Section 5

Sexually Transmitted Infections

Government of Saskatchewan

Sexually Transmitted Infections

Introduction and General Considerations

Background Information

The incidence of Sexually Transmitted Infections (STIs) in Saskatchewan has been increasing over the past number of years. This may be due in part to the introduction of testing procedures that are easier to complete and less invasive. In Saskatchewan, the rates for chlamydia have been among the highest in Canada. Refer to http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/c_indp_e.html#c_prov for historical surveillance data collected by Public Health Agency of Canada (PHAC).

STIs are transmitted in the context of other social and health challenges; the risk of recurrent exposure and infection are likely unless these underlying issues are dealt with. A holistic assessment of clients assists in identifying these underlying issues and a multidisciplinary team approach is often necessary and should involve other partners such as physicians, addiction services and mental health as required. The regulations of *The Health Information Protection Act* must be adhered to when involving other partners in the management of individuals or when referring individuals to other agencies.

This section highlights some of the general and special considerations that should be kept in mind when conducting STI investigations. It also highlights key points and summarizes the Canadian Guidelines on Sexually Transmitted Infections which can be located at http://www.phac-aspc.gc.ca/std-mts/sti-its/guide-lignesdir-eng.php.

Reporting Requirements

Index cases must be reported to the Ministry of Health. See Reporting Requirements in the General Information section of this manual for additional information and guidelines.

Partner Notification

The goal of partner notification is to assist individuals to inform their partners that they have been put at risk and to honor the partner's right to make informed decisions regarding their health.

Partner notification allows for sexual partners, and other contacts exposed to an STI, to be identified, located, assessed, counseled, screened and treated. This process is important in disease surveillance and control as well as for reducing the risk of re-infection for the original case. Refer to Section 1 for a summary of roles of individuals infected with/exposed to communicable diseases for additional information.

Individuals may experience a variety of feelings when they are informed that they have an STI. These feelings may range from guilt, to anger, to embarrassment. A non-judgmental approach can make clients feel more comfortable. Reassuring clients of the confidential nature of STI reporting may facilitate open communication and improve the disclosure of partner/contact information.

- Details on the required timeframes for initiating and completing contact notifications are included within each disease section.

Barriers to Partner Notification

There are a number of barriers that may prevent disclosure of contact names by cases. The following highlight some barriers:

- The index case may fear physical or emotional abuse that may result from partner notification. If there is a threat to client safety, public health officials should be notified of this so that proper safety precautions are taken to protect the index case. Concerns regarding personal safely should be addressed and if notification is expected to result in abuse, the case should be discussed with the Medical Health Officer (MHO) before proceeding.
- The individual may fear losing a partner due to the STI diagnosis (blame/guilt). The health care provider should acknowledge this and discuss the asymptomatic nature of STIs and the benefits of asymptomatic partner(s) knowing that they may be infected.
- Anonymous partners – details regarding the partner's appearance and the location of the encounter should be obtained to try to locate the partner (contact). The Internet is becoming a common venue to meet prospective partners. E-mail addresses and any websites and/or chat rooms used should be collected. Identities may not be revealed when meeting partners in this forum thereby making contact notification a greater challenge. Policies relating to the use of the Internet and e-mail for partner notification must be referred to.

Who Performs Partner Notification?

The client, health care provider, MHO or their designate may notify the partner. When the person with the STI chooses to notify his or her contacts, they must inform the contact of the exposure, explain their duty to get tested and take all reasonable measures to reduce the risk of exposing others.[1]

[1] *The Public Health Act, 1994* and *Disease Control Regulations, 2003*, 25 Apr 2003 c.P-37.1, Reg. 11 s.6.

If the affected person does not wish to notify their contacts on their own, the physician or clinic nurse can complete the partner notification. If the health care provider is unable to do this within 14 days, it should be referred to Public Health to complete. Notification by the health care provider occurs confidentially with the consent of the infected person. Partners will be notified of the possibility of their exposure to an STI (without naming the index case) and their responsibility to get tested and to take all reasonable measures to reduce the risk of exposing others (e.g., condoms, period of abstinence, safer sex practices, etc.).

Methods of Control

A holistic approach in determining the causes of STIs will reveal that there are a number of social circumstances that influence individual behaviours. This is significant when trying to determine broad prevention strategies, but is also important when meeting with individuals (cases, contacts, other) to develop approaches that assist and support them in making personal choices that reduce or eliminate risks. The following link is an excellent resource to assist health care providers with the prevention, diagnosis and management of STIs: http://www.phac-aspc.gc.ca/std-mts/sti-its/guide-lignesdir-eng.php.

Primary Prevention

Public health professionals are engaged in a variety of activities with individuals and groups where health promotion and primary prevention measures can be introduced. A holistic, client-centered approach should be used to determine the most appropriate approaches and interventions that would be beneficial to the individual client or group being worked with. The topics outlined below for the assessment of individual sexual health and risk behaviours can also be adapted for use in other health education settings.

The following are topics that should be assessed when discussing sexual health and risk behaviours with individual clients and when providing health education in other community settings:

- relationships;
- sexual risk behaviours (number of partners, etc.);
- STI history;
- reproductive health history;
- substance use;
- psychosocial history.

The Attachment - Risk Assessment Questionnaire is a sample questionnaire that can assist in determining what tests/referrals/counseling would be appropriate.

The information collected from this assessment will assist in identifying measures to reduce risk of exposure to STIs. It may also identify circumstances that could have an impact on the general health of the individual, for example, addressing substance use and other psychosocial issues may have a greater impact on the health of the client.

In addition to the counseling provided during the risk assessment, the following topics should also be addressed with any client that is receiving follow-up to or for an STI. These also apply to the follow-up of their partner(s):

- serial monogamy;
- acceptance of sexuality;
- planning prevention;
- safer sex;
- proper use of condoms;
- contraceptive advice.

Clients should be given information that is easy-to-apply:

- Discuss limiting alcohol or drug intake prior to sexual activity, as they both decrease inhibitions and could affect decision-making and negotiation skills.
- Reinforce that it is *not* possible to assess the chances that a partner has an STI on the basis of knowing the partner's sexual history; being in a close relationship with a partner; or being monogamous with a partner who has had previous sexual partners and who has not been tested.
- It is important to tell clients that routine testing is not done for all STIs (e.g., human papilloma virus [HPV], herpes simplex virus [HSV]), so even if they or their partner's tests are all negative they may still have an asymptomatic STI.

Secondary Prevention

Active screening of risks for STIs assists in the identification of individuals who may be infected with an STI. Testing should be offered to clients based on the results of the risk assessment.

Refer to Attachment - Risk Assessment Questionnaire for a tool that is available to assist in client assessment. This tool provides a framework for assessments and investigations and should be adapted to suit the situation and individual while keeping in mind the benefits of a broad assessment and how this information can be used. Testing should be offered to clients based on the results of the risk assessment.

General Recommendations for Testing based on Results of the Risk Assessment

Since the risk of human immunodeficiency virus (HIV) increases when a client is infected with another STI (chlamydia, gonorrhea, syphilis, HSV), HIV pre-test counselling should occur and HIV testing should be offered. Refer to Blood and Body Fluid Pathogens (Section 6) for information on HIV and testing procedures.

Clients with ongoing risks for infection with STIs should routinely be tested for:

- chlamydia;
- gonorrhea;
- HIV;
- syphilis.

If other risk factors are present, screening should be recommended for hepatitis B and hepatitis C:

- Individuals with multiple sexual partners are eligible for publicly funded hepatitis B vaccine if they are non-immune and are not HBsAg positive.
- Hepatitis C positive clients are eligible for publicly funded hepatitis A and/or hepatitis B vaccines if they are non-immune to hepatitis A or hepatitis B.
- Individuals born after January 1, 1984 are eligible for publicly funded hepatitis B vaccine.

For further information, please refer to the Public Health Agency of Canada STD Self-Directed Learning module based on 1998 Canadian STD Guidelines at http://www.phac-aspc.gc.ca/slm-maa/index.html.

Referrals

Clients may benefit from referrals to supportive services depending on the circumstances of exposure. Suggested referrals include child and youth services (Teen Wellness Centres), mental health services, pregnancy counseling clinics or addiction services to name a few. Familiarity with the available regional services and community resources will assist in making appropriate referrals. Procedures of the Health Authority should be followed when making referrals. One aspect of this includes ensuring the confidentiality of the client's health information is maintained in accordance with *The Health Information Protection Act* and *The Public Health Act*.

Special Considerations

Children/Sexual Abuse

Every province and territory has statutes in place that require the reporting of child abuse. In Saskatchewan, the duty to report situations where they believe a child is being abused falls under *The Child and Family Services Act.*[2] This duty applies in spite of any claim of confidentiality. The offences covered in this Act are outlined in Section 81. This Act also defines a child in the need of protection.[3] *The Emergency Protection for Victims of Child Sexual Abuse and Exploitation Act*,[4] also defines abuse and the duties to report instances or suspicions of child sexual abuse. If reasonable cause to suspect child abuse exists, the health care provider must contact local child protection services and/or law enforcement agencies promptly. The offences of this Legislation are outlined in Section 24 of this Act. Other resources that outline child protection issues include the *Criminal Code* and the *Provincial Child Abuse Protocol 2006*.

Initial Laboratory Work-up

Note: It is important to notify the lab if the laboratory specimens being submitted are for a child abuse/sexual assault case, as the urine specimen must undergo a second PCR test if the first result is positive.

- Cultures for *N. gonorrhoeae* and *C. trachomatis* from specimens collected from any sites of penetration or attempted penetration. See Attachment - Transport Media for Specific STIs.

[2] *The Child and Family Services Act*, 1989-90 cC-7.2 s12; 1996 c11 s2.
[3] *The Child and Family Services Act*, 1989-90 cC-7.2 s11; 1999 c.14 s3.
[4] *The Emergency Protection for Victims of Child Sexual Abuse and Exploitation Act*, 2002 c.E-8.2, s.4.

- Urine nucleic acid amplification tests (NAATs) (as a substitute for culture).
- Collection of a serum sample for immediate evaluation for HIV, hepatitis B, hepatitis C, and syphilis. See Guidelines for the Management of Potential Exposures to Hepatitis B, Hepatitis C, HIV and Recommendations for Post-exposure Prophylaxis at http://www.ehealthsask.ca/services/manuals/Pages/hiv-guidelines.aspx.

Management and Treatment

Considerations for prophylaxis:

- Offer presumptive prophylaxis for STIs and hepatitis B:
  - in situations where vaginal, oral or anal penetration has occurred, because many sexual assault victims do not return for follow-up visits;
  - when it is known that the assailant is infected with a specific STI;
  - when it is requested by the patient/parent/guardian;
  - when the patient has signs or symptoms of an STI.
- Post-exposure administration of HBIg and/or hepatitis B vaccine may prevent hepatitis B virus infection.
  - It should be noted that the efficacy of antibiotic prophylaxis has not been studied in sexual assault; prophylaxis should be as recommended for treatment of specific infections (see sections on specific infections for more information).

Pregnancy

If pregnancy is a possible result of the assault, the emergency contraceptive pill (ECP) should be considered. Treatment should be offered and taken as soon as possible, up to 72 hours after exposure (efficacy declines after this, but some benefit may be achieved up to 120 hours after exposure).

- ECP is available through a physician or directly through some pharmacies and STI clinics.
- Preferred: levonorgestrel 1.5 mg PO as a single dose (Plan B).
- Alternative: levonorgestrel 0.75 mg PO bid x 2 doses if a single dose (as noted above) is not likely to be tolerated.

For further information on emergency contraception visit the Society of Obstetricians and Gynecologists of Canada, Clinical Practice Guidelines at http://www.sogc.org/guidelines/index_e.asp#Contraception.

Other Management Issues

- If the client consents, appropriate referral(s) should be made as necessary (e.g., to sexual assault teams, local police/Royal Canadian Mounted Police, psychological support, local victim support organizations etc.).
- Advise the client of the need to practice safer sex or abstain from sexual intercourse until infection has been ruled out and/or prophylaxis is complete.
- Offer tetanus toxoid if relevant (e.g., dirty wounds/abrasions sustained outdoors).

Follow-up

- Follow-up testing of STIs (i.e., syphilis) should be recommended as necessary.
- In circumstances in which transmission of syphilis, HIV, or hepatitis B is a concern but the disease status of the source is unknown and baseline tests are negative, repeat testing should be done at 6, 12 and 24 weeks (depending on the infection being tested for) after the last suspected sexual exposure. See also the introduction to Blood and Bodily Fluid Borne Pathogens.
- Review mental state and arrange appropriate referral to mental health services if necessary.

Refer to the following link for detailed information on Children and Sexual Abuse: http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/606sexassault-eng.pdf.

Travel

There has been an association between travel, sexual behavior and the risk of acquiring sexually transmitted infections (STIs). The risk of acquiring STIs is increased in travellers because travel affords freedom from the normal social constraints of daily life at home as well as increased time and opportunity for casual sex. Studies have shown that 5 to 50 percent of travellers engage in casual sex and that a third to over one half of travellers do not consistently use condoms. Associated risk factors include being male, younger age, travelling alone or with friends, being single, men who have sex with men (MSM), long duration of stay, travelling on business, and being a smoker or using alcohol or illicit drugs.

STI rates are particularly high in developing countries. The incidence of antibiotic resistance to STIs is increasing (e.g., gonococcal strains may be resistant to penicillins, tetracyclines, spectinomycin, and fluoroquinolones). Additional information can also be obtained by consulting the Saskatchewan International Travel Manual or by visiting: http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/609travel-voyag-eng.pdf.

Sex Trade Workers

Sex workers are female, male or transgendered adults or young people who receive money, shelter, drugs or goods in exchange for sexual services, either regularly or occasionally, and who may or may not consciously define those activities as income-generating. Since there are no reliable verbal or visual clues as to whether a client is involved in the sex trade or not, when appropriate, patients should be asked whether they ever receive money, shelter or goods in exchange for sexual services.

The following include some factors that make sex workers vulnerable to STIs, including HIV:

- lack of control (e.g., condom use, refusing clients);
- lifestyle risks, such as violence, substance use and mobility;
- stigmatization and marginalization;
- limited economic options;
- limited access to health, social and legal services;
- limited access to information about and the means of prevention;
- gender-related differences and inequalities;
- sexual abuse and exploitation, including trafficking and child prostitution;
- legislation and policies affecting the rights of sex workers;
- mental health problems;
- incarceration;
- lack of family and social support.

Clinicians and health care providers need to understand the specific circumstances for each client and develop an individualized risk-reduction plan for each client. Successful STI/HIV prevention focuses on the promotion of safer sexual behaviour including the availability of female and male condoms and their correct usage; improved negotiating

skills; and supportive policies and laws. Peer education, outreach work, accessible services, advocacy, community development, program coordination and sex worker involvement in risk reduction programming are all important prevention principles and strategies.

Hepatitis B vaccination should be made available free of charge to sex workers since they are at increased risk for infection. See the Saskatchewan Immunization Manual[5] for details of publicly funded immunizations. For more information on sex trade workers, go to http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/607sexworkers-eng.pdf.

Inmates and Offenders

Inmates in correctional facilities in Canada, and around the world, bear a disproportionate burden of illness related to infectious disease compared to the general population. As a result, rates of sexually transmitted infections (STIs), hepatitis B (HBV), hepatitis C (HCV) and HIV/AIDS are significantly higher among prison inmates.

