Chlamydial Infections

CHAPTER CONTENT

The following chapter is adapted with permission from Alberta Health, for additional guidance related to the management of gonococcal infections see: Alberta Public Health Disease Management Guidelines: Chlamydial

1. CASE DEFINITION

Confirmed Case

- Genital and Extra-Genital Infections
    - Laboratory evidence of Chlamydia trachomatis infection in genitourinary specimens(B) (e.g., endocervical, urethral, penile, or vaginal swab; urine) and/or rectum, conjunctiva, pharynx, or other extra-genital sites from appropriate specimen:
      • Molecular detection of C. trachomatis (e.g., Nucleic Acid Amplification Testing [NAAT])

- Perinatally Acquired Infection in Infant
    - Laboratory evidence of C. trachomatis infection in nasopharyngeal or other respiratory tract specimens (e.g., nasopharyngeal swab, auger suction, tracheal aspirates, throat swab) or in urine from an infant who developed pneumonia in the first six months of life:
        - Molecular detection of C. trachomatis (e.g., NAAT)

      OR

    - Laboratory evidence of C. trachomatis in conjunctival specimens from an infant who developed conjunctivitis in the first month of life:
        - Molecular detection of C. trachomatis (e.g., NAAT)

2. DIAGNOSIS

- Diagnosis can be made by clinical presentation but requires laboratory confirmation because not all infections are symptomatic
- Laboratory confirmation is established by the identification of *C. trachomatis* at the infected site
- NAAT is the most sensitive testing method and can increase the number of cases diagnosed
- Culture is the preferred method for medico- legal purposes as it is more specific than NAAT
- Currently, only culture is recommended for throat specimens
- NAAT testing may be done at the time of presentation without individuals having to wait 48 hours post-exposure
- Specimens are collected by urine (NAAT) or swab (NAAT or rarely culture)
- In the NWT, NAAT testing is the first choice for the detection of rectal, and oropharyngeal *C. trachomatis* Confirmation of positives should be performed with a second NAAT
- For perinatal acquired infection in infants, lab analysis of nasopharynx or respiratory specimens should be done
- *C. trachomatis* IgM serology is useful for diagnosing *C. trachomatis* pneumonia in infants less than three months of age
- For more information, refer to the Alberta Provincial Laboratory Guide to Services and the Canadian Guidelines on Sexually Transmitted Infections

Lymphogranuloma venereum (LGV)

- LGV, another type of sexually transmitted infection caused by different serovars of the C. trachomatis, occurs commonly in the developing world and has more recently emerged as a cause of outbreaks of proctitis among men who have sex with men (MSM) worldwide
  - LGV investigation is referred to the National Microbiology Laboratory, Winnipeg, Manitoba for genotyping
  - If LGV is suspected, contact the Alberta Provincial Lab microbiologist/virologist on call. Supplementary statement for the management of Lymphogranuloma venereum (LGV) cases and contacts

Treatment

Indications for treatment are:

- positive diagnostic test result,
- diagnosis of a syndrome compatible with a chlamydial infection, without waiting for test result, and/or

- partner with a positive chlamydia test result or diagnosis of a syndrome compatible with a chlamydial infection in a partner without waiting for test results

Refer to the current Canadian Guidelines on Sexually Transmitted Infections for further treatment information.

Considerations

- If vomiting occurs more than one hour post administration of azithromycin, a repeat dose is not required.
- Doxycycline is contraindicated in pregnant women.

3. REPORTING

All HCPs must follow the NWT *Public Health Act*. Measures for contact tracing and legislative requirements are laid out within the *Reportable Disease Control Regulations* and reporting timelines are found in the *Disease Surveillance Regulations*.

Note: the only acceptable methods of reporting to the OCPHO are outlined below. Information provided outside of these methods will not be considered reported unless otherwise stated by a CPHO delegate.

As set out in the *Child and Family Services Act Section 8*, health care professionals have a legal duty to report suspected cases of child abuse, as it relates to reportable sexually transmitted infections (STIs), to the appropriate authority.

