Chlamydia Trachomatis Infection

Manitoba Health
Public Health
Communicable Disease Control Unit

Case Definition

Confirmed case: Detection of *Chlamydia trachomatis* from any site by culture, antigen detection, DNA probe technique, nucleic acid amplification or fluorescent antibody.

Clinical case: Urethral or cervical/vaginal discharge without laboratory confirmation, in a person with a history of sexual contact with a laboratory-confirmed case in the preceding six to eight weeks. Laboratory confirmation should always be sought in this situation.

Cases comprise both genital and extra-genital infections. Perinatally acquired cases include chlamydial conjunctivitis occurring in neonates (up to four weeks of age) and chlamydial pneumonia occurring in the first four months of life (with detection of *C. trachomatis* from nasopharyngeal or other respiratory tract specimens).

Surveillance reports include only laboratory-confirmed cases.

Reporting Requirements

- All cases with positive laboratory tests are reportable by laboratory.
- All cases are reportable by attending health care professional.

Clinical Presentation/Natural History

Genitourinary:

Male	Female
- can be asymptomatic	- can be asymptomatic
- urethral discharge	- cervical/vaginal discharge
- dysuria & frequency	- dysuria & frequency
- non-specific urethral symptoms (e.g., redness, itch, swelling)	- dysparemnia
	- lower abdominal pain
	- abnormal bleeding between periods
	- non-specific vaginal symptoms (e.g., redness, itch, swelling)
Complications	**Complications**
- epididymitis	- oophoritis } also referred
- infertility	- endometritis } to as pelvic
- Reiter's Syndrome	- salpingitis } inflammatory
	} disease (PID)
	- peritonitis
	- ectopic pregnancy
	- infertility
	- Reiter's Syndrome

Pharyngeal:
- usually asymptomatic
- at risk are those persons who engage in oro-genital sexual activity

Rectal:
- often asymptomatic
- mucoid discharge
- tenesmus
- rectal pain
- blood-streaked stool

Reiter's Syndrome:
- may result from bacteremic spread or an auto-immune response to a localized chlamydial infection
- characterized by pustular skin lesions on palms and soles; superficial ulcerations in mouth or genitalia; and conjunctivitis or iritis
- may also present as an asymmetric polyarthritis (wrists, hips, knees, ankles)

Chlamydial conjunctivitis:
- newborns – result of passage through infected cervix. Symptoms usually appear between seven and 21 days postnatally, but may occur later. Often starts as mucoid discharge which becomes progressively more purulent, and eyelids become edematous.

- adults – result of inoculation with infected genital secretions.

Infant Pneumonitis
Infant pneumonitis is also the result of passage through the infected cervix. Symptoms include staccato cough, dyspnea and low-grade fever.

- **Acute Pelvic Inflammatory Disease (PID):**
  - Acute pelvic inflammatory disease refers to the acute clinical syndrome attributed to the ascending spread of microorganisms from the vagina and endocervix to the endometrium, fallopian tubes, and/or contiguous structures. It comprises endometritis, salpingitis, tubo-ovarian abscess and pelvic peritonitis.
  - Etiologic agents include *N. gonorrhoeae*, *C. trachomatis*, and other organisms such as anaerobes, gram-negative rods and mycoplasmas. It is often impossible to differentiate among these agents in a patient.

Etiology

Chlamydia trachomatis is an obligate intracellular bacterium.

Epidemiology

Reservoir: Humans

Transmission: By direct sexual contact from an infected person to a sex partner via oral, vaginal, cervical, urethral or rectal routes. The bacteria may spread from the primary sites causing infection of the uterus, fallopian tubes, ovaries, abdominal cavity and the glands of the vulvar area in females, as well as testicles in males. Newborns delivered vaginally to infected mothers may become infected with *C. trachomatis* by direct contact with the infected birth canal, and are at risk for developing chlamydial conjunctivitis (*ophthalmia neonatorum*) or pneumonia.

Occurrence:

General: Worldwide; affects both sexes and all age groups, especially younger adult groups. It is the most common cause of urethritis and cervicitis in North America.

Manitoba: The incidence of chlamydia has declined steadily since 1988 when it was first made reportable, and has stabilized in recent years at about 3,000 reported cases per year. Incidence is highest in the 15 to 24 year age group. Although the largest number of reported cases occur in Winnipeg, the highest rates of infection are in northern jurisdictions. In Winnipeg, infection is increasingly concentrated in a small number of geographic "core" areas.

Incubation Period: For uncomplicated disease, usually seven to 14 days, perhaps longer.