See the introduction to Blood and Body Fluid Pathogens for more information on inmates and harm reduction.

Reporting and Partner Notification

Reporting must occur from the correctional facility to the local Public Health office. Partner notification is a major component of STI follow-up but inmates may be reluctant to disclose information about contacts or behaviours that may be deemed inappropriate, illegal or be stigmatized. This highlights the importance of confidentiality and a non-coercive approach to partner-notification process. Inmates view Public Health as an outside agency and therefore may be more willing to disclose information about contacts to Public Health.

Follow-up

Inmates who continue to engage in higher risk behaviour should be encouraged to be screened regularly for STIs. Safer sex and harm reduction practices should be reinforced with these clients.

[5] http://www.ehealthsask.ca/services/manuals/Pages/SIM.aspx.

It is important for collaboration to occur between correctional services and local public health to ensure follow-up occurs with those who have been/will be released into the community. For more information, go to http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/602offend-eng.pdf.

Immigrants and Refugees

Immigrants and refugees[6] may come from countries with higher rates of STIs than Canada. STIs that are relatively uncommon in Saskatchewan may be common in these countries and there may also be higher rates of drug resistance with some of these STIs. There are a number of variables that health care workers must be sensitive to when working with these clients. These may include:

- language barriers;
- cultural norms;
- social norms;
- gender roles;
- religion;
- personal experiences from their country of origin may have been traumatic.

A culturally sensitive approach must be used when working with clients. Anonymity and confidentiality must be maintained when utilizing translation or other supportive services and should include the consent of the individual.

See the introduction to Blood and Body Fluid Pathogens for more information on immigrants and refugees or go to http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/601immigrants-eng.pdf.

[6] A *legal* immigrant is a person born outside of Canada who has been granted the right to live in Canada permanently by immigration authorities, whereas an *illegal* immigrant has not been granted such a right. A refugee is a person outside his/her country of nationality who is unable or unwilling to return because of persecution on account of race, religion, nationality, membership in a particular social group, and/or political opinion.

Substance Use/Abuse

The use of alcohol and illicit drugs is associated with risky sexual behaviour including: poor and inconsistent condom use; sex with multiple partners; early sexual debut; trading sex; buying sex; sex with known injection drug users; lower condom-use self-efficacy or perceived ability to use condoms; and lower HIV-related knowledge (Public Health Agency of Canada, 2008).

- Substance use has also been linked to elevated hepatitis C and STI transmission.
- Users of more stigmatized substances, such as injection drugs and crack, are at higher risk for STIs than users of less stigmatized drugs, such as marijuana.
- Youth who abuse substances are more likely to engage in risky sexual behaviour and continue these risky behaviours and drug use into adulthood.
- The use of recreational drugs among men who have sex with men (MSM) has risen in recent years and has been linked to increases in risky sexual behaviour and rising STI rates. Sildenafil citrate (Viagra), vardenafil (Levitra) or tadalafil (Cialis) can be used to counteract the erectile-dysfunction side effect of some of these illicit drugs, a practice that has been linked to multiple sex partners and STI acquisition.

When substance use/abuse is identified as a risk, it is important to provide counselling and make referrals to community resources as appropriate. For more information go to http://www.phac-aspc.gc.ca/std-mts/sti-its/pdf/608substance-eng.pdf.

References

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Notification Timeline:

From Lab/Practitioner to Public Health: Within 72 hours.

From Public Health to Ministry of Health: Within 2 weeks.

Public Health Follow-up Timeline: Within 72 hours.

Public Health Purpose for Notification of Chlamydia

- To reduce morbidity from chlamydia through contact tracing;
- To track epidemiology trends of chlamydia in Saskatchewan including risk factors and distribution;
- To identify at risk populations in order to inform prevention and control programming;
- To monitor the effectiveness of prevention and control measures; and
- To inform the public and medical community about chlamydia.

Surveillance Case Definition[1] (Public Health Agency of Canada, 2008)

Confirmed Case – Genital Infections	Laboratory evidence of infection in genitourinary specimens: • detection of *C. trachomatis* by culture; **OR** • detection of *C. trachomatis* nucleic acid; **OR** • detection of *C. trachomatis* antigen.
Confirmed Case – Extra-genital Infections	Laboratory evidence of infection in rectum, conjunctiva, pharynx and other extra-genital sites: • detection of *C. trachomatis* by culture; OR • detection of *C. trachomatis* nucleic acid; OR • detection of *C. trachomatis* antigen.

[1] Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

Confirmed Case – Perinatally Acquired Infections	Laboratory evidence of infection: • detection and confirmation of *C. trachomatis* in nasopharyngeal or other respiratory tract specimens from an infant who developed pneumonia in the first 6 months of life: ▪ isolation of *C. trachomatis* by culture; OR ▪ demonstration of *C. trachomatis* nucleic acid; OR ▪ demonstration of *C. trachomatis* antigen. OR • detection and confirmation of *C. trachomatis* in conjunctival specimens from an infant who developed conjunctivitis in the first month of life: ▪ isolation of *C. trachomatis* by culture; OR ▪ demonstration of *C. trachomatis* nucleic acid; OR ▪ demonstration of *C. trachomatis* antigen.

Epidemiology and Occurrence

- Common worldwide.
- The epidemiology in Saskatchewan demonstrates:
    - Chlamydia rates in Saskatchewan were 1.5 times those of the national rate over the past decade but were comparable to Manitoba's rates. Saskatchewan's rate has been somewhat stable since 2011 whereas Canada's rate trend is gradually increasing.
    - Chlamydia rates are highest in the northern population of Saskatchewan. This is presumed to be related to barriers in accessing health care services or reluctance to seek health care because of the lack of anonymity in small communities.
    - Chlamydia is mostly commonly diagnosed in females aged 15 to 29 years and in slightly older males aged 20 to 39 years.
    - Commonly reported risk factors include unprotected sex; new or multiple partners in the past 3 months; alcohol use in individuals 15-29 years of cases); and having sex with a person with a known STI.

    - Even though chlamydia is often an acute event that is easily treated with antibiotics, many individuals remain asymptomatic, go undiagnosed and can transmit the infection to several partners before it is treated.
- Public Health Agency of Canada (2010) reports there is under-screening of high-risk males and females. Males often have infrequent health maintenance visits.
- Without treatment, infection persists for many months.
- Chlamydia is often a co-infection for those diagnosed with *Neisseria gonorrhea.*

Additional Background Information

Causative Agent

Bacterial infection caused by *Chlamydia trachomatis* serovars D to K.

Symptoms

Table 1. Symptoms and Signs

Females	Males	Neonates and infants
• Most often asymptomatic • Cervicitis (strawberry/ friable cervix, cervical discharge) • Vaginal discharge • Dysuria • Lower abdominal pain • Abnormal vaginal bleeding • Dyspareunia (deep pelvic pain) • Conjunctivitis • Proctitis	• Often asymptomatic • Urethritis (urethral discharge, dysuria) • Urethral itch • Testicular pain • Conjunctivitis • Proctitis	• Conjunctivitis in neonates • Pneumonia in infants <6 months of age

Source: Canadian Guidelines on Sexually Transmitted Infections, 2017.

Table 2. Complications

Females	Males
• Pelvic inflammatory disease • Ectopic pregnancy • Infertility • Chronic pelvic pain • Reiter syndrome	• Epididymo-orchitis • Reiter syndrome

Source: Canadian Guidelines on Sexually Transmitted Infections, 2017.

Reservoir
Humans.

Mode of Transmission
- Genital infection is transmitted sexually.
- Studies have reported that among men who have sex with men, extragenital chlamydia infections were documented in 75-85% of in men who did not have urethral infections. Likewise, extragenital infections were documented in a smaller proportion (14-44%) of women engaging in receptive anal intercourse (Danby, 2016). Use a risk-based assessment to determine appropriate specimen collection.
- Ocular infections are presumably caused by inoculation of the eye with infected genital secretions (self-inoculation), (Sowka, J., et al., 2000).
- Oculogenital infection is transmitted from genital tract of mother to her newborn infant.

Incubation Period
At least one week, most commonly 2-3 weeks, can be as long as 6 weeks.

Period of Communicability
Unknown, poorly defined.

Specimen Collection and Transport
Genital Infection:
- Urine for polymerase chain reaction (PCR) in men and women. Initial 10 to 20 mL of the urine stream (not mid-stream).
- Serology is not useful for the diagnosis of acute genital chlamydial infections.
- Post-exposure testing with a nucleic acid amplification test (NAAT) can be done as soon as desired, since it is not necessary to wait for 48 hours after exposure to collect samples as in the case of cultures.

Extra-genital Infection:
- Culture is recommended for throat and rectal specimens, since NAATs have not been adequately evaluated on these specimens.

Perinatally Acquired Infections:
- *C. trachomatis* IgM serology is useful for diagnosing *C. trachomatis* pneumonia in infants less than 3 months of age.

For information on specimen sources and culture media refer to Attachment – Transport Media for Specific STIs.

Public Health Investigation

I. Case

Refer to Attachment – Confidential Notification of Chlamydia and Gonorrhea to assist.

History

- Patients should be informed that their sexual history is confidential. Key elements to inquire about include:
  - Onset of illness
  - Risk factors including:
    - sexual contact with a chlamydia-infected person;
    - more than two sexual partners in the past 6 months;
    - vulnerable populations (for example persons who inject drugs, individuals who receive food shelter money or drugs for sex, street youth, aboriginal etc.).
  - Sexual contacts in order to interrupt the cycle of transmission. Travel history may be of significance in contact tracing.

Treatment

Treatment for chlamydia is indicated for the following:

- *a positive chlamydia test;*
- *presumptive diagnosis of a syndrome compatible with a chlamydial infection, (without waiting for the test results of C. trachomatis);*
- *laboratory diagnosis of chlamydial infection in a sexual partner;*
- *empirical co-treatment when a diagnosis of N. gonorrhea is made. DO NOT wait for test results of C. trachomatis due to the significant probability of coinfection (20-42%) and the possibility of false negative results.*

See Attachment – STI Treatment Guidelines for reference, however, the latest version of the Canadian Guidelines on Sexually Transmitted Infections should be referred to for current treatment guidelines at https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines.html

Public Health Interventions

Refer to Attachment - Chlamydia and Gonorrhea Public Health Follow-up Data Collection Worksheet to support public health follow-up.

Assessment

- Assess for contacts.

Communication

- Individuals may be difficult to reach in the era of technology and mobile phones. It is important to attempt to contact individuals using various methods such as phone calls at various times of the day. Some individuals' mobile service contracts only allow for text messaging. It is important to have policies and procedures that support the use of alternate modes of communication to assist in case follow-up.
- The primary care provider is an essential partner in the management of chlamydia. It is important to provide updates to care providers when they have referred cases to public health to assist in follow-up.

Education

- Provide disease information as well as information on prevention and control measures including safer sex practices and behavioural practices that support improved decision-making and reducing risk of reinfection and other STIs.
- Provide education on treatment; patients and contacts should abstain from unprotected intercourse until treatment of all partners is complete (i.e., 7 days after completion of a multiple-dose treatment or for 7 days after single-dose therapy).

Immunization

- Recommend immunizations for as per the Saskatchewan Immunization Manual. Sexual risk factors may render individuals eligible for Hepatitis A and B vaccines.

Referral

- Refer to harm reduction or other supportive services as indicated (see Introduction and General Considerations)

Testing

- Additional testing including HIV should be recommended for individuals based on the risk assessment and testing history.
- Test of cure for *C. trachomatis* is ***not routinely indicated*** **WHEN** a recommended treatment is taken **AND** symptoms and signs disappear **AND** there is no re-exposure to an untreated partner.

- Test of cure ***should be performed*** 4 weeks following completion of treatment in the following circumstances:
  - recommended treatment taken but signs and symptoms persist;
  - in all pregnant women;
  - where compliance is suboptimal;
  - if an alternative treatment has been used; and
  - in all prepubertal children.
- Repeat testing in all individuals is recommended 6 months post-treatment, as re-infection risk is high. Positive NAAT test results within 30 days of treatment are considered a duplicate case unless re-infection is likely to have occurred.

II. Contacts

Contact tracing relies on the cooperation of the patient; it is important that health care providers offer supportive, non-judgmental advice and assistance to patients and their contacts. Most individuals feel notifying partners is the 'right thing to do'; however, they also want advice and support for this from their health care provider.

It is important to understand the patient's particular situation and identify individual barriers to notifying contacts. Inform patients that for many individuals who discuss their STI diagnosis with a partner, the experience is better than they had anticipated (Australian Government Department of Health, 2016).

Table 2. Definitions of Contacts	
Sexual Contact	• All individuals who have had sexual contact with the index case within 90 days prior to symptom onset or date of diagnosis. • If there is no partner during this period, the last sexual partner should be identified.
Neonatal Contact	• Neonates born to infected mothers

Public Health Interventions

Assessment

- Assess for symptoms.

Communication

- Individual follow-up of contacts is important to intercept the transmission of STIs. These individuals must be notified of their exposure within 72 hours.

- Offer supportive, non-judgmental advice and assistance to contacts.

Education

- Provide disease information as well as information on prevention and control measures including safer sex practices to all contacts and behavioural practices that support improved decision-making and reducing risk of reinfection and other STIs.
- Provide education on treatment. Patients and contacts should abstain from unprotected intercourse until treatment of both partners is complete (i.e., 7 days after completion of a multiple-dose treatment or for 7 days after single-dose therapy).

Immunization

- Recommend immunizations contacts are eligible for as per the Saskatchewan Immunization Manual. Sexual risk factors may render individuals eligible for Hepatitis A and B vaccines.

Testing

- Recommendations for testing for other sexually transmitted infections including HIV should be made.

Treatment

- Provide treatment for chlamydia to contacts at the same time of testing. It is not advised to await test results for these individuals.
- The Saskatchewan College of Physicians and Surgeons bylaws[2] support the use of expedited partner therapy (EPT) given by physicians.

Prevention Measures

Refer to the Sexually Transmitted Infections Introduction and General Considerations section of the manual that highlights topics for client education that should be considered as well as provides information on high-risk groups and activities.

Immunization

Currently no vaccine for *C. trachomatis.*

Education

Education should be provided regarding healthy dating relationships and consent. The Saskatchewan Prevention Institute has several resources to support these topics.

[2] http://cps.sk.ca/iMIS/Documents/Legislation/Legislation/Regulatory%20Bylaws.pdf

Revisions

Date	Change
September 2018	Incorporated Public Health Purpose of Notification. Added **Epidemiology and Occurrence** section. Reorganized chapter and applied new format. References reaffirmed or updated as necessary. Aligned with Panorama and included the Panorama Data Collection Worksheet.
August 2018	Removed reference to preventative treatment for ophthalmia neonatorum with erythromycin ophthalmic prophylaxis.

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Notification Timeline:

From Lab/Practitioner to Public Health: Within 72 hours.
From Public Health to Saskatchewan Health: Within 2 weeks.

Public Health Follow-up Timeline: Initiate within 72 hours.

Public Health Purpose for Notification of Gonococcal infections

- To minimize mortality and morbidity from gonococcal infections through contact tracing;
- To track epidemiology trends of gonococcal infections in Saskatchewan including risk factors and distribution;
- To monitor the incidence and frequency of antimicrobial resistant *N. gonorrhoeae* in Saskatchewan in order to inform treatment guidelines;
- To identify at risk populations in order to inform prevention and control programming;
- To monitor the effectiveness of prevention and control measures; and
- To inform the public and medical community about gonococcal infections.

