November, 2015

Re: Chlamydia Reporting and Case Investigation

Reporting of chlamydia (*Chlamydia trachomatis*) is as follows:

**Laboratory:**
- All positive laboratory results for *C. trachomatis* are reportable to the Public Health Surveillance Unit by secure fax (204-948-3044).

**Health Care Professional:**
- For Public Health investigation and to meet the requirement for contact notification under the Reporting of Diseases and Conditions Regulation in the Public Health Act, the Notification of Sexually Transmitted Disease (NSTD) form ([http://www.gov.mb.ca/health/publichealth/cdc/protocol/form3.pdf](http://www.gov.mb.ca/health/publichealth/cdc/protocol/form3.pdf)) must be completed for all laboratory-confirmed cases of chlamydia.
- Please check with the public health office in your region with respect to procedures for return of NSTD forms for case and contact investigation.
- Cooperation with Public Health investigation is appreciated.

**Regional Public Health or First Nations Inuit Health Branch:**
- Return completed NSTD forms to the Public Health Surveillance Unit by mail (address on form) or secure fax (204-948-3044).

Sincerely,

“Original Signed By”

Richard Baydack, PhD  
Director, Communicable Disease Control

Carla Ens, PhD  
Director, Epidemiology & Surveillance

Public Health and Primary Health Care  
Public Health and Primary Health Care

Manitoba Health, Healthy Living and Seniors  
Manitoba Health, Healthy Living and Seniors
Re: Management of Acute Pelvic Inflammatory Disease (PID)

The guidelines for the management of acute PID have been updated and are included in Appendix A of the revised Gonorrhea protocol.

In addition to the recommended regimen of ceftriaxone followed by doxycycline with or without metronidazole, an alternate regimen consisting of azithromycin and metronidazole may be considered for patients with contraindications to treatment with cephalosporins. Both regimens are publicly-funded by Manitoba Health, Healthy Living and Seniors. There are other effective treatment regimens for PID that health care providers may wish to prescribe; however, only the regimens described in Appendix A are publicly-funded in Manitoba.

Please refer to the revised Gonorrhea protocol at: http://www.gov.mb.ca/health/publichealth/cdc/protocol/gonorrhea.pdf for detailed recommendations on the management of acute PID instead of referring to the recommendations for the management of PID in this protocol, Chlamydia trachomatis (D through K Serovars) Infection.

Sincerely,

Original signed by Joss Reimer  
Original signed by Richard Baydack

Joss Reimer, MD, FRCPC MPH  
Medical Officer of Health
Communicable Disease Control

Richard Baydack, PhD  
Director
Communicable Disease Control
Etiology

Chlamydia trachomatis is an obligate intracellular gram-negative bacterial pathogen (1, 2). This protocol applies to the D through K serovars of C. trachomatis which cause genital and perinatal infections (3-7). This protocol will not deal with trachoma serovars A through C as they are rare in developed countries (3, 8). The Lymphogranuloma Venereum (LGV) serovars L1, L2 and L3 of C. trachomatis are also excluded in this protocol but are covered in the Manitoba Health Communicable Disease Management Protocol Manual under Lymphogranuloma Venereum.

Case Definition (9-11)

Confirmed Case:

- Detection of C. trachomatis in a clinical specimen by appropriate laboratory technique (i.e., nucleic acid amplification, nucleic acid detection, direct fluorescent antigen [DFA]). Clinical specimens may be obtained from genitourinary sites, rectal, conjunctival and other extra-genital sites. For perinatal infection, specimens may be obtained from nasopharyngeal and other respiratory sites.

Reporting Requirements

- All confirmed cases of C. trachomatis are reportable by laboratory to the Communicable Disease Control Branch, Manitoba Health and Healthy Living, for Public Health follow-up.
- All confirmed cases of C. trachomatis are reportable by attending health care professional to the Communicable Disease Control Branch, Manitoba Health and Healthy Living for Public Health review.

