngeal infection among infants and children should be investigated to rule out sexual abuse.

2. Mother to newborn child.

Neonatal infection results from exposure during birth to the mother's infected cervix. If resources are available, eye infections in an infant should be investigated to assure evaluation and treatment of the mother and any recent sex partners of the mother. (Section 4.)

2.5 Incubation Period

Incubation is typically 2–7 days but occasionally longer.

2.6 Period of Communicability

Unknown. Infected individuals are assumed to be infectious. Without treatment, infection can persist for months. Relapses are probably common from the time the infection is acquired until patient is adequately treated. Asymptomatic infected persons are believed to be as infectious as symptomatic individuals.

2.7 Treatment

1. Currently recommended treatment regimens include 1 g azithromycin orally in a single dose or 100 mg doxycycline orally twice daily for 7 days. Alternative treatments include levofloxacin 500 mg orally daily for 7 days or ofloxacin 300 mg orally twice daily for 7 days. (Doxycycline, levofloxacin and ofloxacin should not be prescribed to pregnant women.) Refer to the current CDC STD Treatment Guidelines for alternative regimens or additional discussion of therapy at: <http://www.cdc.gov/std/treatment>.
2. These treatment regimens are not designed to be effective against gonorrhea. Concurrent chlamydial and gonococcal infections do occur. If a man or women with laboratory confirmed chlamydia exhibits symptoms of gonorrhea, has a history of multiple sex partners within the previous six months, lives in a location or setting or belongs to a sociodemographic group among which gonorrhea is known to be

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prevalent, the patient should either be tested for gonorrhea if not tested at the time of chlamydia testing, or treated presumptively for gonorrhea.

3. Recent (within the past 60 days) sex partners should be evaluated, tested, and—if indicated—treated for chlamydial infection. If a sex partner will not agree to be tested, they should be treated presumptively with one of the above regimens.

3. CASE DEFINITIONS, DIAGNOSIS AND LABORATORY SERVICES

3.1 Confirmed Case (reportable to PHD)

Anyone from whom *C. trachomatis* is isolated or identified by a laboratory test from a specimen collected from an anogenital, pharyngeal, or conjunctival site. Culture, direct immunofluorescence, enzyme-linked immunoassay [EIA], nucleic acid hybridization tests, and nucleic acid amplification tests [NAAT] all suffice for detection and confirmation of *C. trachomatis*.

3.1 Presumptive Case

Do not use. If case does not meet confirmed case definition, use “no case” (in Orpheus) status to reflect investigation of an unconfirmed case. A presumptively treated sex partner of a confirmed case should not be considered to have a confirmed case unless a laboratory test confirms chlamydia in the partner.

3.3 Suspect Case

Do not use. If case does not meet confirmed case definition, use “no case” (in Orpheus) status to reflect investigation of an unconfirmed case.

3.3 Indeterminate or equivocal lab results

Although providers may elect to treat a patient with an indeterminate or equivocal result, this is not considered a reportable case.

3.4 Services Available at the Oregon State Public Health Laboratory (OSPHL)

OSPHL offers combined NAAT testing for Chlamydia trachomatis and Neisseria gonorrhoeae to any practitioner providing they use the OSPHL bar-coded specimen order form. OSPHL can accept the following specimen types for testing: cervical swabs, urethral swabs, clinician-collected vaginal swabs, patient-collected vaginal swabs*, clinician-collected rectal swabs, pharyngeal swabs, and urine. OSPHL uses GEN-PROBE® APTIMA® target amplification nucleic acid probe test for *C. trachomatis*. GEN-PROBE® provides specific collection devices and transfer tubes that differ by anatomic source of specimen. Specimens must be collected with the correct collection device and transferred in the correct tube. For example, currently GEN-PROBE® provides a tube with a yellow label for urine, an orange tube and accompanying collection device for vaginal specimens, and a distinct tube and collection device for cervical, rectal, pharyngeal and urethral specimens. For information about specimen collection, order forms, handling and shipment, refer to the OSPHL web page (<http://public.health.oregon.gov/LaboratoryServices/Pages/index.aspx>) or by calling the client services coordinator at (503) 693-4100; fax (503) 693-5605.