Surveillance Case Definition[1]

Confirmed Case – Genital Infections (Public Health Agency of Canada, 2008)	Laboratory confirmation of infection in genitourinary specimens: • detection of *N. gonorrhoeae* by culture; **OR** • detection of *N. gonorrhoeae* nucleic acid.
Confirmed Case – Extra-genital Infections (Public Health Agency of Canada, 2008)	Laboratory confirmation of infection from pharynx, rectum, joint, conjunctiva, blood and other extra-genital sites: • detection of *N. gonorrhoeae* by culture; **OR** • detection of *N. gonorrhoeae* nucleic acid.

[1] Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

Confirmed Case – Perinatally Acquired Infections (Public Health Agency of Canada, 2008)	Laboratory confirmation of infection from a neonate in the first 4 weeks of life leading to the diagnosis of gonococcal conjunctivitis, scalp abscess, vaginitis, bacteremia, arthritis, meningitis or endocarditis: • detection of *N. gonorrhoeae* by culture; OR • detection of *N. gonorrhoeae* nucleic acid.
Treatment Failure (Public Health Agency of Canada, 2017)	absence of reported sexual contact during the post-treatment period **AND one of the following:** • The presence of intracellular Gram-negative diplococci on microscopy in specimens taken at least 72 hours after completion of treatment, **OR** • Positive *N. gonorrhoeae* on culture of specimens taken at least 72 hours after completion of treatment, **OR** • Positive nucleic acid amplification tests (NAAT) of specimens taken at least 2–3 weeks after completion of treatment.

Epidemiology and Occurrence

- Worldwide.
- Most common in males age 20-24 years and females age 15-19 years.
- A network of people with high-risk behaviours may play a key role in current prevalence levels and in sustaining infections within a community.
- The proportion of penicillin-resistant organisms may reach 15% or higher in certain areas in Canada.
- Quinolone resistance in Canada has been steadily increasing. Shifts in minimal inhibitory concentrations (MICs) for third-generation oral and injectable cephalosporins have been increasing in Canada and globally, particularly among men who have sex with men (MSM).
- Continued monitoring for antimicrobial resistance is important to prevent the spread of drug-resistant *N. gonorrhoeae* and to ensure high cure rates for this treatable infection.

- The epidemiology in Saskatchewan:
  - Gonococcal infection rates in Saskatchewan are over double those in Canada, albeit the majority of jurisdictions in Canada are also experiencing an upward trend in number of identified cases.
  - Gonococcal infection rates are highest in the northern population of Saskatchewan. This is presumed to be related to barriers in accessing health care services or reluctance to seek health care because of the lack of anonymity in small communities.
  - The sharp rate increase in 2016 and 2017 reflects a large cluster of cases among men practicing sex with men in Saskatoon area.
  - Commonly reported risk factors include unprotected sex; new or multiple partners in the past 3 months; alcohol use (about a quarter of cases aged 15-29 years); and having sex with a person with a known sexually transmitted infection (STI).
  - Even though *N. gonorrhoeae* has been traditionally easily treated with antibiotics, Saskatchewan reported cases of anti-microbial resistant *N. gonorrhoeae* since 2017. If undiagnosed, this can be transmitted to several partners before it is treated and treatment options are limited.
- Public Health Agency of Canada (2010) reports there is under-screening of high-risk males and females. Males often have infrequent health maintenance visits.
- Without treatment, infection persists for many months.
- Chlamydia is often a co-infection for those diagnosed with *N. gonorrhoeae.*

Additional Background Information

Causative Agent

Bacterial infection caused by *Neisseria gonorrhoeae*.

Identification

Table 1. Manifestations

Neonates and infants	Children	Youth and adults		
		Females	*Males*	*Females and males*
• Ophthalmia neonatorum • Neonatal amniotic fluid infection • Disseminated gonococcal infection^	• Urethritis • Vaginitis • Conjunctivitis • Pharyngeal infection* • Proctitis • Disseminated gonococcal infection^	• Cervicitis • Pelvic inflammatory disease • Urethritis • Perihepatitis • Bartholonitis	• Urethritis • Epididymitis	• Pharyngeal infection* • Conjunctivitis • Proctitis • Disseminated gonococcal infection^

Source: Canadian Guidelines on Sexually Transmitted Infections, 2017.
*Infections of pharynx and rectum are often asymptomatic
^ e.g. arthritis, dermatitis, endocarditis, meningitis

Table 2. Symptoms of genital tract infection with N. gonorrhoeae

Females	Males
• Vaginal discharge • Dysuria • Abnormal vaginal bleeding • Lower abdominal pain • Rectal pain and discharge with proctitis • Deep dyspareunia	• Urethral discharge • Dysuria • Urethral itch • Testicular pain, swelling or symptoms of epididymitis • Rectal pain and discharge with proctitis

Source: Canadian Guidelines on Sexually Transmitted Infections, 2017.

Table 3. Major Sequelae

Females	Males
• Pelvic inflammatory disease (PID) • Infertility • Ectopic pregnancy • Chronic pelvic pain • Reactive arthritis (oculo-urethro-synovial syndrome) • Disseminated gonococcal infection^	• Epididymo-orchitis • Reactive arthritis (oculo-urethro-synovial syndrome) • Infertility (rare) • Disseminated gonococcal infection^

Source: Canadian Guidelines on Sexually Transmitted Infections, 2017.
^ e.g. arthritis, dermatitis, endocarditis, meningitis

Reservoir
Humans.

Mode of Transmission
Genital infections: contact with exudates from mucous membranes of infected people, typically as a result of sexual activity.
Perinatal infections: passage through birth canal.
Secondary gonococcal bacterial conjunctivitis may follow accidental inoculation by fingers (Sowka, J., et al., 2000).

Incubation Period
Usually 2-7 days.

Period of Communicability
Effective treatment ends communicability within hours. Without treatment, communicability may extend for months.

Specimen Collection and Transport
In response to increasing gonococcal antimicrobial resistance being observed in Canada and other parts of the world, improved monitoring of trends in antimicrobial resistance patterns is desirable. While NAAT are non-invasive and have high sensitivity and specificity, culture of at least some patients is necessary to guide therapy and to provide adequate data for surveillance of antimicrobial resistance in order to inform treatment guidelines in general.

*Whenever possible, **cultures** for N. gonorrhoeae should be done, especially in the following circumstances:*

1. *In men who have sex with men (MSM), cultures are recommended in symptomatic patients prior to treatment. (Due to increased sensitivity of NAAT over culture, both gonococcal culture and NAAT are indicated).*
   NAAT should continue to be used for screening genital tract specimens (urine, cervix or urethra) from asymptomatic individuals.
2. *Patients with a travel history during the potential period of exposure.*
3. *For all cases, test of cure with an appropriate sample for gonococcal culture is recommended for any of the following situations:*
   a. *All pharyngeal infections*
   b. *Persistent signs or symptoms post-treatment*
   c. *Cases treated using a regimen other than the preferred treatment*
   d. *Case who is linked to a drug resistant/treatment failure case and was treated with that same antibiotic.*

Genital infection:

- NAAT should be performed on first void urine because of greater sensitivity than culture.
- Culture and Gram stain are recommended for the following specimens:
  - urethra in young and adult males with or without meatal discharge;
  - cervix in young and adult females.
- Culture is recommended for the following specimens:
  - rectum in females and males who have sex with men (colonization can occur without anal intercourse);
  - vagina in prepubertal girls or women without cervix.

Extra-genital infection:

- Culture:
  - pharynx in those with a history of oral-genital contact;
  - conjunctiva for ocular infections.

Disseminated infection:

- genital testing as outlined above;
- blood culture;

- synovial fluid for culture and gram stain if arthritis;
- Gram stain and culture of skin lesion.

Special considerations:

Cultures obtained less than 48 hours after exposure may be negative.

- Culture is especially important in the following cases:
  - sexual abuse of children (rectal, pharyngeal, vaginal);
  - sexual assault;
  - treatment failure;
  - evaluation of pelvic inflammatory disease (PID);
  - infection acquired overseas or in areas with recognized antimicrobial resistance.

NAAT ***should not be used*** for test of cure.

For information on specimen sources and culture media refer to Attachment - Transport Media for Specific STIs.

Public Health Investigation

I. Case

Refer to Attachment – Confidential Notification of Chlamydia and Gonorrhea to assist.

History

- Patients should be informed that their sexual history is confidential. Key elements to inquire about include:
  - Onset of illness
  - Risk factors including:
    - sexual contact with a gonococcal-infected person or with a person with a compatible syndrome;
    - more than two sexual partners in the past 6 months;
    - vulnerable populations (for example persons who inject drugs, individuals who receive food shelter money or drugs for sex, street youth, men who have unprotected sex with men, sexually active youth <25 years of age with multiple partners, etc.).
    - unprotected sex with a partner from a highly endemic area (either international or within Canada);
    - previous gonococcal infection and other STI infection;

- Sexual contacts in order to interrupt the cycle of transmission. Travel history may be of significance in contact tracing.

Treatment

Treatment for gonococcal infection is indicated for the following:

- a positive *N. gonorrhoeae* test;
- presumptive diagnosis of a syndrome compatible with a gonococcal infection, (without waiting for the test results of *N. gonorrhoeae)*;
- laboratory diagnosis of gonococcal infection in a sexual partner;

Increasing gonococcal antimicrobial resistance being observed in Canada. In response, the Public Health Agency of Canada has been updating treatment recommendations since December 2011. See Attachment – STI Treatment Guidelines for reference, however, the latest version of the Canadian Guidelines on Sexually Transmitted Infections should be referred to for current treatment guidelines at https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines.html

Public Health Interventions

Refer to Attachment - Chlamydia and Gonorrhea Public Health Follow-up Data Collection Worksheet to support public health follow-up.

Assessment

- Assess for contacts.

Communication

- Individuals may be difficult to reach in the era of technology and mobile phones. It is important to attempt to contact individuals using various methods such as phone calls at various times of the day. Some individuals' mobile service contracts only allow for text messaging. It is important to have policies and procedures that support the use of alternate modes of communication to assist in case follow-up.
- The primary care provider is an essential partner in the management of gonococcal infections. It is important to provide updates to care providers when they have referred cases to public health to assist in follow-up.

Education

- Provide disease information as well as information on prevention and control measures including safer sex practices and behavioural practices that support improved decision-making and reducing risk of reinfection and other STIs.
- Provide education on treatment; patients and contacts should abstain from unprotected intercourse until treatment of both partners is complete (i.e., 7 days after completion of a multiple-dose treatment or for 7 days after single-dose therapy).

Immunization

- Recommend immunizations they are eligible for as per the Saskatchewan Immunization Manual. Sexual risk factors may render individuals eligible for Hepatitis A and B vaccines.

Referral

- Refer to harm reduction or other supportive services as indicated (see Introduction and General Considerations)

Testing

- Additional testing, including HIV, should be recommended for individuals based on the risk assessment and testing history.
- Follow up **cultures** for test of cure are indicated approximately 4-5 days following completion of therapy. This must be completed in the following circumstances:
  - treatment failure has occurred previously;
  - antimicrobial resistance to therapy is documented;
  - re-exposure to untreated partner;
  - where compliance is unknown;
  - if an alternative treatment has been used;
  - in all prepubertal children;
  - in all pregnant women;
  - in cases of PID or dissemintated gonococcal infection;
  - quinolones were administered for treatment and there was no previous antimicrobial testing done;
  - there is concern over a false-positive non-culture test result.

- NAATs are **not recommended** for test of cure. If this is the only test available, it should be performed at least 4 weeks following completion of therapy to avoid false-positive results due to the presence of non-viable organisms. Positive NAAT test results within 30 days of treatment should be considered a duplicate case unless re-infection is likely to have occurred.

- Antimicrobial susceptibility testing is required for all isolates from positive (test of cure) follow-up cultures and treatment failures.
- Repeat testing in all individuals is recommended 6 months post-treatment, as re-infection risk is high. Positive NAAT test results within 30 days of treatment are considered a duplicate case unless re-infection is likely to have occurred.

II. Contacts

Contact tracing relies on the cooperation of the patient; it is important that health care providers offer supportive, non-judgmental advice and assistance to patients and their contacts. Most individuals feel notifying partners is the 'right thing to do'; however, they also want advice and support for this from their health care provider.

It is important to understand the patient's particular situation and identify individual barriers to notifying contacts. Inform patients that for many individuals who discuss their STI diagnosis with a partner, the experience is better than they had anticipated (Australian Government Department of Health, 2016).

Table 2. Definitions of Contacts	
Sexual Contact	• All individuals who have had sexual contact with the index case within 90 days prior to symptom onset or date of diagnosis. • If there is no partner during this period, the last sexual partner should be identified.
Neonatal Contact	• Neonates born to infected mothers. • Mothers of infected neonates. • Sexual partners of mothers with infected neonates.

Public Health Interventions

Assessment

- Assess for symptoms.

Communication

- Individual follow-up of contacts is important to intercept the transmission of STIs. These individuals must be notified of their exposure within 72 hours.
- Offer supportive, non-judgmental advice and assistance to contacts.

Education

- Provide disease information as well as information on prevention and control measures including safer sex practices to all contacts and behavioural practices that support improved decision-making and reducing risk of reinfection and other STIs.
- Provide education on treatment. Patients and contacts should abstain from unprotected intercourse until treatment of both partners is complete (i.e., 7 days after completion of a multiple-dose treatment or for 7 days after single-dose therapy).

Immunization

- Recommend immunizations contacts are eligible for as per the Saskatchewan Immunization Manual. Sexual risk factors may render individuals eligible for Hepatitis A and B vaccines.

Testing

- Recommendations for testing for other sexually transmitted infections including HIV should be made.

Treatment

- Provide treatment for gonococcal infection to contacts at the same time of testing. It is not advised to await test results for these individuals.

Prevention Measures

Refer to the Sexually Transmitted Infections Introduction and General Considerations section of the manual that highlights topics for client education that should be considered as well as provides information on high-risk groups and activities.

Immunization

Currently no vaccine for *N. gonorrhoeae.*

Education

Education should be provided regarding healthy dating relationships and consent. The Saskatchewan Prevention Institute has several resources to support these topics.

Revisions

September 2018	Incorporated Public Health Purpose of Notification. Added **Epidemiology and Occurrence** section. Updated Table 2 to align with Canadian STI Guidelines. Reorganized chapter and applied new format. References reaffirmed or updated as necessary. Aligned with Panorama and included the updated Confidential Notification of Chlamydia and Gonorrhea. Incorporated PHAC definition of treatment failure.
August 2018	Removed reference to preventative treatment for ophthalmia neonatorum with erythromycin ophthalmic prophylaxis.

References

Heymann, D. L. (Ed.). (2015). *Control of communicable diseases manual* (20th ed.). Washington, DC: American Public Health Association.

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Sexually Transmitted Infections

Lymphogranuloma Venereum (LGV)

Notification Timeline:

From Lab/Practitioner to Public Health: Within 72 hours.

From Public Health to Saskatchewan Ministry of Health: Within 2 weeks

Public Health Follow-up Timeline: Initiate within 72 hours.

Infectious Agent

Bacterial infection caused by *Chlamydia trachomatis*, serovars L1, L2, L3.