Clinical Presentation/Natural History

C. trachomatis causes a broad range of clinical syndromes (12), infecting mainly mucosal membranes such as the cervix, rectum, urethra, throat and conjunctiva (13). Persistent low-grade clinically inapparent infections are also common (14).

Genital Infection in Adults: Genital infections caused by C. trachomatis often go unrecognized (15) as they are asymptomatic in up to 70% of infected women (3, 8, 16-18) and in up to 50% of infected men (16, 18). C. trachomatis causes urethritis and epididymitis in men (16, 19, 20) and may cause urethritis, cervicitis and pelvic inflammatory disease (PID) in women (19). When symptomatic infection occurs, urethritis is the most common presentation in men (21-23), and cervicitis is the most common presentation in women (21, 22). Symptoms usually begin two to six weeks after infection (24). In males with urethritis, symptoms include dysuria, urethral itch and urethral discharge (3, 25-27). Chlamydial urethritis may be indistinguishable from gonococcal urethritis on clinical grounds (14). Men with epididymitis present with a unilateral swollen testicle or both, dysuria, fever and occasionally shaking chills (3). In women, symptoms may include increased vaginal discharge, postcoital bleeding, dysuria, lower abdominal pain and abnormal vaginal bleeding (3, 13, 25). Chlamydial proctitis can result from direct inoculation of the rectum in either men or women through anal intercourse or secondary spread of secretions from the cervix in women (3). Less frequent manifestations include bartholinitis and urethral syndrome with dysuria and pyuria (8). A C. trachomatis infection may last for years if undiscovered and untreated (28). Untreated infection in women may lead to PID, chronic pelvic pain, ectopic pregnancy and infertility (24, 29, 30). Repeat infection in women confers an elevated risk of PID and other complications when compared with initial infection (31). Other complications include Fitz-Hugh-Curtis syndrome, transmission to neonate, epididymo-orchitis, adult conjunctivitis and Reiter’s syndrome (8, 26).

Genital chlamydial infection increases the risk of acquiring Human Immunodeficiency Virus (HIV)
Maternal infection may be asymptomatic and is associated with postpartum endometritis, premature rupture of membranes and preterm delivery (33, 34). Recurrent chlamydial disease may result from repeated exposure leading to reinfection (1, 35, 36) or persistence of the organism after unresolved infections (1, 4, 35, 36).

**Neonatal Infection:** Infection in neonates results from perinatal exposure to the mother’s infected cervix (31). Initial *C. trachomatis* perinatal infection involves mucous membranes of the eye, oropharynx, urogenital tract and rectum (14). Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns (10). Conjunctivitis normally develops five to 12 days after birth (31), and is usually mild and self-limited (14). Onset of pneumonia occurs at one to three months of age (31). Symptoms include nasal obstruction and/or discharge, tachypnea and cough (37).

**Epidemiology**

**Reservoir:**

Asymptomatic individuals act as a large reservoir capable of transmitting *C. trachomatis* infection to sexual partners (16, 25). In particular, untreated infected males continue to serve as a reservoir for new and recurrent infection among women (38).

**Transmission:**

Genitourinary infection by *C. trachomatis* occurs through direct genital-genital contact or genital-anal contact (16). Transmission through direct orogenital contact is rare (16, 39). Autoinoculation with infected genital secretions or direct inoculation from an infected sex partner are presumed to be the transmission modes for adults with inclusion conjunctivitis (3).

The oculogenital serovars (D-K) of *C. trachomatis* can be transmitted from the genital tract of infected mothers to their newborn infants (5, 33).

**Occurrence:**

**General:** Worldwide incidence in 1995 was estimated to be 89 million. *C. trachomatis* is the most prevalent sexually transmitted bacterium worldwide (40), with the highest prevalence in Asia, followed by sub-Saharan Africa (24). Prevalence studies demonstrate that *C. trachomatis* disease is most prevalent in adolescents (3). Prevalence is higher among women than among men (41). The lower reported rate of chlamydial infection in men likely reflects low numbers of tests in this group (42, 43).