*Self-collected vaginal swabs must be collected while the patient is at the clinic. Specimens collected at home by the patient will not be accepted.

4. ROUTINE CASE INVESTIGATION

4.1 Case Recording

All chlamydia cases reported by laboratory or by health care provider should be recorded in the state-wide disease reporting system, Orpheus, or reported to HST via fax. Nearly all chlamydia case reports arrive by electronic media from clinical laboratories, all of whom must report laboratory tests results indicative of and specific for *Chlamydia trachomatis* to the LPHA. These laboratory test result reports are found in the electronic laboratory reporting and processing functional modules of Orpheus. LPHAs must review and process these reports within 7 days of receipt, including a search of Orpheus for previous instances of reportable disease in the same individual. A new case should be created and related to the existing person in Orpheus if the same person is determined to have had a previously case of reportable disease. If the person cannot be found in Orpheus, a new person identity should be created in Orpheus in the course of entering the newly reported case.

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Laboratory results reported directly to the LPHA or via fax or mail should be entered into Orpheus and a new case created as above. HST program staff or Orpheus technical support can assist with Orpheus use if needed.

The minimum information necessary for recording a new case is first and last name, date of birth, sex, and collection date. If additional information is reported by the laboratory or provider, including but not limited to race, ethnicity, patient or provider address or county or telephone, these data should also be recorded in Orpheus. OHA does not require LPHAs to contact the laboratory, patient, or reporting physician to collect any unreported case information beyond first and last name, date of birth, sex, and collection date.

4.1 Supplementary Case Investigation and Response

LPHA's that choose to do so may interview case-patients or treating providers, or attempt to identify and treat sex partners of reported cases. However, none of these activities are strictly required. This is because limited public health benefit accrues from direct case-level public health intervention and many, perhaps the majority of cases of chlamydia are asymptomatic and not recognized, diagnosed or reported. Reported case volume exceeds 10,000 cases each year in Oregon. Therefore, interviewing every case-patient and treating provider and offering assistance with partner notification are practical impossibilities. Assurance of treatment is unnecessary in most reported cases. Assistance in notification of partners could only be offered to a minority of people with chlamydia. However, for LPHAs with sufficient interest, case burden and resources to collect information to guide prevention and policy and understand risk factors, OHA suggests a systematic sampling approach to interview a subset of reported cases and treating providers. (Sections 4.)

4.2 Sampling Cases for Interview

LPHAs that elect to interview some but not all patients are encouraged to interview a representative sample of reported case-patients, ideally randomly selected. HST program staff can assist the LPHA upon request in configuring Orpheus to select reported cases randomly for interview at a predetermined proportion. HST will suggest sample sizes based on interviewing capacity of the LPHA, desired precision of the estimate (width of the confidence interval for the estimate), estimated prevalence of the case characteristics of primary interest, and estimated number of reported cases per year in the jurisdiction. The table below offers some examples of recommended sample sizes by varying levels of these values to lend an idea of the likely interview burden in a particular LPHA.

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Examples of recommended sample size by estimated prevalence of case characteristic*, desired precision, and estimated annual number of reported cases in the LPHA.**

| <i>Estimated Prevalence</i> | <i>Desired Precision</i> | <i>Estimated Annual Cases</i> | <i>Recommended Sample</i> |
|-----------------------------|--------------------------|-------------------------------|---------------------------|
| 10% (90%) | ±5% | 250 | 90 |
| | ±10% | 250 | 31 |
| | ±5% | 500 | 109 |
| | ±10% | 500 | 33 |
| | ±5% | 1000 | 123 |
| | ±10% | 1000 | 34 |
| | ±5% | 5000 | 136 |
| | ±10% | 5000 | 35 |
| 20% (80%) | ±5% | 250 | 124 |
| | ±10% | 250 | 50 |
| | ±5% | 500 | 165 |
| | ±10% | 500 | 56 |
| | ±5% | 1000 | 198 |
| | ±10% | 1000 | 59 |
| | ±5% | 5000 | 235 |
| | ±10% | 5000 | 62 |
| 30% (70%) | ±5% | 250 | 141 |
| | ±10% | 250 | 62 |
| | ±5% | 500 | 197 |
| | ±10% | 500 | 70 |
| | ±5% | 1000 | 245 |
| | ±10% | 1000 | 75 |
| | ±5% | 5000 | 304 |
| | ±10% | 5000 | 80 |
| 40% (60%) | ±5% | 250 | 150 |
| | ±10% | 250 | 68 |
| | ±5% | 500 | 213 |
| | ±10% | 500 | 79 |
| | ±5% | 1000 | 270 |
| | ±10% | 1000 | 86 |
| | ±5% | 5000 | 344 |
| | ±10% | 5000 | 92 |