Health Care Professionals

- Confirmed or probable cases are to be reported to the Office of the Chief Public Health Officer (OCPHO) by fax (867) 873-0442 within **24 hours** after diagnosis is made or opinion is formed, ***AND***
- Complete and fax (867) 873-0442 the NWT STI Case Investigation Report Form to the OCPHO within **24 hours**
- **Immediately** report all outbreaks or suspect outbreaks by telephone to the OCPHO

Laboratories

- Report all positive results to the OCPHO by fax (867) 873-0442 within **24 hours**

Additional Reporting Requirements

- The clinician should determine whether there are reasonable and probably grounds to believe that they are in contact with a "child who needs protection" as per *Section 7(3)* of the *NWT Child and Family Services Act* and shall report to a Child Protection Worker, or peace officer/authorized person if a Child Protection Worker is not available, pursuant to *Section 8* of the *NWT CFSA Act*.

To Law Enforcement Agency

- Consent is a key factor in determining whether any form of sexual activity is a criminal offence. Children under 12 do not have the legal capacity to consent to any form of sexual activity.
- The law recognizes that the age of consent for sexual activity is 16. The law does also identify close in age exceptions for minors between 12 and 15 years. Please refer to: Age of Consent to Sexual Activity.
- Reporting is done by contacting your local RCMP Detachment.
- For additional information see:
  - Age of Consent to Sexual Activity at: https://www.justice.gc.ca/eng/rp-pr/other-autre/clp/faq.html
  - Criminal Code of Canada at: The Criminal Code of Canada (justice.gc.ca)
  - The *Northwest Territories Child and Family Services Act*.

4. OVERVIEW

Causative Agent

- *Chlamydia trachomatis* bacteria

Clinical Presentation

Genital Infections Symptomatic and asymptomatic genital chlamydial infections occur, but the majority of infections are asymptomatic. Males are more likely to have symptoms than females. When symptoms occur, the spectrum of clinical manifestations is varied.

Symptomatic genital infection in males is generally characterized by urethritis including urethral discharge, dysuria and frequency, and non-specific symptoms such as redness, itch and swelling of the urethra. These symptoms, if untreated, can lead to complications including epididymitis, Reiter's Syndrome (oligoarthritis) and occasionally infertility.

Symptomatic females will most often experience cervical or vaginal discharge, dysuria and frequency, painful intercourse, lower abdominal pain, abnormal bleeding between periods, and vaginal symptoms including redness, itch and swelling. If untreated, complications such as ectopic pregnancy, infertility, pelvic inflammatory disease (PID) (e.g., oophoritis, endometritis, salpingitis), and rarely Reiter's syndrome may occur. Up to 2/3 of cases of tubal-factor infertility and 1/3 of cases of ectopic pregnancy may be attributed to C. trachomatis infection.

Extra-Genital Infections

Pharyngeal and rectal infections are often asymptomatic. Rectal symptoms, when present, include rectal pain (proctitis or proctocolitis), mucoid discharge, blood in the stool and tenesmus.

Conjunctivitis in adults manifests with preauricular lymphadenopathy, hyperemia, infiltration and mucopurulent discharge. There may also be a chronic phase with discharge and symptoms which may last for a year or longer if untreated.

Perinatally Acquired Infections

Conjunctivitis symptoms usually appear between seven and 21 days postnatal, often starting as a mucoid discharge and progressing to a more purulent discharge. The eyelids become edematous and the conjunctiva becomes erythematous and thick. Symptoms of infant pneumonia include staccato cough, dyspnea, and a low grade fever. Infants usually become symptomatic between 10 days and five months of age.