Case Definition (Public Health Agency of Canada, 2010)

Confirmed Case*:*

Presence of *C. trachomatis* serotype L1, L2, L3 confirmed by DNA sequencing or restriction fragment length polymorphism (RFLP).

Probable Case:

Positive result on culture, nucleic acid amplification tests (NAAT) or serologic testing for *C. trachomatis* plus the presence of proctitis OR inguinal or femoral lymphadenopathy OR a sexual partner with LGV.

Identification

Table 1. Manifestations

Primary LGV	▪ incubation period 3-30 days ▪ small (1-6mm) painless papule at site of inoculation that may ulcerate ▪ self limited and may go unnoticed in up to 50% of people
Secondary LGV	▪ begins within 2-6 weeks of primary lesion ▪ often accompanied by significant systemic symptoms such as low-grade fever, chills, malaise, myalgias, arthralgias; occasionally accompanied by arthritis, pneumonitis or hepatitis/perihepatitis; rarely associated with cardiac involvement, aseptic meningitis and ocular inflammatory disease ▪ abscesses and draining sinuses are possible (less than 1/3 of patients) ▪ involves the lymph nodes and/or anus and rectum

Secondary LGV causing lymphadenopathy	▪ inguinal/femoral is the most common form and is characterized by painful inguinal and/or femoral lymphadenopathy (unilateral in 1/2 to 2/3 of cases), referred to as buboes ▪ "groove sign" inguinal nodes above and femoral nodes below the inguinal ligament (once considered pathognomonic for LGV) ▪ other lymphadenopathy may occur depending on site of inoculation (cervical lymphadenopathy following inoculation during oral sex)
Secondary LGV causing anorectal symptoms	▪ characterized by acute hemorrhagic proctitis ▪ symptoms of proctocolitis ▪ bloody, purulent or mucous discharge from the anus, as well as constipation are common
Tertiary LGV (chronic LGV occurring in 10-20% of untreated cases)	▪ more common in females than males ▪ chronic inflammatory lesions lead to scarring: - lymphatic obstruction causing genital elephantiasis - genital and rectal strictures and fistulae ▪ possible extensive destruction of genitalia

Source: Canadian Guidelines on Sexually Transmitted Infections, 2010.

Incubation Period
Variable with a range of 3-30 days for a primary lesion; if a bubo is the first manifestation, 10-30 days to several months.

Reservoir
Humans, often asymptomatic (particularly in females).

Mode of Transmission
Direct contact with open lesions of infected people, usually during sexual intercourse.

Period of Communicability
Variable, from weeks to years during presence of active lesions.

Specimen Collection and Transport

Definitive diagnosis of LGV requires serovar-specific (confirmatory) testing using DNA sequencing or restriction fragment length polymorphism (RFLP). Clinicians will therefore need to request that testing be done for LGV specifically, as most laboratories will not automatically perform serovar typing. Saskatchewan Disease Control Lab (SDCL) will forward specimens on to National Microbiology Laboratory (NML) for typing.

Due to issues of cross-reactivity and difficulty with interpretation of test results, serological testing should not be used for diagnostic purposes in the absence of culture or NAAT.

Samples that can be taken include:

- swab (urethral, rectal or lesion) for culture;*
- urine specimen for NAAT;
- blood serum sent for complement fixation (CF) looking for high titre.

*For information on specimen sources and culture media refer to Attachment - Transport Media for Specific STIs.

Table 2. Specimen Collection

Stage of infection	Sample Type	Tests	Comments
Primary	Swab of Lesion	Culture or NAAT	Because the invasive nature of LGV has not yet manifested in the primary stage of the infection, serology at this stage is unlikely to be helpful.

Stage of infection	Sample Type	Tests	Comments
Secondary and Tertiary	Bubo aspirate	Culture or NAAT	Identification of *C. trachomatis* in bubo fluid is highly suggestive of LGV, even prior to or without identification of LGV serovars.
	Rectal, Vaginal, Oropharyngeal, or Urethral Swab	Culture or NAAT	NAAT is not officially approved in Canada for use with rectal or oropharangel swabs. Repeat testing is advised to confirm a positive test.
	Urine	NAAT	
	Serology	MIF* Test CF* Test for *C. trachomatis*: positive	Because of the invasive nature of LGV, serology titres are in general significantly higher in LGV vs. non-LGV *C. trachomatis* infections. High-titre (titre ≥1:256) serology is suggestive of LGV infection but is not definitive; low-titre (titre ≥1:64) serology does not eliminate possibility of past or current LGV infection.

Source: Canadian Guidelines on Sexually Transmitted Infection, 2010.
*MIF = microimmunofluorescence * CF = complement fixation

Occurrence

In general, an uncommonly reported sexually transmitted infection (STI) in Canada. It is endemic in parts of Africa, Asia, South America and the Caribbean. A relatively rare disease in industrialized countries; until recently, the majority of cases were acquired in endemic areas. There have been recent outbreaks in men who have sex with men (MSM) starting in the Netherlands in 2003, with reports of cases in Belgium, France, Germany, Sweden, the U.K., the U.S., and Canada.

LGV may enhance the transmission and acquisition of HIV, other STIs and bloodborne pathogens.

The national LGV rate is unknown; however, a national enhanced surveillance system was initiated in February 2005 by the Public Health Agency of Canada in partnership with provincial and territorial public health departments.

Methods of Control

Preventive Measures
Refer to Introduction and General Considerations of STI section of manual for information that should be shared for education and high-risk groups/activities that should be considered.

The Hospital Standards Regulations[1] indicates, "…every newborn in a hospital receives preventative treatment for ophthalmia neonatorum with erythromycin ophthalmic prophylaxis or another therapeutic agent considered to be a suitable substitute."

Immunization
Currently no vaccine for *C. trachomatis*.

Control of Client
Refer to Introduction and General Considerations of STI section of manual for Risk Assessment. This should be used for taking client's history.

Additional information should be gathered regarding history of travel both, outside and within Canada. Information that should be shared for education and high risk groups/activities that should be considered.

Treatment/Supportive Therapy
See Attachment - STI Treatment Guidelines for reference, however, the latest version of the Canadian Guidelines on Sexually Transmitted Infections should be referred to for current treatment guidelines.

[1] *The Hospital Standards Regulations*, 21 Sep 2007 SR 86/2007 s12.

Referrals
Consider additional testing for STI pathogens based on the risk assessment found in the Introduction and General Considerations of this section.

Control of Contacts/Contact Investigation
Treatment of partners:

- Sexual partners from the last 60 days prior to symptom onset, or date of diagnosis where asymptomatic, should be contacted, tested and treated empirically (regardless of whether signs/symptoms are present) as follows:
  - azithromycin 1g PO in a single dose;
    OR
  - doxycycline 100 mg PO bid for 7 days.
- Should test results confirm an LGV infection, treat as recommended for cases above.

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

Follow-up
Patients should be followed until chlamydial tests are negative (test of cure) and the patient has clinically recovered. Test of cure should be performed 4 weeks after the completion of effective treatment to avoid false-positive results due to the presence of non-viable organisms (especially if using NAAT).

Serology should not be used to monitor treatment response, as the duration of antibody response has not been defined.

- Surgery may be required to repair genital/rectal damage of tertiary LGV.

References

Heymann, D. L. (Ed.). (2008). *Control of communicable diseases manual* (19th ed.). Washington, DC: American Public Health Association.

Public Health Agency of Canada. (2010). *Canadian guidelines on sexually transmitted infections*. Ottawa, ON: Her Majesty the Queen in Right of Canada. Retrieved July, 2010 from http://origin.phac-aspc.gc.ca/std-mts/sti-its/.

Notification Timeline:

From Lab/Practitioner to Public Health: Within 48 hours.

From Public Health to Saskatchewan Ministry of Health: Within 2 weeks.

Public Health Follow-up Timeline: Initiate within 72 hours.

Public Health Purpose for Notification

- To prevent congenital syphilis and to minimize mortality and serious morbidity from syphilis;
- To track epidemiology trends of syphilis in Saskatchewan including risk factors and distribution;
- To identify locations where increased transmission may be occurring in order to inform other interventions and prevention measures;
- To monitor the effectiveness of prevention and control measures;
- To take timely and evidence informed actions on outbreaks; and
- To inform the public and medical community about syphilis and provide updated recommendations for testing and follow-up based on emerging trends.
- To support physicians/RN(NP)s in contact tracing in order can identify cases early in infection and reduce the risk of further transmission through early treatment or post exposure chemoprophylaxis;
- To identify outbreaks in order to rampu up control activities.

Surveillance Case Definition[1]

Classification	***Stage***	***Laboratory and Clinical Criteria***
Confirmed Case (Public Health Agency of Canada, 2008)	***Primary***	Laboratory confirmation of infection: • identification of *Treponema pallidum* by dark-field microscopy, fluorescent antibody, nucleic acid testing or equivalent examination of material from a chancre or a regional lymph node; **OR** • presence of one or more typical lesions (chancres), and reactive treponemal serology, regardless of non-treponemal test reactivity, in individuals with no previous history of syphilis;

[1] Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

		OR • presence of one or more typical lesions (chancres) and at least a 4-fold (e.g., 1:8 to 1:32) increase in the titre over the last known non-treponemal test in individuals with a past history of syphilis treatment.
Suspect Case (Saskatchewan Ministry of Health, 2013)	***Primary***	• a reactive serological test (both treponemal and non-treponemal);[2] **OR** • presence of one or more typical lesions (chancres) during the past three months regardless of treponemal serology or non-treponemal test reactivity; **AND** • sexual contact with a lab-confirmed or suspect infectious stage syphilis partner during the past six months.[3]
Confirmed Case (Public Health Agency of Canada, 2008)	***Secondary***[4]	Laboratory evidence of infection: • identification of *T. pallidum* by dark-field microscopy, fluorescent antibody, nucleic acid testing or equivalent examination of mucocutaneous lesions, condylomata lata and reactive serology (non-treponemal and treponemal); **OR** • presence of typical mucocutaneous lesions, rash (especially on palmar aspects of hands, soles of feet/trunk), alopecia, loss of eyelashes and lateral third of eyebrows, iritis, generalized lymphadenopathy, fever, malaise or splenomegaly, **AND** either a reactive serology (non-treponemal and treponemal) **OR** a fourfold (e.g., 1:8 to 1:32) or greater increase in titre over the last known non-treponemal test.

[2] A second serological sample to identify a RPR titre change has not been taken yet or waiting for results.
[3] Six months allows for sexual contact during a three-month incubation (transmission) period of the source person plus an ensuing three-month incubation period of the case being reported.
[4] NOTE: The possibility of a prozone reaction should be considered in individuals who are suspected of having secondary syphilis but whose non-treponemal test is non-reactive. Prozone reaction is a false negative rapid plasma reagin (RPR) from the presence of excess antibody. The antigen-antibody reaction is blocked. Occurs in approximately 1% of secondary syphilis cases. Lab should be notified if this is a concern.

Suspect Case (Saskatchewan Ministry of Health, 2013)	***Secondary***	• presence of typical signs or symptoms of secondary syphilis (e.g., mucocutaneous lesions, alopecia, loss of eyelashes and lateral third of eyebrows, iritis, generalized lymphadenopathy, fever, malaise or splenomegaly); **AND** • reactive non-treponemal serology titre greater than or equal to 4. **OR** • presence of typical signs or symptoms of secondary syphilis (e.g., mucocutaneous lesions, alopecia, loss of eyelashes and lateral third of eyebrows, iritis, generalized lymphadenopathy, fever, malaise or splenomegaly); **AND** • sexual contact with a lab-confirmed or suspect infectious stage partner in the past nine months.[5]
Confirmed Case (Public Health Agency of Canada, 2008)	***Early Latent Syphilis (< 1 year after infection)***	Laboratory confirmation of infection: • an asymptomatic patient with reactive serology (non-treponemal and/or treponemal) who within the past 12 months had <u>one</u> of the following: ▪ non-reactive serology; ▪ symptoms suggestive of primary or secondary syphilis; ▪ exposure to a sexual partner with primary, secondary or early latent syphilis.
Suspect Case (Saskatchewan Ministry of Health, 2013)	***Early Latent Syphilis (< 1 year after infection)***	An individual without symptoms of primary or secondary syphilis, **AND** has evidence of having acquired the infection within the previous 12 months based on <u>one or more</u> of the following criteria: • reactive serology (non-treponemal and treponemal) tests from a person whose only exposure occurred within the preceding 12 months; • documented seroconversion or four-fold or greater increase in the titre of a non-treponemal test during the previous 12 months;

[5] Nine months allows for sexual contact during a three-month incubation (transmission) period after first contact with a source person plus an ensuing six-month infected period of the case being reported.

		• has a RPR titre of ≥ 1:16 and is a member of (or has had sexual partners in the previous 12 months from) groups at known increased risk of syphilis infection. **OR** An individual who has had symptoms of primary or secondary syphilis within the past 12 months: • regardless of treponemal serology or non-treponemal test reactivity; **AND** • is a member of (or has had sexual partners in the previous 12 months from) groups at known increased risk of syphilis.
Confirmed Case (Public Health Agency of Canada, 2008)	***Late Latent Syphilis (> 1 year after infection or of unknown duration)***	Laboratory confirmation of infection: • an asymptomatic patient with persistently reactive treponemal serology (regardless of non-treponemal serology reactivity) who does not meet the criteria for early latent disease and who has not been previously treated for syphilis.
Confirmed Case (Public Health Agency of Canada, 2008)	***Infectious Neurosyphilis (< 1 year after infection)***	Laboratory confirmation of infection: • fits the criteria of Primary Syphilis, Secondary Syphilis **OR** Early Latent Syphilis **AND** one of the following: ▪ reactive CSF-VDRL (Venereal Disease Research Laboratory) in non-bloody cerebrospinal fluid (CSF); ▪ clinical evidence of neurosyphilis **AND** either elevated CSF leukocytes **OR** elevated CSF protein in the absence of other known causes.
Confirmed Case (Public Health Agency of Canada, 2008)	***Non-Infectious Neurosyphilis (> 1 year after infection)***	Laboratory confirmation of infection: • reactive treponemal serology (regardless of non-treponemal serology reactivity) **AND** one of the following: ▪ reactive CSF-VDRL in non-bloody cerebrospinal fluid (CSF); ▪ clinical evidence of neurosyphilis **AND** either elevated CSF leukocytes **OR** elevated CSF protein in the absence of other known causes.

Confirmed Case (Public Health Agency of Canada, 2008)	***Tertiary Syphilis Other Than Neurosyphilis***	Laboratory confirmation of infection: • reactive treponemal serology (regardless of non-treponemal test reactivity) together with characteristic abnormalities of the cardiovascular system, bone, skin or other structures, in the absence of other known causes of these abnormalities (*T. pallidum* is rarely seen in these lesions although, when present, is diagnostic); **AND** • no clinical or laboratory evidence of neurosyphilis.
Confirmed Case (Saskatchewan Ministry of Health, 2013)	***Early Congenital Syphilis (within 2 years of birth)***	Laboratory confirmation of infection: • identification of *T. pallidum* by dark-field microscopy, fluorescent antibody or equivalent examination of material from nasal discharges, skin lesions, placenta, umbilical cord or autopsy material of a neonate (up to 4 weeks of age); **OR** • reactive serology (non-treponemal and treponemal) from venous blood (not cord blood) in an infant/child with clinical, laboratory or radiographic evidence of congenital syphilis,[6] regardless of maternal treatment status; **OR** • detection of *Treponema pallidum* DNA in an appropriate clinical specimen; **OR** • infant's RPR titre is 4-fold or greater higher than the mother's at birth, or there is a 4-fold rise in the infant RPR titre; **AND** • persistently reactive treponemal serology in a child between 18 and 24 months of age (regardless of maternal treatment status).