**Canada:** Since 1997, the rate of genital *C. trachomatis* infection in Canada has been increasing (16, 44). Youth between the ages of 15 and 24 years have accounted for over two-thirds of all reported *Chlamydia* cases in Canada (45). In 2004, there were 197 per 100,000 population reported infections (46). Rates were highest among females aged 20-24 years (1,489 per 100,000) and in males aged 20-24 years (702 per 100,000) (46). Females accounted for 74% of reported cases in 1997 and 67% of reported cases in 2004 (46, 47). Some reported cases may represent repeat infections in the same individual (44). As well, surveillance only captures those cases where an individual has presented to a health care provider and received a positive laboratory result for *C. trachomatis* (44). The true incidence is likely much higher than the reported incidence (44). The introduction of less invasive testing methods such as urine-based nucleic acid amplification tests (NAAT) has improved patient willingness to be tested, especially in males (44). NAAT and other new sensitive diagnostic tests may partially explain the recent increase in reported cases (44).

**Manitoba:** In 1998, the rate of reported *Chlamydia* cases in Manitoba was more than twice the national average (275 versus 130 per 100,000) (48). The higher rate may reflect a higher burden of disease, better case reporting or both (48). From 1996 to 2004, there was an upward trend in the number of reported *C. trachomatis* cases. There were 2,539 reported cases (222 per 100,000 population) in 1996 and 4,210 reported cases (363 per 100,000 population) in 2004 (49). In 2005, 3,855 cases
(333 per 100,000) were reported (49). Reported rates in females have been consistently two to three times higher than in males and the highest prevalence was found in 15- to 24-year-old females (49).

**Incubation Period:** The incubation period although not well defined, is usually seven to 14 days or longer (8, 11). For neonatal infection, the incubation period for conjunctivitis is approximately one to three weeks, while most of the cases of pneumonia occur in the second and third month of life (14).

**Host Susceptibility and Resistance:** Any protection conferred by *C. trachomatis* natural infection appears to be small and short-lived (3) and is probably strain specific (11). For sexually active females, young age is the risk factor most strongly associated with acquiring *C. trachomatis* infection (3, 14, 25, 42, 50). The biological basis for this association is thought to be cervical ectopy (22, 25, 51). Behavioural risk factors for acquiring *C. trachomatis* include unprotected sex with an infected partner (13, 25), multiple partners (13, 25, 52) and concurrent gonococcal infection (14, 25, 53).

**Period Of Communicability:** The period of communicability may extend for months or longer if untreated, especially in asymptomatic persons. Effective treatment ends infectivity (see Management of Cases) (11).

**Diagnosis (54)**

Diagnosis of *C. trachomatis* infection is based on history, physical examination and laboratory investigation (3). Culture of *C. trachomatis* is not routinely performed and requires prior arrangement with the laboratory. Culture is used mainly in the event of treatment failure. Table 1 (page 4) describes containers and swabs to be used for specific specimens.

**Males:** Laboratory confirmation should always be sought where there is urethral discharge in a male with a history of sexual contact with a laboratory confirmed case (11). First catch urine is the preferred clinical specimen. A Genprobe RNA/DNA amplification (RDA) diagnostic test is performed on these clinical specimens. The same test is also performed on urethral and conjunctival specimens.* All other sites (e.g., throat, rectal, nasopharyngeal) require direct fluorescent antigen (DFA) (MicroTrak) testing.

**Females:** Laboratory confirmation should always be sought where there is vaginal discharge in a female with a history of sexual contact with a laboratory confirmed case (11). A cervical swab is the preferred clinical specimen as it is more sensitive and allows a more complete genital exam. A urine specimen is the only indicated genital specimen from women without a cervix (due to hysterectomy) or those refusing a complete examination. RDA is used to detect *C. trachomatis* in these specimens and in conjunctival specimens.* DFA (MicroTrak) testing is used for all other specimens (e.g., throat, rectal, nasopharyngeal).

**Prepubertal Children:** RDA is performed on specimens obtained from vaginal, urethral and conjunctival sites.* DFA (MicroTrak) testing is used for specimens obtained from all other sites.