*Might be a demographic characteristic such as race, a treatment outcome such as patient delivered partner therapy, or a behavioral question such as >1 recent sex partner.

**Width of confidence interval.

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4.3 Patient Interview

1. Case-patient interviews are neither expected nor required. Should LPHA elect to interview cases, Orpheus contains suggested questions, and responses can be entered directly into Orpheus. These are found on the "Risk" and "Followup" tabs within the case report. Partner information and disposition can be entered within the "Contacts" tab.
2. As resources allow, including upon request of the diagnosing practitioner, the patient interview might also include: patient education about transmission and prevention, reminder to refrain from sexual activity until 7 days after both patient and partner are treated, assistance to patient and partner to access and complete treatment as necessary, and reminder to patients to retest for chlamydia 3 months after treatment.

4.4 Provider Interview

1. Provider interviews are neither expected nor required. Should LPHA elect to interview providers, Orpheus contains suggested questions, and responses can be entered directly into Orpheus. These are found on the "Clinical" and "Followup" tabs within the case report.

4.3 Managing Sexual Partners

1. Contact investigation and partner notification are neither expected nor required; however, LPHA may provide these services at its discretion, using standard partner follow-up methods. Patient confidentiality must be preserved throughout the follow-up process. Telephone contact and interview or face-to-face approaches are acceptable. Electronic communication such as text and email might be acceptable alternatives if confidentiality, privacy and security can be reasonably assured. Check with your manager or local health department administrator for guidance about permissibility of these alternative electronic communication methods for interviewing chlamydia cases. Contact information and disposition should be entered in Orpheus using the "Contacts" tab.
2. Where resources allow, LPHAs may elect to test and treat sex partners of confirmed cases who seek this. Ideally, all sex partners within 60 days prior to the patient's positive test should be examined and tested for chlamydia and treated. If a case has not had sex in the 60 days preceding their lab-positive test, the most recent sex partner should be examined and tested, if possible, and treated.
3. Sexual partners being tested and treated for Chlamydia should be offered testing for *Neisseria gonorrhoea*, Human Immunodeficiency Virus, and syphilis. In addition, consider testing for hepatitis B and genital herpes if indicated.
4. If, as is currently the reality with most reported cases chlamydia, provider or health department assistance with partner referral and treatment is unlikely to be available, the health care practitioner should be encouraged to give additional medicine or a prescription for chlamydia to a heterosexual patients to deliver to their partner or partners. This practice is known as patient delivered partner therapy, expedited partner therapy, or "EPT." Because of the high prevalence of undetected HIV and other sexually transmitted infections among male partners of men who have sex with men, there is a competing urgency to test partners of men who have sex with men for HIV, gonorrhoea and syphilis. For these reasons, EPT should not be encouraged for men who have sex with men. Instead partners of men diagnosed with chlamydia who have sex with men should be strongly encouraged to be examined directly, tested for chlamydia, gonorrhoea, syphilis and HIV and treated presumptively for chlamydia. Except for cases among men who have sex with men, EPT should be strongly encouraged whenever a provider determines that sex partners of the case are unlikely to seek out or successfully obtain timely medical evaluation and treatment. Information about expedited partner therapy in Oregon, including partner education materials in English and Spanish for distribution to patients, is available at the HST website (<http://oregon.gov/DHS/ph/std/partnertherapy.shtml>). Oregon's Board of Pharmacy (<http://www.pharmacy.state.or.us/>) has additional information about EPT for pharmacists.