Susceptibility and Resistance: Although strain-specific immunity probably exists, for practical purposes, susceptibility is universal and immunity is not important on an individual basis. The transmission probability of *C. trachomatis* has been estimated to be as high as 20% per genital sexual contact, and is more efficient male-to-female than female-to-male.

Period of Communicability: May extend for months or longer if untreated, especially in asymptomatic persons. Effective treatment ends infectivity.

Diagnosis

Based on history, physical examination and laboratory investigation.

Male:
Positive culture, antigen detection test (e.g., Chlamydiazyme), DNA probe test (e.g., GenProbe), nucleic acid amplification test (e.g., Amplicor, AMP-CT) or fluorescent antibody (MicroTrak). The GenProbe DNA probe test is the technique generally used by the Cadham Provincial Laboratory at the present time, but is only recommended in men for urethral specimens. For specimens from the throat, rectum or other sites, MicroTrak is recommended. Nucleic acid amplification tests are not routinely available.

Laboratory confirmation should always be sought were there is urethral discharge in a male with history of sexual contact with a laboratory-confirmed case.

Female:
Positive culture, antigen detection test (e.g., Chlamydiazyme), DNA probe test (e.g., GenProbe) nucleic acid amplification test (e.g., Amplicor, AMP-CT) or fluorescent antibody (MicroTrak). The GenProbe DNA probe test is the technique generally used by the Cadham Provincial Laboratory, but is only recommended in women for cervical specimens. For specimens from the throat, rectum or other sites, MicroTrak is recommended. Nucleic acid amplification tests are not routinely available.

Laboratory confirmation should always be sought were there is vaginal discharge in a female with history of sexual contact with a laboratory-confirmed case.

Children (12 years and under):
Positive culture, fluorescent antibody (e.g., MicroTrak) or nucleic acid amplification test (e.g., Amplicor, AMP-CT), from any site. Antigen detection and DNA probe tests are not approved in this age group. MicroTrak is the technique generally used by the Cadham Provincial Laboratory.

Note: Children aged 12 or under presenting with a vaginal, urethral or a rectal discharge (or older children with any suggestion of sexual abuse), require diagnostic testing from the pharynx and rectum as well as from the vagina (girls) or urethra (boys). Suspected cases should be referred (see protocol "Children with Sexually Transmitted Diseases").

Newborn:
C. trachomatis detected by culture, fluorescent antibody (MicroTrak) or nucleic acid amplification, from any site.

Key Investigations

- Interview case for history of exposure, risk assessment, contacts, adequacy of treatment and promotion of safer sex practices.
- Interview contacts and provide epidemiological treatment, with risk assessment and promotion of safer sex practices.

Control

Management of Cases:

- Cases should be interviewed for history of exposure, risk assessment, contacts, and promotion of safer sex practices. Test for HIV infection and other STDs if indicated.
- Provincial guidelines for STD treatment do not attempt to provide a comprehensive list of all possible treatment regimens. Rather, they provide guidance for regimens that meet general criteria of efficacy, safety, ease of administration and cost. Where possible, single-dose oral therapy is preferred. See Manitoba Health's "*Sexually Transmitted Diseases Treatment Guidelines*" for details (see **Additional Resources**).
- **Ambulatory Treatment of PID:**
  - Ceftriaxone 250 mg IM, followed by
  - Doxycycline 100 mg orally twice a day for 10 to 14 days.
  - Metronidazole 500 mg tid for 14 days.

    Note: Persons treated on an ambulatory basis need to be monitored closely and re-evaluated in 72 hours. The intrauterine device is a risk factor for the development of PID. Although the exact effect of removing an IUD on the response of acute salpingitis to antimicrobial therapy and on the risk of recurrent salpingitis is unknown, removal of the IUD is recommended soon after antimicrobial therapy has been initiated. When an IUD is removed, contraceptive counselling is necessary.
  - For treatment of hospitalized patients, see Health Canada's "*Canadian STD Guidelines*", 1998 edition (see **Additional Resources**).

- **Treatment failures**

  Recurrent chlamydial infections after treatment with the recommended schedules may be due to re-infection, and indicate a need for improved contact tracing and patient education.