**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). Indicate boldly on the requisition that these specimens are from young children.

**Newborn:** DFA (MicroTrak) testing or RDA (preferred) is performed on conjunctival specimens.* Specimens from all other sites require DFA (MicroTrak) testing. Pulmonary, tracheal secretions and nasopharyngeal aspirates should be submitted in sterile containers. When in doubt as to procedure, please phone Cadham Provincial Laboratory (204-945-7204).

* The RDA test has not yet been approved for conjunctival specimens, therefore laboratory results for these specimens will be reported as “for investigational purposes only.” DFA is the approved test for conjunctival specimens.
Table 1 – Chlamydial Testing Specimen Containers and Swabs

<table>
<thead>
<tr>
<th>Patient</th>
<th>Specimen/Site</th>
<th>Container</th>
<th>Swab that should be used</th>
<th>Alternate Swab</th>
<th>Swab that cannot be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Male</td>
<td>Urine</td>
<td>Genprobe Aptima urine specimen transport tube</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Adult Male</td>
<td>Urethral Conjunctival</td>
<td>Genprobe Aptima unisex swab specimen collection kit</td>
<td>ONLY the swab in Genprobe kit</td>
<td>None</td>
<td>All others (non-Genprobe)</td>
</tr>
<tr>
<td>Adult Female</td>
<td>Cervical Conjunctival</td>
<td>Genprobe Aptima unisex swab specimen collection kit</td>
<td>ONLY the swab in Genprobe kit</td>
<td>None</td>
<td>All others (non-Genprobe)</td>
</tr>
<tr>
<td>Adult Female</td>
<td>Urine</td>
<td>Genprobe Aptima urine specimen transport tube</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Adult (male or female)</td>
<td>Throat, rectal, nasopharyngeal</td>
<td>MicroTrak kit or alternate* to MicroTrak</td>
<td>Use swab provided in MicroTrak kit to inoculate slide. (Dacron)</td>
<td>Any sterile swab, rayon, Dacron, Calgi</td>
<td>N/A</td>
</tr>
<tr>
<td>Prepubertal Child</td>
<td>Vaginal, urethral conjunctival</td>
<td>Genprobe Aptima unisex swab specimen collection kit</td>
<td>ONLY the swab in Genprobe kit</td>
<td>None</td>
<td>All others (non-Genprobe)</td>
</tr>
<tr>
<td>Prepubertal Child</td>
<td>Throat, rectal nasopharyngeal</td>
<td>MicroTrak kit or alternate* to MicroTrak</td>
<td>Use swab provided in MicroTrak kit to inoculate slide. (Dacron)</td>
<td>Any sterile swab, rayon, Dacron, Calgi</td>
<td>N/A</td>
</tr>
<tr>
<td>Newborn</td>
<td>Conjunctival</td>
<td>Genprobe Aptima unisex swab specimen collection kit</td>
<td>ONLY the swab in Genprobe kit</td>
<td>None</td>
<td>All others (non-Genprobe)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MicroTrak kit or alternate* to MicroTrak</td>
<td>Use swab provided in MicroTrak kit to inoculate slide. (Dacron)</td>
<td>Any sterile swab, rayon, Dacron Calgi</td>
<td>N/A</td>
</tr>
<tr>
<td>Newborn</td>
<td>Pulmonary, tracheal or nasopharyngeal aspirates</td>
<td>Sterile containers</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Alternate - make 1/2 inch (10mm) diameter smear on clean glass slide and air dry.