Among the two alternative recommended treatment regimens for primary treatment of chlamydial infection, only the single dose azithromycin regimen is recommended for EPT.

If possible and practical, telephone contact should be made with the sexual partner(s) to whom EPT has been directed to explain the reason for providing EPT, to ask about other symptoms of STDs or complications that would indicate a need for medical evaluation, and to answer questions. Of course, direct medical examination of sex partners, including testing for chlamydia and for other sexually transmitted diseases, followed by treatment for all presumed infections remains the preferred approach to assuring treatment of exposed partners.

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EPT should be used for first-generation partners only (direct sexual contacts with the case). Other partners of a case's partner should be encouraged to seek medical evaluation, especially if they are experiencing symptoms of a sexually transmitted infection. More information about the rationale for this recommendation is available at the HST website.

Health care providers should document all EPT-related actions, including the number of partners who are being provided with EPT, the medication(s) and dosage prescribed or provided, whether or not the partners are known to be allergic to any medications, and the information sent along for the partner(s).

5. Out-of-county contacts. In the occasional instance when LPHA is called upon to assist with partner notification with an out-of-jurisdiction contact (including out-of-state), this information should be relayed to the communicable disease section of the Local Health Authority of the county where the patient resides if the patient is an Oregon resident or to Oregon Sexually Transmitted Disease (STD) Program at (971) 673-0153 if the patient resides outside of Oregon. The STD Program will pass this information to the appropriate county or state to initiate follow-up.
6. The health practitioner may request additional assistance from the LPHA for any case. LPHA may assist as circumstances and resources allow. The LPHA may contact HST for assistance at its discretion. Examples of circumstances that might prompt a health practitioner to request additional assistance include but are not limited to: the patient is a man who has sex with other men; the practitioner wants to assure of treatment of a pregnant patient and her partners; assistance with partner notification in circumstances where a patient is unwilling to notify partners; more than 2 partners require notification and treatment.

4.4 Documentation

Information collected by case interview should be reported to the Sexually Transmitted Disease Program via the online integrated disease reporting system, Orpheus

5. CONTROLLING FURTHER SPREAD

5.1 Education

Patients should:

- Refrain from sexual activity until 7 days after both patient and partner are treated;
- Use condoms if sexually active;
- Refer all partners for treatment;
- See their provider if symptoms persist or emerge in either patient or partner;
- Return for retest for Chlamydia within 3 months after treatment whether symptomatic or not.

(In most instances this patient education will be delivered by the treating provider as most case-patients won't have contact with LPHA.)

5.2 Case Follow-up

Every person with a reported case of chlamydia should be advised to seek medical attention for persistent symptoms and to seek additional testing for Chlamydia three months after treatment for purposes of identifying persistent infections and repeat infections.

5.3 Managing Special Situations

Pregnancy

Doxycycline, ofloxacin and levofloxacin are contraindicated in pregnant women.

In most situations, repeat testing to document chlamydial eradication ("test of cure") is not necessary nor recommended. However repeat testing to document eradication, preferably with a nucleic acid amplification test, *should be done* about 3 weeks after completion of therapy in pregnant women to ensure therapeutic cure because maternal and infant sequelae of unsuccessful treatment can be severe. In addition, as with other patients, pregnant women who have been treated previously for chlamydia should have repeat testing 3 months after treatment. Pregnant women who have previously been treated for chlamydia, are aged <25 years or have more than one sex partner should also have repeat testing during the third trimester.

Call the Public Health Division Sexually Transmitted Disease Program for assistance with special situations at (971) 673-0153.

6. APPLICABLE RULES

6.1 Reporting

 OAR 333-018-0000 through 333-018-0020

6.2 Investigation

 OAR 333-019-0000 and 333-019-0002

7. UPDATE LOG

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| April 2014 | Drafted. (Schafer) |
| June 2014 | Revised based on CLHO Feedback (Schafer) |
| August 2014 | Revised based on CLHO Feedback—revised list of information items that must be reported by laboratories; added information about repeat testing during pregnancy. (Schafer) |