- **Issues in case management**
  - Immediate antimicrobial therapy is recommended. Men and women with suspected urethritis, cervicitis or proctitis should be treated presumptively for gonorrhea and chlamydial infection, pending the results of laboratory testing for both. Serologic testing for syphilis and HIV are also recommended. Asymptomatic persons with laboratory-confirmed chlamydial infection need not be treated for gonorrhea.
  - Patients should abstain from sex for seven days after treatment. At minimum, condoms should always be used during sex.
  - Interview as soon as possible, preferably within five working days. Repeaters (persons with more than one documented STD episode in the preceding 12 months), women with PID and other high-risk individuals are the highest priority.
  - Test of cure is not generally recommended if a recommended treatment is given, and symptoms and signs disappear, and there is no re-exposure to an untreated partner. Repeat testing is advisable where compliance is an issue, or if an alternative treatment regimen has been used, and for all children and pregnant women. If done, repeat testing should be performed at three to four weeks after the completion of effective treatment.

- **Management of chlamydial infections in pregnancy, at delivery and in the postnatal period**
  - All pregnant women reporting risky sexual behaviour should have endocervical testing for *C. trachomatis*.
  - If women are found to have chlamydial infection during pregnancy or at the time of delivery, they should be treated with drug regimens as described in the provincial guidelines.
  - Neonates born to women with chlamydial infection are at high risk of pneumonia and conjunctivitis, and require treatment with erythromycin after testing has been performed. The infant should be examined carefully and testing of the eyes and nasopharynx should be performed.
  - Neonates with clinical chlamydial ophthalmia should be treated both topically and systemically with erythromycin. Infectious disease consultation is recommended. Both parents of a newborn with ophthalmia should be tested and treated.
  - Topical prophylaxis for neonatal ophthalmia is not adequate treatment for infections at other sites, and clinical illness requires additional treatment.
  - Women who are found to have chlamydia in the postnatal period should be investigated for possible co-existing sexually transmitted diseases, particularly gonorrhea. The woman should be treated appropriately with a recommended regimen. The infant should be examined carefully for *ophthalmia neonatorum* and pneumonia. If infection is suspected, the appropriate site(s) should be tested.

- If six weeks or more have elapsed since birth and the infant has no clinical evidence of disease, it may not be necessary to perform laboratory tests.
- Hospitalized persons should be managed with routine infection control precautions.

Management of Contacts:

- If the case is a male or female with symptomatic, uncomplicated chlamydial infection, all sexual contacts exposed two months prior to the onset of symptoms in the case, up to and including the interview date, should be examined, tested and provided epidemiologic treatment. For example, if a case noted symptoms on June 1, was tested on June 4, diagnosed on June 6 and interviewed on June 10, the interview period is April 1 to June 10.
- If the case is a male or female with asymptomatic chlamydial infection, or with repeated infections (i.e., two or more infections in a 12-month period), the interview period should extend to three months prior to the diagnosis of the case.
- Contacts should also be screened for syphilis and HIV infection.

Preventive Measures:

- Women should be tested for chlamydia at least once during pregnancy.
- Screening and case-finding for chlamydial infection should be undertaken among all sexually active men and women under the age of 25 on an annual basis, during presentations to a health provider.
- Individuals over age 25 should be tested, and individuals under age 25 tested more often then annually, in the following circumstances. Frequency of testing will depend upon individual risk circumstances.
  - women prior to insertion of an intrauterine device;
  - women prior to therapeutic abortion or D&C;
  - persons with more than one sex partner in the past year;
  - persons with a new sex partner in the past two months;
  - persons whose partner has other sex partners;
  - street-involved persons (living on the street, gang activity, etc.);
  - persons involved in substance misuse (e.g., injection drug use, glue sniffing);
  - persons with a history of an STD in the past year;
  - history of unprotected sex with a person in one of the above six categories.

Additional Resources

For Health Care Professionals:

- *Sexually Transmitted Diseases Treatment Guidelines*, revised March 1998. Available from Audiovisual and Publications Department, Manitoba Health, telephone (204) 786-7112, fax (204) 772-7213.
- *Canadian STD Guidelines, 1998 Edition*. Available from Audiovisual and Publications Department, Manitoba Health, telephone (204) 786-7112, fax (204) 772-7213.
- Holmes KK, Sparling PF, Mårdh P-A, Lemon SM, Stamm WE, Piot P, Wasserheit JN, eds. *Sexually Transmitted Diseases, Third Edition*. New York: McGraw-Hill, 1999.
- STD/HIV Information Line (Winnipeg RHA), 940-2200
- AIDS/STD Information (Village Clinic/Nine Circles Community Health Centre) Winnipeg, 945-2437
  Outside Winnipeg, 1-800-782-2437
- Facts of LIFE Line (Sexuality Education Resource Centre)
  Winnipeg, 947-9222
  Outside Winnipeg, 1-800-452-1957