NOTE: Generally a single good specimen is sufficient, but on occasion multiple specimens may improve the diagnosis.
<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dose</th>
<th>Indication</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin</td>
<td>1.0 gm po in a single dose (4-250 mg capsules)</td>
<td>Uncomplicated urethral, endocervical, rectal, and conjunctival infection in adolescents &gt;9 years and adults. See comments regarding use of azithromycin in pregnancy. If vomiting occurs more than 1 hour post-administration, a repeat dose is not required (PHAC 2006)</td>
<td>Although there are limited data on the safety of azithromycin during pregnancy, significant adverse effects have not been observed. The theoretical risk of adverse effects during pregnancy (particularly during the first trimester) should therefore be weighed against the risk of non-compliance with the recommended alternative, a 7-day course of erythromycin (see below).</td>
</tr>
<tr>
<td></td>
<td>12-15 mg/kg (maximum 1 gram) orally in a single dose</td>
<td>Children between 1 month and 9 years of age.</td>
<td></td>
</tr>
<tr>
<td>Doxycycline</td>
<td>100 mg po BID for 7 days</td>
<td>Uncomplicated urethral, endocervical, rectal and conjunctival infection in adolescents &gt;9 years and adults.</td>
<td>Contraindicated in pregnancy, lactation and children under 9 years of age.</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>500 mg po QID for 7 days</td>
<td>Pregnant women with urethral, endocervical or rectal infection.</td>
<td>Equivalent doses of other formulations may be substituted except that the estolate formulation is contraindicated in pregnancy.</td>
</tr>
<tr>
<td>(Dosages refer to erythromycin base)</td>
<td>40 mg/kg/day orally in 4 divided doses for 14 days</td>
<td><em>Ophthalmia neonatorum</em> (neonatal conjunctivitis) and uncomplicated urethral, endocervical and rectal infection in children aged 1 week to 1 month.</td>
<td>For children under 1 week of age, consult a pediatrician. Infants taking erythromycin should be monitored for signs and symptoms of infantile hypertrophic pyloric stenosis (Redbook 2006).</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>500 mg po TID for 7 days</td>
<td>Pregnant and lactating women with uncomplicated urethral, endocervical or rectal infection, who are allergic to or cannot tolerate erythromycin or azithromycin.</td>
<td>Limited data exist concerning the efficacy of this treatment, thus a test of cure is recommended. Consultation with an infectious disease specialist may be indicated.</td>
</tr>
</tbody>
</table>
Key Investigations

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

Control

Management of Cases (55)

The provincial guidelines (Table 2) do not provide a comprehensive list of all possible treatment regimens, but rather, those regimens that meet general criteria of efficacy, safety, ease of administration and cost. Where possible, single-dose oral therapy is preferred.

Treatment Recommendations

- It is recommended that treatment be initiated prior to laboratory confirmation of infection in patients with signs and symptoms attributable to chlamydial infection (27). Definitive treatment with an antibiotic should not await laboratory test results.
- Symptomatic individuals should be treated for BOTH gonorrhea and chlamydial infection, without waiting for the results of laboratory testing for either (8, 11, 56).
- Asymptomatic persons with laboratory-confirmed chlamydial infection and negative laboratory testing for gonorrhea need not be treated for gonorrhea (11).
- Serologic testing for syphilis, HIV and hepatitis B and C is recommended (11).
- Lymphogranuloma Venereum (LGV) testing is recommended for men who have sex with men (MSM) who are diagnosed with anorectal Chlamydia (57). See Manitoba Health Lymphogranuloma Venereum protocol.
- Immunization against hepatitis B is recommended for non-immune non-immunized individuals (26, 58).
- Individuals being treated for chlamydial infection should be instructed to abstain from unprotected intercourse until seven days after initiation of single-dose therapy or until completion of a longer antimicrobial regimen (58).
- Patients should abstain from unprotected intercourse until all sex partners have also completed treatment (58).
- Interview cases as soon as possible, preferably within five working days. Repeaters (persons with more than one documented sexually transmitted infection (STI) episode in the preceding 12 months), women with PID, and other high-risk individuals (i.e., MSM, sex trade workers) are the highest priority (11).
- Recurrent chlamydial infections after treatment with the recommended schedules may be due to reinfection, and indicate a need for improved contact tracing and patient education (11).
- After treatment, a test of cure is not routinely recommended (59). A test of cure is advisable if symptoms persist, if reinfection is suspected (31), where non-compliance is likely, if an alternative treatment regimen has been used, and for all children and pregnant women (11, 26, 31).
- If considered necessary, a test of cure using a NAAT should be performed at three to four weeks after the completion of effective treatment to avoid false positive results due to the presence of non-viable organisms (58).
- Repeat testing in all individuals with C. trachomatis infection should be considered six months post-treatment as reinfection risk is high (58).