[6] Clinical, laboratory or radiographic evidence of congenital syphilis on physical examination (e.g., rash, hepatosplenomegaly), evidence of congenital syphilis on radiographs of long bones, a reactive CSF VDRL, an elevated CSF count or protein without other cause. NOTE: neonates may not display clinical manifestations of congenital syphilis and may meet laboratory criteria only.

Probable Case (Saskatchewan Ministry of Health, 2013)	***Early Congenital Syphilis (within 2 years of birth)***	• Reactive serology (non-treponemal and treponemal) from a venous blood (not cord blood) in an infant/child ***without*** clinical nor other laboratory, nor radiographic evidence of congenital syphilis[5] whose mother had untreated or inadequately treated[7] syphilis at delivery.
Confirmed Case (Saskatchewan Ministry of Health, 2013)	***Syphilitic Stillbirth[8]***	• A fetal death that occurs after 20 weeks gestation where the mother had untreated or inadequately treated[9] syphilis at delivery; **AND** • Laboratory confirmation of infection (e.g., detection of *T. pallidum* DNA in an appropriate clinical specimen, fluorescent antibody or equivalent examination of material from placenta, umbilical core of autopsy material).
Probable Case (Saskatchewan Ministry of Health, 2013)	***Syphilitic Stillbirth***	• A fetal death that occurs after 20 weeks gestation where the mother had untreated or inadequately treated[7] infectious syphilis at delivery with no other cause of stillbirth established.

Epidemiology and Occurrence

Infectious syphilis is the least common of the three nationally reportable sexually transmitted infections (STIs). Cases are usually sporadic with occasional clusters. Since the beginning of the upsurge in cases in March of 2016, seven to 15 cases were reported monthly with an observable pattern compatible with the three month incubation period. Men aged 30-39 years most frequently presented with syphilis at various stages. Progression to infectious neurosyphilis may occur within a year, primarily in immunocompromised individuals such those infected with HIV. Four to five infectious neurosyphilis cases were reported per year in 2016 and 2017.

[7] Inadequate treatment consists of any non-penicillin therapy or penicillin administered during pregnancy but less than 30 days before delivery.
[8] For reporting purposes, syphilitic stillbirths should be reported as cases of congenital syphilis.
[9] Inadequate treatment consists of any non-penicillin therapy or penicillin administered during pregnancy but less than 30 days before delivery.

Risk factors for acquiring infectious syphilis differ from clients acquiring the more common STIs, chlamydia and gonorrhea. In Canada, most of the clusters have been related to the sex trade and in men who have sex with men. A combination of unprotected MSM with anonymous partners met through software apps was frequently self-reported by clients with infectious syphilis. Injection drug use was seldom reported by infectious syphilis cases. Recently in Saskatchewan and Alberta there has been an increase in heterosexual transmission. However, no cases of congenitally acquired syphilis have been reported in Saskatchewan over the two years, 2016 and 2017.

Additional Background Information

Infectious Agent

Treponema pallidum, a spirochete bacterium.

Signs and Symptoms

Table 1. Clinical Manifestations by Stage

Stage	Clinical Manifestations	Incubation Period
Primary[*]	Chancre, regional lymphadenopathy (localized reaction)	3 weeks (3-90 days)
Secondary[*]	Rash, fever, malaise, lymphadenopathy, mucous lesions, condyloma lata, alopecia, meningitis, headaches, uveitis, retinitis (systemic reaction)	2-12 weeks (2 weeks to 6 months)
Early Latent[*]	Asymptomatic	Early: < 1 year
Late Latent		Late: ≥ 1 year
Tertiary Cardiovascular syphilis	Aortic aneurysm, aortic regurgitation, coronary artery ostial stenosis	10-30 years
Neurosyphilis	Ranges from asymptomatic to symptomatic with headaches, vertigo, personality changes, dementia, ataxia, presence of Argyll Robertson pupil	< 2 years-20 years
Gumma	Tissue destruction of any organ; manifestations depend on site involved	1-46 years (most cases 15 years)

Congenital Early	2/3 may be asymptomatic Fulminant disseminated infection, mucocutaneous lesions, osteochondritis, anemia, hepatosplenomegaly, neurosyphilis	Onset < 2 years
Late	Interstitial keratitis, lymphadenopathy, hepatosplenomegaly, bone involvement, anemia, Hutchinson's teeth, neurosyphilis	Persistence > 2 years after birth

Source: Adapted from Canadian Guidelines on Sexually Transmitted Infections 2010.
*Infectious stages (incubation period 12 months or less.)
Non-infectious – late latent, tertiary, congenital as incubation period > or = 1 year.

After initial invasion, the syphilis organism multiplies rapidly and disseminates widely. The organism spreads through the perivascular lymphatics and then the systemic circulation before clinical development of the primary lesion. The primary lesion, containing infectious treponemes, arises within hours after infection and persists throughout primary and secondary disease. When untreated, syphilis is a lifelong infection that progresses through 4 stages (Euerle, 2012).

Reservoir
Humans. Previous infection with syphilis does not induce long-term immunity; re-infection is possible.

Incubation Period
Can be between 3 days to 3 months, most commonly 3 weeks. See Table 1 above.

Period of Communicability
Communicability exists when moist mucocutaneous lesions of primary and secondary syphilis are present (regardless of treatment). The distinction between the infectious primary and secondary stages and the non-infectious early latent stage of syphilis is somewhat arbitrary with regard to communicability, since primary and secondary stage lesions may not be apparent to the infected individual. Lesions of secondary syphilis may recur with decreasing frequency up to 4 years after infection, but transmission of infection is rare after the first year.

In many countries, infectious early syphilis is usually defined as ending after the first year of infection.

The majority of infants with congenital syphilis are infected in utero, but they can also be infected by contact with an active genital lesion at the time of delivery; the risk of transmission is much greater when the mother has untreated primary, secondary or early latent syphilis in pregnancy than if she has late latent syphilis. Infected infants may have moist mucocutaneous lesions that are more widespread than in adult syphilis and are a potential source of infection.

Mode of Transmission

The primary mode of transmission is by vaginal, anal and oral sexual contact. Primary, secondary and early latent stages are considered infectious, with an estimated risk of transmission per partner of around 60%. Early latent syphilis is considered infectious because of the 25% chance of relapse to secondary stage. Kissing, sharing of needles and injection equipment, blood transfusion and accidental inoculation have rarely been reported as routes of transmission. Breastfeeding by mothers with primary or secondary lesions of syphilis carries a theoretical risk of transmission of syphilis to the baby.

Risk Factors

Risk factors that are most often associated with syphilis include:

- men who have sex with men (MSM);
- contact with a known case;
- street involvement;
- sex trade (providing or receiving food, shelter, money or drugs in exchange for sex);
- substance use including injection or non-injection drugs;
- multiple sexual partners (>2 in past 3 months);
- history of previous diagnosis of syphilis, other STIs or HIV;
- E-partnering (using sex apps); and
- Unknown or anonymous liaisons.

Specimen Collection and Transport

The laboratory diagnosis of syphilis includes the following:

1. Serology – the mainstay for diagnosis of syphilis. Submit 5 ml of serum. An IgG and IgM for treponemal antibodies is conducted initially as a screening test and if this is positive then the TPPA and RPR titre is performed to confirm the diagnosis and identify acute disease.

2. The PRP titre is the objective measure of disease which is used to determine/ monitor treatment success/failure.
   - NTT (RPR, VDRL, and ART) – Nonspecific antibodies develop 4-8 weeks following infection and seroreactivity occurs in 70% of patients within 2 weeks of developing a chancre and in 100% of patients with secondary and latent disease.
   - Treponemal tests (FTA-ABS, TP-PA treponema, TP-HA treponema, EIA, MHA-TP)[10] – measure antibodies specific for *T. pallidum.* These tests become positive soon after infection and typically remain positive for life, despite adequate treatment. Unfortunately, this test does not differentiate between treponemal sub species such as yaws, pinta and bejel (important for follow up of immigrants).
   - In high-risk patients, a single high titre of 1:8 or greater is consistent with a presumptive case and clinicians will often treat the patient on the basis of this single result.
   - A significant change is a two-fold increase or decrease in the titre. Patients with titres of 1:8 or greater should be considered significant and should be reviewed with the regional Medical Health Officer (MHO). The serology needs to be repeated in 2 to 3 months to detect a two fold or greater change in titre to confirm acute disease. Titres after treatment should decline to seronegative or to a stable low titre, such as 1:4.
3. Microscopy – for painless chancres de-roof the lesion, spread serous exudate on a microscopic slide (covering an area the size of a dime), air dry and submit to the laboratory. It will be stained for spirochetes.

See Attachment – SDCL Syphilis Tests and Interpretation.

Public Health Investigation

I. Case

Refer to Attachment – Syphilis Data Collection Worksheet to assist. Complete an assessment of the case using the Attachment - Risk Assessment Questionnaire in the STIs section of this manual.

History

- Key elements to inquire about include:
  - Onset of illness and current signs and symptoms to determine stage;
  - Determine if pregnant in the case of women of childbearing age.

[10] FTA-ABS fluorescent treponemal antigen-absorbed, TP-PA *T. pallidum* particle agglutination, MHA-TP microhemagglutination *T. pallidum.*

- Determine incubation period and period of communicability which helps to identify contacts to be followed – accurate staging of illness is important to determine period of communicability.
- Underlying medical conditions and severity of illness (e.g. if hospitalization was required).
- Treatment details (with what and when as it may alter period of communicability)
- Identify contacts (refer to Table 3 – Definitions of Contacts)
- History of travel may be of significance in contact tracing as well as it may be useful in determining potential source and exposure locations.

Public Health Interventions

Assessment

- It is important to know if the client is aware of their diagnosis or if the testing provider has not yet been able to notify the case.
- Assess for contacts.

Communication

- The ordering practitioner should be contacted to discuss circumstances of the case and to verify appropriate treatment provided if this detail has not been communicated to public health.
- Targeted communications to those serving at-risk populations or sites known to be frequented by cases (e.g. bars or bath houses, Pride centers)
- Messaging to health care facilities and providers when cases are occurring within the area. The Ministry of Health will assist in dissemination of information via the Saskatchewan Medical Association and College of Physicians and Surgeons
- Individuals may be difficult to reach. Make several attempts to contact individuals using various methods (phone, text, home visit) at different times of the day. Some individuals' mobile service contracts only allow for text messaging. It is important to have policies and procedures that support the use of alternate modes of communication to assist in case follow-up.

Education

- All cases should be provided disease information as well as information on prevention and control measures including:
    - Safer sex practices;
    - Period of abstinence to prevent reinfection;
        - To prevent continued spread of infection, cases should abstain from sexual contact until the lesions are completely healed **and** it has been 2 weeks since they received their final dose of treatment (if multiple doses were required – i.e., co-infected with HIV, etc.).

- Blood donation deferral periods;
- Partner notification;
- Follow-up testing frequency – As per Table 2.

Immunization

- There is currently no vaccine available for syphilis prevention.
- Cases and contacts should be offered any immunizations (e.g., hepatitis B vaccine, etc.) they may be eligible for based on the Saskatchewan Immunization Manual, Chapter 7.[11]

Referral

Cases should be referred to:

- Physician or Infectious Diseases (ID) specialist for staging and necessary follow-up.
- Social programs as agreed to by client or harm reduction programs for needle exchange services and related health services if appropriate;
- Canadian Blood Services (CBS) if the case has a history of donation or receipt of blood or blood products. See Appendix K – Notification to Canadian Blood Services.
- Saskatchewan Transplant Program if the cases has a history of donation or receipt of tissues. See Appendix M – Notification to the Saskatchewan Transplant Program.

Testing

- Referral to physician for ongoing follow-up for treatment and serology;
- Since there is no test of cure, follow-up serology (non-treponemal tests [RPR]) is important to ensure that treatment has been effective. The following table indicates the recommended timeframes for post-treatment serology.

Table 2. Monitoring of Serologic Tests and Other Follow Up

Primary, secondary, early latent	(1), 3, 6, 12 months after treatment.
Late latent, tertiary	12 and 24 months after treatment.
Neurosyphilis	6, 12 and 24 months after treatment. Patients with CSF abnormalities require follow up CSF at 6 monthly intervals until normalization of CSF parameters. Other clinical follow up may be indicated on a case by case basis.
HIV-infected (any stage)	(1), 3, 6, 12 and 24 months after treatment and yearly thereafter.

Source: Canadian Guidelines on Sexually Transmitted Infections, 2010.

[11] http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter7

Treatment

See Attachment – STI Treatment Guidelines for reference, however, refer to the latest version of the Canadian Guidelines on Sexually Transmitted Infections for current treatment guidelines.

- Persons co-infected with HIV may require a longer course of treatment, as well as closer and longer follow-up.

II. Contact/Contact Investigation

Contacts to syphilis are identified based on the stage of syphilis in the index case. Any sexual or perinatal contacts of the case that occurred within the following timeframes must be located, tested and treated if serology is reactive.

Table 3. Partner Notification

Stage of syphilis (Index Case)	**Time Period**
Primary syphilis	3 months prior to the onset of symptoms.
Secondary syphilis	6 months prior to the onset of symptoms.
Early latent	1 year prior to the diagnosis.
Late latent	Assess marital or other long-term partners and children as appropriate.
Congenital	Assess mother and her sexual partner(s)
Stage undetermined	Assess/consult with a colleague experienced in syphilis management.

Source: Canadian Guidelines on Sexually Transmitted Infections, 2010.

Public Health Interventions

Assessment

- Assess for symptoms.

Education

All contacts should receive counselling regarding:

- communicability, incubation period, transmission, and signs and symptoms of syphilis;
- the risk for re-exposure;
- ways to reduce their future risk of exposure;
- the importance of abstinence during entire incubation period and until serologic testing at the end of the incubation period has been confirmed to be non-reactive;
- the need for and timing of follow-up serology;
- the follow-up recommended in the event that they develop signs and symptoms including abstaining from sexual contact until they have seen a physician/nurse (or health care provider) for re-assessment.

Referral

- Refer symptomatic individuals to their primary care provider or to an ID Specialist.

Prophylaxis/Abstinence/Follow-up Testing

All contacts should be tested for syphilis to determine their baseline status. Follow-up serology should be based on the date of last sexual exposure to syphilis[12]. This date should be included on Contact Referral forms when referring a contact to an outside health authority or jurisdiction.

Management of Contacts to a Lab Confirmed Case of Infectious Syphilis

Sexual contact with case occurred in the last 30 days:	
Treatment	These contacts should all be offered epidemiologic (presumptive) *treatment* with a single dose of bicillin (if no penicillin allergy) at the same time their baseline serology is collected (this should be done at their first appointment).
Period of Abstinence	• Clients should be encouraged to abstain from all sexual contact with others for a full 2 weeks following the treatment. • If the client has any lesions, the 2-week period of abstinence should be extended until all lesions have healed. • Condoms should be advised and encouraged for all sexual encounters.
Follow-up Serology	• Treated clients should be asked to return for *follow-up serology* at **30** days post exposure (unless their initial baseline testing was conducted close to 30 days post exposure) and again at **90** days after their last encounter with the index case.
Sexual contact with case occurred 30 to 90 days previously and there is <u>any</u> risk that the contact will be <u>lost to follow</u> up before serologic results are available (or if baseline testing cannot be completed):	
Treatment	• The contact should be offered epidemiologic (presumptive) *treatment* with a single dose of bicillin (if no penicillin allergy) at their initial visit. Baseline serology should also be collected at this first visit.