Major Complications

- Females: pelvic inflammatory disease, ectopic pregnancy, infertility, chronic pelvic pain, Reiter's syndrome (reactive arthritis)
- Males: epididymal-orchitis, occasionally infertility, Reiter's syndrome
- Babies born to mothers with untreated chlamydial infections are at risk for developing conjunctivitis and pneumonia

Transmission

- *C. trachomatis* is the most commonly diagnosed and reported bacterial sexually transmitted infection in the Northwest Territories (NWT)
- Transmission of C. trachomatis is person-to-person via sexual contact (oral, vaginal, or anal sex), or through the birth process (vertical transmission). The transmission is more efficient male to female than female to male. The bacteria may also spread from the primary site of the case to other sites, causing infection of the uterus, fallopian tubes, ovaries, abdominal cavity, glands of the vulva area in females, and testes in males. The eyes of adults may become infected through the transmission of the infected genital secretions to the eye, typically by the fingers. Newborns become infected by direct contact with an infected birth canal.
- *C. trachomatis* is communicable for as long as the person harbours the organism which could be for many months in untreated symptomatic or asymptomatic individuals

Incubation Period

- The usual incubation period from the time of exposure to onset of symptoms is 7-14 days but can be as long as six weeks

Clinical Guidance

- For patient-specific clinical management consult your local healthcare professional, paediatrician, infectious disease specialist.
- Management and treatment of specific chlamydial infections is given in the Canadian Guidelines on Sexually Transmitted Infections

- NWT Desk References
  - > NWT Clinical Practice Guidelines for the Treatment of Uncomplicated Chlamydia
- Resistance to treatment is rarely an issue, but information on apparent treatment failure is available in the Canadian Guidelines on Sexually Transmitted Infections

5. PUBLIC HEALTH MEASURES

Management of Cases

- Interview case for the history of exposure, risk assessment, and contact tracing
- Screen for other sexually transmitted infections and blood-borne infections (STBBIs) such as gonorrhoea, syphilis, human papillomavirus (HPV), human immunodeficiency virus (HIV), hepatitis B (HBV), and hepatitis C (HCV)
- Offer routine vaccines and vaccines available for vaccine-preventable STBBIs such as HBV, HPV and possibly HAV for those having anal- oral sex and illicit drug users: NWT Immunization schedule
- Empirical co-treatment for gonorrhoea is recommended
- Caution case to abstain from unprotected intercourse until 7 days after completion of treatment of both case and partner
- Provide education regarding the prevention of sexually transmitted infections
- Test of cure (TOC) is not routinely indicated if a recommended treatment is taken ***AND*** signs and symptoms disappear, ***AND*** there is no re- exposure to an untreated partner, except when:
  - ➢ compliance is sub-optimal,
  - ➢ an alternative treatment regimen has been used,
  - ➢ the patient is a child (< 14 years of age),
  - ➢ the patient is a pregnant woman,
  - ➢ a non-genital site is involved (e.g., eye, rectum, pharynx), and
  - ➢ cases involving complicated infection (PID or epididymitis).

  If indicated, TOC for NAAT testing is recommended 3- 4 weeks post-treatment
- Repeat testing for all individuals with chlamydia is recommended six months post-treatment

Management of Contacts

Contact tracing

Trace Back	Who
60 days*	Sexual partners
	Newborns of infected mothers

**If there was no partner during this period, then the last partner should be tested and treated.*

- Partner notification will identify those at risk, reduce disease transmission/re-infection and ultimately prevent disease sequelae.
- **It is mandated under the Reportable Disease Control Regulations that every attempt is made to identify, locate, examine, and treat partners/contacts of all cases.**
- All partners who have had sexual contact with the index case within 60 days before symptom onset or date of specimen collection (if the index case is asymptomatic) should be notified, tested and empirically treated regardless of clinical findings and without waiting for test results
- Screen contacts for other STBBIs such as gonorrhoea, syphilis, HPV, HIV, HBV, and HCV
- Offer contacts routine vaccines and vaccines available for vaccine-preventable STBBIs such as HBV, HPV and possibly HAV for those having anal-oral sex and illicit drug users: NWT Immunization schedule
- Provide contacts with education regarding the prevention of sexually transmitted infections
- OCPHO will assist with contacting partners living out of the NWT
- Guidelines for the epidemiological follow-up of chlamydia and gonorrhoea in the NWT is provided in the Lost to Follow-Up Flowchart