Management of Chlamydial Infections in Pregnancy, at Delivery and in the Postnatal Period

- A test for C. trachomatis should be performed at the first prenatal visit (31, 60).
- Women aged <25 years and those at increased risk for Chlamydia (i.e., women who have a new or more than one sex partner) should also be considered for testing during the third trimester.
to prevent maternal postnatal complications and chlamydial infection in the infant (31).

- If women are found to have chlamydial infection during pregnancy or at the time of delivery they should be treated with the drug regimens under Management of Cases and investigated for co-existing sexually transmitted infections.

- Neonates born to women with chlamydial infection are at high risk of pneumonia and conjunctivitis. Infants should be examined carefully and testing of the eyes and nasopharynx should be performed. Infants testing positive should be treated with the regimens described for neonatal infection under Management of Cases.

- All cases of conjunctivitis in the newborn should be tested for both *N. gonorrhoeae* and *C. trachomatis* because of the possibility of mixed infection (61).

- For neonatal *C. trachomatis* conjunctivitis, there is no evidence that additional topical therapy provides further benefit (61).

- Both parents of a newborn with ophthalmia should be tested and treated.

- Women who are found to have chlamydial infection in the postnatal period should be investigated for possible co-existing sexually transmitted diseases, particularly gonorrhea (11). They 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 (11).

- 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 (11).

- Hospitalized persons should be managed with routine infection control precautions (11).

**Management of Acute Pelvic Inflammatory Disease (PID)**

- Acute pelvic inflammatory disease results from the ascending spread of microorganisms from the vagina and endocervix to the upper female genital tract including the endometrium, fallopian tubes and/or contiguous structures.

- This syndrome includes endometritis, salpingitis, tubo-ovarian abscess and pelvic peritonitis.

- Etiologic agents include *C. trachomatis, N. gonorrhoeae* and other organisms such as anaerobes, enteric gram negative rods, streptococci and some mycoplasma.

- Acute PID may be difficult to diagnose because of the wide variation in presenting symptoms and signs. Many women with PID have subtle or mild symptoms.

- Delays in diagnosis and initiation of effective treatment probably contributes to inflammatory sequelae (e.g., ectopic pregnancy) in the upper reproductive tract.

- Laparoscopy provides a more accurate diagnosis of salpingitis as well as a more complete bacteriologic diagnosis. However, laparoscopy will not detect endometritis or subtle inflammation of the fallopian tubes. Consequently, diagnosis of PID is usually based on clinical findings.

- The optimal treatment regimen and long term outcomes following early treatment of women with asymptomatic or atypical PID are unknown.

- Empiric treatment for PID should be initiated in women at risk for STDs if the following minimum criteria are present and no other causes for the illness can be identified:
  - Lower abdominal tenderness
  - Uterine/adnexal tenderness or
  - Cervical motion tenderness

- Additional criteria that support a diagnosis of PID and enhance the specificity of the diagnosis, in addition to the minimum criteria include:
  - Oral temp >101°F (>38.3°C)
  - Presence of white blood cells (WBC) on saline microscopy of vaginal secretions
  - Elevated erythrocyte sedimentation rate
  - Elevated C reactive protein
  - Laboratory documentation of cervical infection with *C. trachomatis, N. gonorrhoeae*, anaerobes, gram negative bacteria and streptococci.
NOTE: Most women with PID have either mucopurulent cervical discharge or evidence of WBC on microscopic evaluation of a saline preparation of vaginal fluid.

**Treatment:**
- PID treatment regimens must provide empiric broad spectrum coverage of all likely pathogens. Antimicrobial coverage should include *C. trachomatis*, *N. gonorrhoeae*, gram negative bacteria and streptococci. Anaerobic coverage should also be considered.
- Treatment should be initiated as soon as the presumptive diagnosis has been made because prevention of long term sequelae has been directly linked with immediate administration of appropriate antibiotics.
- The selection of treatment regimens should consider availability, cost, patient acceptance and antimicrobial susceptibility.
- The recommended treatment consists of a combination of:
  - Ceftriaxone 250 mg IM in a single dose followed by doxycycline 100 mg orally twice a day for 14 days with or without metronidazole 500 mg orally twice a day for 14 days.

**NOTE:** Anaerobic coverage (metronidazole) should be considered, but whether elimination of anaerobes from the upper tract is necessary remains to be answered even though anaerobes are detected in the majority of PID cases (PHAC October 2007).

An alternate regimen includes cefoxitin two gm IV every six hours and doxycycline 100 mg bid.

Parenteral therapy may be discontinued 24 hours after a patient improves clinically, and oral therapy with doxycycline (100 mg bid) should continue for a total of 14 days.

**PRECAUTIONS:** Ceftriaxone and cefoxitin should not be given to persons with a cephalosporin allergy or a history of immediate and/or anaphylactic reactions to penicillins. Doxycycline is contraindicated in pregnancy, lactation and children under nine years of age. Patients should not drink alcohol during and for 24 hours after oral therapy with metronidazole because of a possible disulfiram (antabuse) reaction.

Some patients will require hospitalization. The decision of whether hospitalization is necessary initially should be based on the discretion of the health care provider. Patients should demonstrate substantial clinical improvement within three days after initiation of treatment. Patients who do not improve within this period usually require hospitalization for additional diagnostic tests and possibly surgical intervention.

Pregnant patients with suspected PID should be hospitalized for evaluation and treatment with parenteral therapy; consultation with an expert should be sought.

**Management of Contacts**
- Patients should be referred to a physician, public health nurse or other health care professional for support with partner notification (27).
- 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 empiric treatment (11, 31, 58). 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 (11). If there is no partner during this period, then the last partner should be tested and treated (58).
- 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 a minimum of three months prior to the diagnosis of the case (11).
- Contacts should also be counselled and screened for HIV, syphilis, gonorrhea, hepatitis B and C (11).
- Specimen sites may differ according to sexual practices.

**NOTE:** When resources are limited, priority for partner notification should be directed toward youth/young adults < 25 years of age (58).
Preventive Measures

• Instruction and encouragement for the consistent practice of safer sex (26).

• Women should be tested for Chlamydia at least once during pregnancy (11, 62).

• 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 care provider (11).

• Sexually active individuals (regardless of age) and individuals under age 25 should be tested more often than annually, in the following circumstances (11):
  – all women undergoing intrauterine device insertion (11, 27)
  – all women undergoing termination of pregnancy or D&C (11, 27)
  – individuals with more than one sex partner in the past year (11, 27, 63)
  – individuals with a new sex partner in the past two months (11, 63)
  – individuals whose sex partner has other sex partners
  – sex partners of those with chlamydial infection (27)
  – street-involved individuals (11)
  – individuals involved in substance use (injection drug use, glue sniffing, etc.) (11)
  – individuals with a history of an STI in the past year (11, 58)
  – individuals engaging in sex trade activities
  – history of unprotected sex with a person in one of the above categories

• Urine-based testing is currently used by Manitoba Corrections to screen inmates for C. trachomatis (64).

• As research studies have indicated that self-collected vaginal swabs (using NAAT) are sensitive (65-68) and specific (68) for C. trachomatis, are non-invasive (65, 67), have patient acceptance (65, 67) and have ease of transport and processing (65, 68), they represent a possible screening tool for asymptomatic infection (65-68). Although this screening tool is not currently offered in Manitoba, it may be considered in the future. Such testing may be particularly useful in remote clinical practice (66, 69).

Additional Resources for Health Care Professionals


• STI Information Line (Winnipeg RHA), 940-2200

• AIDS/STI information ((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, 1-800-432-1957
References


64. Sloane, Marilyn, Director of Health Services, Manitoba Corrections, Portage la Prairie, Manitoba (Personal Communication) June 2006.