Prevention

- Consistent use of safe sex practices as per the Canadian Guidelines on Sexually Transmitted Infections
- Ensure appropriate treatment of C. trachomatis for cases.
- Interview the case, identify and ensure appropriate treatment and follow-up of C. trachomatis for sexual partner(s).
- Ensure STI care is culturally appropriate, inclusive, readily accessible, and acceptable.
- Screen pregnant women at the first prenatal visit
- Pregnant women who are positive or at high- risk of reinfections should be rescreened at the third trimester
- Repeat screening is recommended 6 months post-treatment
- Cases and contacts should abstain from unprotected intercourse until 7 days after completion of treatment of both case and partner

Screening

- Individuals with risk factors for chlamydia infections:
  - sexual contact with chlamydia infected person(s),
  - new sexual partner or more than two sexual partners in preceding year,
  - previous STI, and
  - vulnerable populations (e.g., IDU, incarcerated individuals, those who exchange goods/money for sex, and street involved youth).

- All sexually active persons under 25 years of age, at least annually.
- All pregnant women.
- Women prior to insertion of an IUD, a therapeutic abortion, or a dilation and curettage.
- Victims of sexual assault.

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

For more information about Chlamydia:

- NWT Desk Reference Treatment of uncomplicated Chlamydia: Clinician Desk References: HSS Professionals
- Guidelines for the epidemiological follow-up of chlamydia and gonorrhea in the NWT: Lost to Follow-Up Flow Chart: Guidelines for the Epidemiological Follow-Up of Chlamydia and Gonorrhea in the NWT | HSS Professionals
- The Government of Alberta: Alberta Public Health Disease Management Guidelines: Chlamydia.
- The Government of Canada: Canada/ Chlamydia and LGV guide: Key information and resources
- The Government of Canada: Health Canada/Chlamydia
- The Government of Canada: Management and treatment of chlamydial infections Canadian Guidelines on Sexually Transmitted Infections
- The Government of Canada: STBBI: Guides for health professionals: Summary of Recommendations for Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG), and Syphilis
- Centers for Disease Control and Prevention: CDC/Chlamydia
- World Health Organization: WHO/Chlamydia

7. EPIDEMIOLOGY

- For more information on the epidemiology of Chlamydia in the Northwest Territories (NWT) see: Epidemiological Summary of Communicable Diseases HSS Professionals

8. REFERENCES

1. Alberta Health Notifiable Disease Guidelines: https://www.alberta.ca/notifiable-disease-guidelines.aspx
2. Alberta Health Services Bugs and Drugs: http://www.bugsanddrugs.org/
3. Alberta Health Services The Provincial Laboratory for Public Health (ProvLab): https://www.albertahealthservices.ca/lab/ page3317.aspx
4. Centers for Disease Control and Prevention: https://www.cdc.gov/std/chlamydia/
5. The Government of Canada Department of Justice age of consent: http://www.justice.gc.ca/eng/rp-pr/other-autre/clp/faq.html
6. The Government of Canada website – Chlamydia: https://www.canada.ca/en/ public-health/services/diseases/chlamydia. html

7. NWT Case Investigation Report Form: http://www.professionals.hss.gov.nt.ca/tools/forms/communicable-disease
8. *NWT Child and Family Services Act:* https://www.hss.gov.nt.ca/en/about/legislation-and-policies
9. NWT Epidemiology of Chlamydia: https://www.hss.gov.nt.ca/professionals/tools/policies-and-guidelines-standards- and-manuals/epi-summary-communicable-diseases
10. NWT Lost to follow-up policy CPI # 135: https://www.hss.gov.nt.ca/professionals/sites/default/files/page-135-lost-to-follow- up-flow-chart_0.pdf
11. *NWT Public Health Act*: https://www.hss.gov.nt.ca/en/about/ legislation-and-policies
12. NWT Treatment of Chlamydia Desk Reference: http://www.professionals.hss.gov.nt.ca/sites/default/files/treatment_of_uncomplicated_ chlamydia.pdf
13. Public Health Agency of Canada, Canadian Guidelines on Sexually Transmitted Infections: https://www.canada.ca/en/public-health/ services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian- guidelines/sexually-transmitted-infections. html
14. World Health Organization on Chlamydia: http://www.who.int/reproductivehealth/publications/rtis/chlamydia-treatment- guidelines/en/