[12] The date of exposure should be included on the contact referral form. If this date is unknown date of contact notification should be used.

Period of Abstinence	• Clients should be encouraged to abstain from all sexual contact with others for 2 weeks since the treatment was given. • If the client has any lesions, the 2-week period of abstinence should be extended until all lesions have healed. Condoms should be advised and encouraged for all sexual encounters.
Follow-up Serology	• Treated clients should be asked to return for *follow-up serology* at 90 days after their last encounter with the index case (as their initial baseline serology would have been collected more than 30 days after their last exposure).
Sexual contact occurred 30 to 90 days previously and there is no risk that the contact will be lost to follow up before serologic results are available:	
Period of Abstinence	• Untreated clients should be advised and encouraged to *abstain* from sexual contact with others for the entire duration of the incubation period for syphilis – 90 days from their last encounter with the index case. • If the client is treated at a later visit (based on results of follow-up serology), they should be encouraged to *abstain* from all sexual contact with others for 2 weeks following the treatment and if the client has any lesions, the 2-week period of abstinence should be extended until all lesions have healed. Condoms should be advised and encouraged for all sexual encounters.
Follow-up Serology	• Clients should be asked to return for *follow-up serology* 60 days (unless their initial baseline testing was conducted close to 60 days post exposure) and 90 days after their last encounter with the index case.
Treatment	• Any treatment should be based on the results of their baseline and follow-up serology, stage and other considerations (see Table 3 above).

Management of infants born to pregnant women with reactive treponemal tests during pregnancy is complex and outlined in the Canadian Guidelines on Sexually Transmitted Infections and should be referred to directly for guidance. Refer to http://origin.phac-aspc.gc.ca/std-mts/sti-its/pdf/510syphilis-eng.pdf.

Special Considerations

HIV infection

Pregnancy

- All women newly diagnosed with syphilis during pregnancy should receive treatment appropriate to their stage of disease, with the exception of secondary syphilis in late pregnancy, where despite the administration of the recommended penicillin regimen, as many as 14% will have a fetal death or deliver infants with clinical evidence of congenital syphilis. Some experts recommend that primary, secondary, and early latent cases in pregnancy be treated with two doses of benzathine penicillin G 2.4 million units 1 week apart; the efficacy of this regimen in preventing fetal syphilis is not known.
- Retreatment during pregnancy is not necessary unless there is clinical or serologic evidence of new infection (four-fold rise in a non-treponemal test titre) or history of recent sexual contact with early syphilis.
- Erythromycin is the least effective agent for the treatment of syphilis and does not penetrate the CSF or placental barrier well; it is therefore not recommended in pregnancy.
- If the mother is > 20 weeks gestation, an ultrasound should be performed and she should be managed with an obstetrician/maternal-fetal medicine specialist; if fetal abnormalities are identified, the mother should be hospitalized for treatment and fetal monitoring.
- All babies born to mothers diagnosed with syphilis should be assessed at delivery by a pediatrician or pediatric specialist (e.g., infectious diseases), and if a maternal non-penicillin regimen was used, consideration should be given to treating the baby empirically for congenital syphilis.
- In cases where a child is born to a mother who was diagnosed with syphilis in pregnancy, and where the child is placed under the care of child protection services, medical information about the mother's diagnosis may be critical to the ongoing protection and monitoring of the infant's health. It is important to facilitate the collection and disclosure of relevant health information, in accordance with provincial/territorial requirements, in order to allow appropriate follow-up care.

Congenital syphilis

- Infected infants are frequently asymptomatic at birth and may be seronegative if maternal infection occurred late in gestation.
- Infants should be treated at birth:
    - if symptomatic;
    - if the infant's non-treponemal titre (RPR) is at least four-fold (2 tubes) higher than the mother's;
    - if maternal treatment was inadequate, did not contain penicillin, is unknown or occurred in the last month of pregnancy, or if maternal serologic response is inadequate;
    - if adequate follow-up of the infant cannot be ensured.

Jarisch-Herxheimer reaction (Post-treatment reaction)

- Patients should be made aware of this possible reaction to treatment, especially with penicillin.
- An acute febrile illness with headache, myalgia, chills, rigours generally occurring within 8-12 hours and resolving within 24 hours.
- Common in early syphilis, but usually not clinically significant unless there is neurologic or ophthalmic involvement or in pregnancy where it may cause fetal distress and premature labour.
- Not a drug allergy.
- Can be treated with antipyretics.
- Steroids may be indicated for the management of severe reactions but should be used in consultation with a colleague experienced in this area.

III. Outbreak

During an outbreak enhanced surveillance information on both cases and contacts and the risk factors associated with transmission should be captured.

IV. Epidemic Measures

It may be prudent to intensify prevention and control measures. At-risk populations may require alternate modes of intervention to reach them. This should be done in consultation with the MHO and Saskatchewan Ministry of Health.

Prevention Measures

The Sexually Transmitted Infections Introduction and General Considerations section of the manual highlights topics for client education that should be considered as well as provides information on high-risk groups and activities.

Because untreated syphilis in a pregnant woman can infect the fetus and result in fetal death or congenital syphilis, every pregnant woman should be routinely tested for syphilis in the first trimester. Women at increased risk for syphilis should be screened again later in the pregnancy.

Special Considerations in Pregnant Women and Newborn Infants

- Given the resurgence of syphilis in Canada, universal screening of all pregnant women continues to be important and remains the standard of care in most jurisdictions.
- Screening should, ideally be performed in the first trimester and repeated at 28-32 weeks and again at delivery in women at high risk of acquiring or in areas experiencing heterosexual outbreaks of syphilis.
- Any woman delivering a stillborn infant at ≥ 20 weeks gestation should be screened for syphilis.
- No newborn should be discharged from hospital prior to confirmation that either the mother or newborn infant has had syphilis serology undertaken during pregnancy or at the time of labour or delivery.
- Infants presenting with signs or symptoms compatible with early congenital syphilis should be tested for syphilis.

Revisions

Date	Change
September 2018	• Updated to align with Panorama configuration; • Clarified the purpose for notification of cases to public health; • Incorporated an Epidemiology and Occurrence section into the chapter as a placeholder; • Incorporated Syphilis Data Collection Worksheet; • Rearranged and updated the style into the new format of the Manual. • Incorporated case definition and contact management (abstinence, treatment and follow-up serology into tables).

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Sexually Transmitted Infections
Attachment – Risk Assessment Questionnaire

Category and elements	Important questions to guide your assessment
Relationship	
Present situation	• Do you have a regular sexual partner? • If yes, how long have you been with this person?
Identify concerns	• Do you have any concerns about your relationship? • If yes what are they (e.g., violence, abuse, coercion)?
Sexual risk behaviour	
Number of partners	• When was your last sexual contact? Was that contact with your regular partner or with a different partner? • How many different sexual partners have you had in the past 2 months? In the past year?
Sexual preference, orientation	• Are your partners men, women or both?
Are your partners men, women or both?	• Do you perform oral sex (i.e., do you kiss your partner on the genitals or anus)? • Do you receive oral sex? • Do you have intercourse (i.e., do you penetrate your partners in the vagina or anus [bum]? Or do your partners penetrate your vagina or anus [bum])?
Personal risk evaluation	• Have any of your sexual encounters been with people from a country other than Canada? If yes, where and when? • How do you meet your sexual partners (when travelling, bathhouse, Internet)? • Do you use condoms, all the time, some of the time, never? • What influences your choice to use protection or not? • If you had to rate your risk for STI, would you say that you are at no risk, low risk, medium risk or high risk? Why?
STI history	
Previous STI screening	• Have you ever been tested for STI/HIV? If yes, what was your last screening date?
Previous STI	• Have you ever had an STI in the past? If yes, what and when?
Current concern	• When was your sexual contact of concern? • If symptomatic, how long have you had the symptoms that you are experiencing?

Sexually Transmitted Infections
Attachment – Risk Assessment Questionnaire

Category and elements	Important questions to guide your assessment
Reproductive health history	
Contraception	• Do you and/or your partner use contraception? If yes, what? Any problems? If no, is there a reason?
Pap test	• Have you ever had an abnormal Pap test? If yes, when? Result if known.
Pregnancy	• Have you ever been pregnant? If yes, how many times? What was/were the outcome(s) (number of live births, abortions, miscarriages)?
Substance use	
Share equipment for injection	• Do you use alcohol? Drugs? If yes, frequency and type? • If injection drug use, have you ever shared equipment? If yes, what was your last sharing date?
Sex under influence	• Have you had sex while intoxicated? If yes, how often? • Have you had sex while under the influence of alcohol or other substances? What were the consequences? • Do you feel that you need help because of your substance use?
Percutaneous risk other than drug injection	• Do you have tattoos or piercings? If yes, were they done using sterile equipment (i.e., professionally)?
Psychosocial history	
Sex trade worker or client	• Have you ever traded sex for money, drugs or shelter? • Have you ever paid for sex? If yes, frequency, duration and last event.
Sexual Abuse	• Have you ever been forced to have sex? If yes, when and by whom? • Have you ever been sexually abused? Have you ever been physically or mentally abused? If yes, when and by whom?
Housing	• Do you have a home? If no, where do you sleep? • Do you live with anyone?

Source: Canadian Guidelines on Sexually Transmitted Infections, 2010.

Government of Saskatchewan

PANORAMA

Confidential Notification of Chlamydia and Gonococcal Infections

Please complete for all laboratory confirmed and suspect (clinical) cases.

A) PERSON REPORTING – HEALTH CARE PROVIDER INFORMATION

Clinic Name: Location: Attending Physician or Nurse: Address: Phone number:	***FOR PUBLIC HEALTH OFFICE USE ONLY:*** **Service Area:** **Date Received:** **Panorama Client ID:** **Panorama Investigation ID:**

B) CLIENT INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MM / DD Age: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	Place of Employment/School:
Health Card Province: Health Card Number (PHN):	Gender Identity: ☐ Transgender Male-to-female ☐ Transgender Female-to-male ☐ Undifferentiated ☐ Other:	Email Address:
Address: FN Community: Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description		Phone: ☐ Primary Home: ☐ Mobile contact: ☐ Workplace: ☐ Alternate Contact: Relationship:

Is case pregnant? ☐ Unknown ☐ No ☐ Yes If Yes, a Test of Cure is recommended: Please provide with a Lab Requisition

Is case HIV positive? ☐ Unknown ☐ No ☐ Yes If Yes, does the client disclose status to partners? ☐ No ☐ Yes ☐ Unknown

Is case HB positive? ☐ Unknown ☐ No ☐ Yes If Yes, does the client disclose status to partners? ☐ No ☐ Yes ☐ Unknown

C) INFECTION INFORMATION

Infection Reported: ☐ Chlamydia ☐ Gonorrhea

Classification: **Classification Date**: YYYY / MM / DD

☐ Laboratory Confirmed ☐ Suspect (clinical) *(indicate Signs, Symptoms, Syndromes – Section E)* ☐ Contact to a case

LAB TEST - Date specimen collected: YYYY / MM / DD

D) PRESENTATION (SITES)

Site: ☐ Genital Extra-genital: ☐ Pharyngeal ☐ Rectal ☐ Other - _____ ☐ Perinatally acquired (first 28 days of life)

E) SIGNS, SYMPTOMS, SYNDROMES (only required for Suspect cases)

Description	No	Yes - Date of onset	Description	No	Yes - Date of onset
Asymptomatic		YYYY / MM / DD	Pain – abdominal		YYYY / MM / DD
Bleeding - vaginal – abnormal		YYYY / MM / DD	Pain – deep pelvic (dyspareunia)		YYYY / MM / DD
Cervicitis (strawberry/friable cervix, cervical discharge)		YYYY / MM / DD	Urethritis (urethra discharge, dysuria)		YYYY / MM / DD
Discharge - vaginal		YYYY / MM / DD	Other:		YYYY / MM / DD
Epididymitis (*Gonococcal infection only*)		YYYY / MM / DD			

F) TREATMENT

Date treated: YYYY / MM / DD **Treated By:** **Direct Observed Therapy (DOT)** ☐ Yes ☐ No

☐ Azithromycin 1gm ☐ Cefixime 800 mg ☐ Amoxicillin 500 mg tid x 7d ☐ Gentamicin 240 mg IM

☐ Azithromycin 2gm ☐ Ceftriaxone 250 mg IM ☐ Erythromycin 333mg ii tid x 7d **or** other dosage:

☐ Other Medications: _____ ☐ Doxycycline 100mg bid x 7d **or** other dosage:

G) RISK FACTORS (Please complete *all* Risk Factors in the 3 months prior to appointment)

DESCRIPTION	Yes	N, NA, U	DESCRIPTION	Yes	N, NA, U
Goods **provided** (food, shelter, money or drugs) in exchange for sex.			Goods **received** (food, shelter, money or drugs) in exchange for sex.		
MSM (men who have sex with men)			Unknown/anonymous partner		
More than 2 sexual partners in past 3 months			Travel – Outside of Canada (*Add'l Info.)*		
E-partnering (internet or apps for sex) (*Add'l Info)*					

Confidential Notification of Sexual Contacts
Of persons diagnosed with Chlamydia or Gonococcal Infections

(*include all sexual contacts in the last 60 days or the last sexual partner if >60 days*); use additional sheets if > 2 contacts

H) INFECTIOUS PERIOD (INCLUDE DATES FOR CONTACT TRACING)

From: YYYY / MM / DD to YYYY / MM / DD

I) UNKNOWN/ANONYMOUS CONTACTS

Anonymous contacts:_____ (the number of individuals that the individual cannot name)

SEXUAL CONTACT INFORMATION #1

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown	
Exposure Type: ☐ Vaginal/penile ☐ Oral ☐ Anal ☐ Delivery/Perinatal	HIV Positive: ☐ Yes ☐ No ☐ Unknown Hepatitis B Positive: ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

SEXUAL CONTACT INFORMATION #2

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown	
Exposure Type: ☐ Vaginal/penile ☐ Oral ☐ Anal ☐ Delivery/Perinatal	HIV Positive: ☐ Yes ☐ No ☐ Unknown Hepatitis B Positive: ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

Government of Saskatchewan

PANORAMA

Chlamydia and Gonorrhea Data Collection Worksheet – Public Health – Follow-Up

Panorama QA complete: ☐ **Yes** ☐ **No**
Initials:

Panorama Client ID: _____
Panorama Investigation ID: _____

A) CLIENT INFORMATION

LHN ->SUBJECT -> CLIENT DETAILS -> PERSONAL INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MM / DD Age: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	PHN:

B) INVESTIGATION INFORMATION

LHN -> SUBJECT SUMMARY-> STBBI ENCOUNTER GROUP-> CREATE INVESTIGATION

Disease Summary Classification: CASE:	**Date**	***Classification: CONTACT:***	***Date***	***LAB TEST INFORMATION:***
☐ Lab Confirmed	YYYY / MM / DD	☐ *Contact*	*YYYY / MM / DD*	*Date specimen collected:*
☐ Suspect	YYYY / MM / DD	☐ *Not a Contact*	*YYYY / MM / DD*	*YYYY / MM / DD*
☐ Person Under Investigation	YYYY / MM / DD	☐ *Person Under Investigation*	*YYYY / MM / DD*	

Disposition: *FOLLOW UP:*

☐ In progress	YYYY / MM / DD	☐ Complete	YYYY / MM / DD
☐ Incomplete - Declined	YYYY / MM / DD	☐ Not required	YYYY / MM / DD
☐ Incomplete – Lost contact	YYYY / MM / DD	☐ Referred – Out of province	YYYY / MM / DD
☐ Incomplete – Unable to locate	YYYY / MM / DD	(Specify where)	YYYY / MM / DD

C) INTERVENTIONS

LHN -> INVESTIGATION-> TREATMENT & INTERVENTIONS-> INTERVENTION SUMMARY

Intervention Type and Sub Type:

Assessment:
- ☐ Assessed for contacts — Investigator name — YYYY/ MM/ DD
- ☐ Client aware of diagnosis — Investigator name — YYYY/ MM/ DD

Communication:
- ☐ Phone call (morning) — Investigator name — YYYY/ MM/ DD
- ☐ Phone call (afternoon) — Investigator name — YYYY/ MM/ DD
- ☐ Phone call (evening) — Investigator name — YYYY/ MM/ DD
- ☐ Text Message sent — Investigator name — YYYY/ MM/ DD
- ☐ E-mail — Investigator name — YYYY/ MM/ DD
- ☐ Home visit — Investigator name — YYYY/ MM/ DD
- ☐ Letter Sent — Investigator name — YYYY/ MM/ DD
- ☐ Letter (See Document Management) — YYYY/ MM/ DD — Investigator name
- ☐ Ordering practitioner contacted — YYYY/ MM/ DD — Investigator name
- ☐ Other communication (See Investigator Notes) — YYYY/ MM/ DD — Investigator name

General: Investigator name
- ☐ Disease-Info/Prev-Control — YYYY/ MM / DD
- ☐ Disease-Info/Prev-Cont/Assess'd for Contacts — YYYY/ MM / DD

Education/counselling:
- ☐ Prevention/Control measures — YYYY / MM / DD — Investigator name
- ☐ Disease information provided — YYYY / MM / DD — Investigator name
- ☐ Other (See Investigator Notes) — YYYY / MM / DD — Investigator name

Immunization:
- ☐ Eligible Immunization recommended: — YYYY/ MM/ DD — Investigator name

Other:
- ☐ Other (See Investigator Notes)

Referral:
- ☐ Child Protective Services — YYYY / MM / DD
- ☐ Harm Reduction Services — YYYY / MM / DD
- ☐ Infectious Disease Specialist — YYYY / MM / DD
- ☐ Primary Care Provider — YYYY / MM / DD
- ☐ Consultation with MHO — YYYY / MM / DD — Investigator name

Testing: Investigator name
- ☐ Laboratory testing recommended: — YYYY / MM / DD
- ☐ STBBI Testing recommended — YYYY / MM / DD
- ☐ Test of Cure Recommended: — YYYY / MM / DD

Other Investigation Findings:
- ☐ Investigator Notes — YYYY / MM / DD
- ☐ See Document Management — YYYY / MM / DD

NOTE TO PUBLIC HEALTH: Ensure a Data Collection Worksheet/Notification Form has been completed and entered directly into Panorama.

Chlamydia and Gonorrhea Data Collection Worksheet – Public Health – Follow-Up

Please complete **all** sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

Date	Intervention subtype	Comments	Next follow-up Date	Initials
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
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YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	

D) OUTCOMES ***(optional except for severe influenza)*** LHN-> INVESTIGATION-> OUTCOMES

☐ Not yet recovered/recovering YYYY / MM / DD ☐ ICU/intensive medical care YYYY / MM / DD ☐ Hospitalization YYYY / MM / DD
☐ Recovered YYYY / MM / DD ☐ Intubation /ventilation YYYY / MM / DD ☐ Other YYYY / MM / DD
☐ Fatal YYYY / MM / DD ☐ Unknown _____

Cause of Death: (if Fatal was selected) _____

E) TRANSMISSION EVENT LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> QUICK ENTRY

Transmission Event ID (system-generated can be documented below)	**Exposure Name** (enter the most appropriate exposure)	**Setting type** Important: (Select the most appropriate setting for the TE; if >1 select multiple settings)	**Date** (include the earliest date for contact tracing – transmission end date is not required)
	CT Contacts – Inv ID# GC Contacts – Inv ID# CT/GC Contacts – InvID#	☐ Sexual Exposure ☐ Public facilities ☐ Multiple settings ☐ Household ☐ Type of community contact (includes IDU)	

F) Total number of contacts LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> TE HYPERLINK

_____ (total number of *unknown* and *known* contacts)

Initial Report completed by:		**Date initial report completed:** YYYY / MMM / DD

Government of Saskatchewan

Syphilis Notification Form

PANORAMA

Panorama QA complete: ☐ **Yes** ☐ **No**
Initials:

A) PERSON REPORTING – HEALTH CARE PROVIDER INFORMATION

Clinic Name: Location: Attending Physician or Nurse: Address: Phone number:	***FOR PUBLIC HEALTH OFFICE USE ONLY:*** **Service Area:** **Date Received:** **Panorama Client ID:** **Panorama Investigation ID:**

B) CLIENT INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MM / DD Age: _____ Health Card Province: _____ Health Card Number (PHN):	**Gender**: ☐ Male ☐ Female ☐ Unknown ☐ Other **Gender Identity:** ☐ Transgender Male-to-female ☐ Transgender Female-to-male ☐ Undifferentiated ☐ Other (specify)	Phone : ☐ Primary Home: ☐ Mobile contact: ☐ Workplace: ☐ Alt Contact: Name: _____ Relationship: _____ Preferred Communication Method: ☐ Home ☐ Work ☐ E-mail ☐ Text
Place of Employment/School:	Email Address:	

Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description
Mailing (Postal address):

Street Address or **FN Community** (Primary Home):

Is client pregnant? ☐ Yes ☐ No	**Online Names:** **Site/Service:** **User name:**

Is case HIV positive? ☐ Unknown ☐ No ☐ Yes, If Yes, does the client disclose status to partners? ☐ No ☐ Yes ☐ Unknown

Is case HB positive? ☐ Unknown ☐ No ☐ Yes, If Yes, does the client disclose status to partners? ☐ No ☐ Yes ☐ Unknown

C) IMMIGRATION INFORMATION

Country Born in: ☐ Canada ☐ Unknown ☐ _____

Country Emigrated from: _____ Arrival Date: YYYY / MMM / DD OR Arrival Year_____

D) DISEASE EVENT HISTORY

Site / Presentation: ☐ Infectious ☐ Non-Infectious

Staging:

☐ Primary	☐ Late latent	☐ Early congenital	
☐ Secondary	☐ Tertiary other than neurosyphilis	☐ Syphilitic stillbirth	
☐ Early latent	☐ Late neurosyphilis (>1 year after infection)	☐ Late congenital	☐ Unknown
☐ Early neurosyphilis (<1 year after infection)			

Syphilis – Notification Form

E) SIGNS & SYMPTOMS

Description	Yes Date of onset	Date of recovery	Description	Yes Date of onset	Date of recovery
Asymptomatic			Rash - trunk	YYYY / MM / DD	YYYY / MM / DD
Chancre - anal	YYYY / MM / DD	YYYY / MM / DD	Retinitis	YYYY / MM / DD	YYYY / MM / DD
Chancre - genital	YYYY / MM / DD	YYYY / MM / DD	Uveitis (inflammation of uvea)	YYYY / MM / DD	YYYY / MM / DD
Chancre - oral	YYYY / MM / DD	YYYY / MM / DD	Cardiac - aortic aneurysm	YYYY / MM / DD	YYYY / MM / DD
Lymphadenopathy: _____	YYYY / MM / DD	YYYY / MM / DD	Cardiac - aortic regurgitation	YYYY / MM / DD	YYYY / MM / DD
Alopecia (loss of normal hair distribution)	YYYY / MM / DD	YYYY / MM / DD	Cardiac - coronary artery - ostial stenosis	YYYY / MM / DD	YYYY / MM / DD
Condyloma lata	YYYY / MM / DD	YYYY / MM / DD	Dementia	YYYY / MM / DD	YYYY / MM / DD
Fever	YYYY / MM / DD	YYYY / MM / DD	Gumma - bone	YYYY / MM / DD	YYYY / MM / DD
Headache	YYYY / MM / DD	YYYY / MM / DD	Gumma - organs	YYYY / MM / DD	YYYY / MM / DD
Lesions - mucocutaneous or mucosal	YYYY / MM / DD	YYYY / MM / DD	Gumma - skin	YYYY / MM / DD	YYYY / MM / DD
Rash - palms	YYYY / MM / DD	YYYY / MM / DD	Vertigo	YYYY / MM / DD	YYYY / MM / DD
Rash - soles	YYYY / MM / DD	YYYY / MM / DD			
Other Signs & Symptoms, if applicable					

F) RISK FACTORS

DESCRIPTION	Yes	N –No NA – not asked U - unknown	DESCRIPTION	Yes	N –No NA – not asked U - unknown
Medical History - Previous STI			**Sexual Behaviour** - Victim of sexual assault		
Medical Treatment - Blood, blood product or tissue recipient (Add'l Info)	TE		**Sexual Behaviour** - Unknown/ anonymous partner		
Sexual Behaviour E-partnering: internet or apps: (Add'l Info)			**Special Population** - Homeless		
Sexual Behaviour - Men who have sex with Men (MSM)			**Special Population** - Street involved		
Sexual Behaviour - More than 2 sexual partners in past 3 months			**Substance Use** - Alcohol		
Sexual Behaviour - No condom use			**Substance Use** - Illicit non-injection drug use		
Sexual Behaviour - Goods **provided** (food, shelter, money or drugs) in exchange for sex			**Substance Use** - Injection drug use (including steroids)		
Sexual Behaviour - Goods **received** (food, shelter, money or drugs) in exchange for sex			**Travel** – Outside of Canada: (Add'l Info)		
Sexual Behaviour - Sex with a known case (Add'l Info.)			Blood, blood product ortissue **donor** Public Health to make referral to CBS		

G) TREATMENT

Medical Order provided by: _____ **Treated By:** _____

- ☐ Bicillin (2.4 million units once) **Date treated:** YYYY / MM / DD
- ☐ Bicillin (2.4 million units IM weekly x 2 weeks) **Date treated:** YYYY / MM / DD **Date treated:** YYYY / MM / DD
- ☐ Bicillin (2.4 million units IM weekly x 3 weeks) **Date treated:** YYYY / MM / DD **Date treated:** YYYY / MM / DD **Date treated:** YYYY / MM / DD
- ☐ Doxycycline 100mg bid x 14 days **Date treatment started**: YYYY / MM / DD
- ☐ Doxycycline 100mg bid x 28 days **Date treatment started**: YYYY / MM / DD
- ☐ Other*:* **Date treated:** YYYY / MM / DD

H) INFECTIOUS PERIOD (INCLUDE DATES FOR CONTACT TRACING)

Trace-back Periods: Primary – *3 months* Secondary – *6 months* Early Latent – *12 months* Non-Infectious – *Regular Partners*

From: YYYY / MM / DD to YYYY / MM / DD

I) UNKNOWN/ANONYMOUS CONTACTS

Anonymous contacts:_____ (number of sexual contacts that the individual cannot name)

Include known sexual contacts on the following pages

Case Name:

Syphilis Contacts – Notification Form

Traceback Periods: **Primary – 3 months, Secondary – 6 months, Early Latent – 12 months**
Non-Infectious Traceback Periods: **Late Latent – Regular Partners**

1) SEXUAL CONTACT INFORMATION

**** Please include information on additional contacts on a separate sheet**

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____ HSN: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown	
Exposure Type: ☐ Vaginal ☐ Oral ☐ Anal ☐ Delivery/Perinatal	**HIV Positive:** ☐ Yes ☐ No ☐ Unknown **Hepatitis B Positive:** ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

2) SEXUAL PARTNER INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____ HSN: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown	
Exposure Type: ☐ Vaginal ☐ Oral ☐ Anal ☐ Delivery/Perinatal	**HIV Positive:** ☐ Yes ☐ No ☐ Unknown **Hepatitis B Positive:** ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

Case Name:

Page _____ of _____

Syphilis Contacts – Notification Form

Traceback Periods: **Primary – 3 months, Secondary – 6 months, Early Latent – 12 months**
Non-Infectious Traceback Periods: **Late Latent – Regular Partners**

3) SEXUAL PARTNER INFORMATION

**** Please include information on additional contacts on a separate sheet**

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____ HSN: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD **Exposure** Type: ☐ Vaginal ☐ Oral ☐ Anal ☐ Delivery/Perinatal	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown **HIV Positive:** ☐ Yes ☐ No ☐ Unknown **Hepatitis B Positive:** ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

4) SEXUAL PARTNER INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MMM / DD Age: _____ HSN: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	
Phone #: ☐ Primary Home: ☐ Workplace: ☐ Mobile contact: ☐ Alternate phone: Relationship:	**e-mail Address:**	
Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description **Street Address** or FN Community (Primary Home):		
Online Names: **Site/Service:** **User name:**	Place of Employment/School:	
Exposure Dates: 1st YYYY / MMM / DD to YYYY / MMM / DD **Exposure** Type: ☐ Vaginal ☐ Oral ☐ Anal ☐ Delivery/Perinatal	**Is contact pregnant?** ☐ Yes ☐ No ☐ Unknown **Is this person positive for an STI?** ☐ Yes ☐ No ☐ Unknown **HIV Positive:** ☐ Yes ☐ No ☐ Unknown **Hepatitis B Positive:** ☐ Yes ☐ No ☐ Unknown	
Will the testing Physician/Nurse **follow-up** this contact? ☐ Yes ☐ No If yes, date contact notified: YYYY / MMM / DD Was treatment given? ☐ Yes ☐ No Specify: _____ Will index case be notifying contact ☐ Yes ☐ No	**Comments**:	

Government of Saskatchewan

PANORAMA

Syphilis Data Collection Worksheet – Public Health Follow-Up

Panorama QA complete: ☐ **Yes** ☐ **No**
Initials:

Panorama Client ID: _____
Panorama Investigation ID: _____

A) CLIENT INFORMATION

SUBJECT -> CLIENT DETAILS -> PERSONAL INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name:
DOB: YYYY / MM / DD Age: _____	Gender: ☐ Male ☐ Female ☐ Unknown ☐ Other	PHN:

B) INVESTIGATION INFORMATION

SUBJECT SUMMARY-> STBBI ENCOUNTER GROUP-> CREATE INVESTIGATION

Disease Summary Classification: CASE:	**Date**	**Classification: CONTACT:**	**Date**	**LAB TEST INFORMATION:**
☐ Lab Confirmed	YYYY / MM / DD	☐ Contact	YYYY / MM / DD	Date specimen collected: YYYY / MM / DD
☐ Does Not Meet Case	YYYY / MM / DD	☐ Not a Contact	YYYY / MM / DD	
☐ Person Under Investigation	YYYY / MM / DD	☐ Person Under Investigation	YYYY / MM / DD	
☐ Probable	YYYY / MM / DD	Notes:		Last Non-Reactive: YYYY / MM / DD
☐ Suspect	YYYY / MM / DD			
☐ Previously Reported	YYYY / MM / DD			Syphilis RPR Titre:

Disposition: *FOLLOW UP:*

☐ In progress	YYYY / MM / DD	☐ Complete	YYYY / MM / DD
☐ Incomplete - Declined	YYYY / MM / DD	☐ Not required	YYYY / MM / DD
☐ Incomplete – Lost contact	YYYY / MM / DD	☐ Referred – Out of province (Specify where)	YYYY / MM / DD
☐ Incomplete – Unable to locate	YYYY / MM / DD		YYYY / MM / DD

C) INTERVENTIONS

INVESTIGATION-> TREATMENT & INTERVENTIONS-> INTERVENTION SUMMARY

Intervention Type and Sub Type:

Assessment:

☐ Assessed for contacts Investigator name YYYY/ MM/ DD
☐ Client aware of diagnosis Investigator name YYYY/ MM/ DD

Communication:

☐ Phone call (morning) Investigator name YYYY/ MM/ DD
☐ Phone call (afternoon) Investigator name YYYY/ MM/ DD
☐ Phone call (evening) Investigator name YYYY/ MM/ DD
☐ Text Message sent Investigator name YYYY/ MM/ DD
☐ E-mail Investigator name YYYY/ MM/ DD
☐ Home visit Investigator name YYYY/ MM/ DD
☐ Letter Sent Investigator name YYYY/ MM/ DD
☐ Letter (See Document Management) YYYY/ MM/ DD
Investigator name
☐ Ordering practitioner contacted YYYY/ MM/ DD
Investigator name
☐ Other communication (See Investigator Notes) YYYY/ MM/ DD
Investigator name

General: Investigator name

☐ Disease-Info/Prev-Control YYYY/ MM / DD
☐ Disease-Info/Prev-Cont/Assess'd for Contacts YYYY/ MM / DD

Immunization:

☐ Eligible Immunization recommended: YYYY/ MM/ DD
Investigator name

Referral:

☐ Child Protective Services Investigator name YYYY / MM / DD
☐ Harm Reduction Services Investigator name YYYY / MM / DD
☐ Infectious Disease Specialist Investigator name YYYY / MM / DD
☐ Primary Care Provider Investigator name YYYY / MM / DD
☐ Consultation with MHO Investigator name YYYY / MM / DD
☐ Saskatchewan Transplant Program Investigator name YYYY / MM / DD

Testing: Investigator name

☐ Laboratory testing recommended: YYYY / MM / DD
☐ STBBI Testing recommended (specify) YYYY / MM / DD
☐ Symptom monitoring indirect, passive YYYY / MM / DD
Investigator name
☐ Test of Cure Recommended: YYYY / MM / DD
Investigator name

Other:

☐ Other (See Investigator Notes)

Other Investigation Findings:

☐ Investigator Notes YYYY / MM / DD
☐ See Document Management YYYY / MM / DD

Syphilis Data Collection Worksheet – Public Health Follow-Up

Panorama Client ID: _____
Panorama Investigation ID: _____

Education/counselling:

☐ Prevention/Control measures Investigator name YYYY / MM / DD
☐ Disease information provided Investigator name YYYY / MM / DD
☐ Other (See Investigator Notes) Investigator name YYYY / MM / DD

NOTE TO PUBLIC HEALTH: Ensure a Data Collection Worksheet/Notification Form has been completed and entered directly into Panorama.

Date	Intervention subtype	Comments	Next follow-up Date	Initials
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	

D) OUTCOMES *(optional except for severe influenza*, LHN-> INVESTIGATION-> OUTCOMES

☐ Not yet recovered/recovering YYYY / MM / DD ☐ ICU/intensive medical care YYYY / MM / DD ☐ Hospitalization YYYY / MM / DD
☐ Recovered YYYY / MM / DD ☐ Intubation /ventilation YYYY / MM / DD ☐ Other YYYY / MM / DD
☐ Fatal YYYY / MM / DD ☐ Unknown _____

Cause of Death: (if Fatal was selected) _____

E) TRANSMISSION EVENT LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> QUICK ENTRY

Transmission Event ID (system-generated can be documented below)	**Exposure Name** (enter the most appropriate exposure)	**Setting type** Important: (Select the most appropriate setting for the TE; if >1 select multiple settings)	**Date/Time** (include the earliest transmission date to the latest date)
	Syphilis Contacts – Inv ID#	☐Sexual Exposure ☐Public facilities ☐Multiple settings ☐Household ☐Type of community contact (includes IDU)	

F) Total number of contacts LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> TE HYPERLINK

_____ (total number of *unknown* and *known* contacts)

Initial Report completed by:		**Date initial report completed:** YYYY / MMM / DD

Sexually Transmitted Infections
Attachment – Transport Media for Specific STIs

Specific STI	Swab Type: Source:	Transport Medium
Chlamydia trachomatis	**Swab type:** Copan nylon tipped, plastic shaft swab **OR** Fisher plastic polyester tipped swab **or** N/P malleable aluminum thin swabs **Source:** e.g., pharynx, rectal, vaginal, and/or conjunctiva	UTM-RT transport medium (supplied in package with swab) **OR** 2SP Chlamydia transport medium (glass vials, orange labeling "2SP")
Neisseria gonorrhoeae	**Swab type:** Fisher plastic polyester tipped swab **or** N/P malleable aluminum thin swabs **Source:** e.g., pharynx, rectal, joint aspirate, vaginal, and/or conjunctiva	Amies transport medium with charcoal
Lymphogranuloma Venereum (LGV)	**Swab type:** Copan nylon tipped, plastic shaft swab **OR** Fisher plastic polyester tipped swab **or** N/P malleable aluminum thin swabs **Source:** e.g., lesion, bubo aspirate, rectal, vaginal and/or urethral swab	UTM-RT transport medium (supplied in package with swab) **OR** 2SP Chlamydia transport medium (glass vials, orange labeling "2SP")
Herpes Simplex Virus	**Swab type:** Copan nylon tipped, plastic shaft swab **OR** Fisher brand plastic polyester tipped swab **Source: s**uspected herpes lesions	UTM-RT transport medium (supplied in package with swab) **OR** Viral transport medium (pink fluid in clear plastic vial; orange label; prominent expiry date)

Source: Paul Levett, Assistant Clinical Director, Saskatchewan Disease Control Laboratory, Oct 2010

Chlamydia

- In the absence of a contraindication, the following treatment options are recommended:

Table 1. Chlamydia. Adults (non-pregnant and non-lactating): Urethral, endocervical, rectal, conjunctival infection

Preferred	Alternative
• **Azithromycin** 1 g PO in a single dose if poor compliance is expected[*] **OR** • **Doxycyline** 100 mg PO bid for 7 days	• **Ofloxcin** 300 mg PO bid for 7 days **OR** • **Erythromycin** 2 g/day PO in divided doses for 7 days[†] **OR** • **Erythromycin** 1 g/day PO in divided doses for 14 days[†]

Source: Canadian Guidelines on Sexually Transmitted Infections 2017.

[*]If vomiting occurs more than 1 hour post-administration, a repeat dose is not required.
[†]Erythromycin dosages refer to erythromycin base. Equivalent dosages of other formulations may be substituted (with the exceptions of the estolate formulation being contraindicated in pregnancy). If erythromycin has been used for treatment, test of cure should be performed 4 weeks after completion of therapy.

Notes:

- In Saskatchewan azithromycin is generally the preferred treatment due to poor compliance of multiday treatments.

Table 2. Chlamydia. Children

First week of life	Infants ≤ 2000 g • **Erythromycin** 20 mg/kg/day PO in divided doses for at least 14 days[‡§] Infants > 2000 g • **Erythromycin** 30 mg/kg/day PO in divided doses for at least 14 days[‡§]
>1 week to 1 month	• **Erythromycin** 40 mg/kg/day PO in divided doses for at least 14 days[‡§]

>1 month to <9 years	• **Azithromycin** 12-15 mg/kg (max. 1 g) PO in a single dose Alternatives • **Erythromycin** 40 mg/kg/day PO in divided doses (max. 500 mg qid for 7 days or 250 mg qid for 14 days) ‡§ **OR** • **Sulfamethoxazole** 75 mg/kg/day PO in divided doses (max. 1 g bid) for 10 days§
9-18 years	Preferred • **Doxycycline** 5 mg/kg/day PO in divided doses (max. 100 mg bid) for 7 days **OR** • **Azithromycin** 12-15 mg/kg (max. 1 g) PO in a single dose if poor compliance is expected Alternatives • **Erythromycin** 40 mg/kg/day PO in divided doses (max. 500 mg qid for 7 days or 250 mg qid for 14 days) ‡§

Source: Canadian Guidelines on Sexually Transmitted Infections 2017.

†Test of cure should be performed 4 weeks after the completion of treatment in prepubertal children.
‡Erythromycin dosages refer to the use of erythromycin base. Equivalent dosages of other formulations may be substituted (with the exception of the estolate formulation being contraindicated in pregnancy).
§If erythromycin or sulfamethoxazole has been used for treatment, repeat testing after completion of therapy is advisable.

Notes:

- Neonates born to infected mothers must be tested for *C. trachomatis.* Neonates should be treated if their test results are positive. They should be closely monitored for signs of chlamydial infection (e.g., conjunctivitis, pneumonitis). Prophylaxis is not recommended unless follow-up cannot be guaranteed.

Additional Information Regarding Treatment

- Topical therapy alone for conjunctivitis is NOT adequate and is unnecessary when systemic treatment is used.

- The use of erythromycin in infants under 6 weeks of age has been associated with infantile hypertrophic pyloric stenosis (IHPS). The risk of IHPS with other macrolides (e.g., azithromycin, clarithromycin) is unknown. The risks and benefits of using erythromycin in such infants must be explained to parents. When erythromycin is used in such infants, it is important to monitor for signs and symptoms of IHPS. IHPS following erythromycin use should be reported to the Canadian Adverse Drug Reaction Monitoring Program at 1-866-234-2345.
- The need to treat infants under 6 weeks for *C. trachomatis* can be avoided by screening pregnant women and treating before delivery.
- Doxycycline is contraindicated in children less than 9 years of age.
- Quinolones have been associated with articular damage in young animals. Such joint changes have not been clearly attributable to quinolone use in children. Its safety in children has not been established. Quinolones should not be used in prepubertal patients. Experience in pubertal patients under 18 years of age is limited.

Table 3. Chlamydia. Pregnant women and nursing mothers: Urethral, endocervical, rectal infection

- **Amoxicillin** 500 mg PO tid for 7 days[*]
  OR
- **Erythromycin** 2 g/day PO in divided doses for 7 days[*†]
  OR
- **Erythromycin** 1 g/day PO in divided doses for 14 days[*†]
  OR
- **Azithromycin** 1 g PO in a single dose, if poor compliance is expected[‡]

Source: Canadian Guidelines on Sexually Transmitted Infections 2017.

[*†]If erythromycin or amoxicillin has been used for treatment in nursing mothers, test of cure should be performed 4 weeks after the completion of treatment.
[†]Erythromycin dosages refer to the use of erythromycin base. Equivalent dosages of other formulations may be substituted (with the exception of the estolate formulation being contraindicated in pregnancy). Gastrointestinal side effects are more severe with erythromycin than amoxicillin.
[‡]If vomiting occurs more than 1 hour post-administration, a repeat dose is not required.

Notes:

- Test of cure should be performed 4 weeks after the completion of treatment in all pregnant women.

Gonorrhea

Antimicrobial resistant gonorrhea (AMR-GC) continues to be of concern in Canada and globally. In order to determine the most appropriate treatment individuals must be assessed for the following specific risk factors and sexual behaviours prior to being treated for gonorrhea:

- history of MSM (men who have sex with men),
- history of oral sex,
- history of anal sex,
- sex with a person outside of Saskatchewan or Canada.

Treatment with the following MUST be given if the patient answers yes to any of the identified risk factors **OR** if the assessment is not completed:

- Ceftriaxone 250 mg IM (lidocaine 1% is the preferred diluent); **AND**
- Azithromycin 1 gram orally.

The following treatment is only appropriate when the above risk factors have been ruled out:

- Cefixime 800 mg orally; **AND**
- Azithromycin 1 gram orally.

In the absence of a contraindication, the following tables outline treatment options that should be considered in conjunction with the above guidelines.

Anogenital and Pharyngeal Infections

Table 1. Gonorrhea. Recommended treatment of uncomplicated anogenital and pharyngeal infection in adults and youth 9 years of age and older (for MSM, see Table 2)

Urethral, endocervical, vaginal, rectal	
Preferred	**Alternatives**
• Ceftriaxone 250 mg IM in a single dose[*†] **PLUS** • Azithromycin 1 g PO in a single dose[‡] **OR** • Cefixime 800 mg PO in a single dose[*§] **PLUS** • Azithromycin 1 g PO in a single dose[‡]	• Gentamicin 240 mg IM in 2 separate 3 mL injections of 40 mg/mL solution **PLUS** • Azithromycin 2 g PO in a single dose[‡]

Pharyngeal	
Preferred	**Alternatives**
• Ceftriaxone 250 mg IM in a single dose[*†] **PLUS** • Azithromycin 1 g PO in a single dose[‡]	• Cefixime 800 mg PO in a single dose[*§] **PLUS** • Azithromycin 1 g PO in a single dose[‡]

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2017. Public Health Agency of Canada Treatment of N. gonorrhoeae in response to the discontinuation of spectinomycin: Alternative treatment guidance statement

Table 2. Gonorrhea. Treatment of Uncomplicated anogenital and pharyngeal infection in MSM

Urethral, rectal	
Preferred	**Alternatives**
• Ceftriaxone 250 mg IM in a single dose[*†] **PLUS** • Azithromycin 1 g PO in a single dose[‡]	• Cefixime 800 mg PO in a single dose[*§] **PLUS** • Azithromycin 1 g PO in a single dose[‡] **OR** • Gentamicin 240 mg IM in 2 separate 3 mL injections of 40 mg/mL solution **PLUS** • Azithromycin 2 g PO in a single dose
Pharyngeal	
Preferred	**Alternatives**
• Ceftriaxone 250 mg IM in a single dose[*†] **PLUS** • Azithromycin 1 g PO in a single dose[‡]	• Cefixime 800 mg PO in a single dose[*§] **PLUS** • Azithromycin 1 g PO in a single dose[‡]

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2017. Public Health Agency of Canada Treatment of N. gonorrhoeae in response to the discontinuation of spectinomycin: Alternative treatment guidance statement

Table 3. Gonorrhea. Recommended treatment of Uncomplicated anogenital and pharyngeal infection in children < 9 years of age,

Urethral, vaginal, rectal	
Preferred	**Alternatives**
• Ceftriaxone 50mg/kg IM up to 250 mg in a single dose[*†] **PLUS** • Azithromycin 20mg/kg (maximum dose of 1 g) PO in a single dose **OR** • Cefixime 8 mg/kg PO BID X 2 doses (maximum 400 mg/dose) **PLUS** • Azithromycin 20mg/kg (maximum dose of 1 g) PO in a single dose	• Consult with expert in pediatric infectious diseases
Pharyngeal	
Preferred	**Alternatives**
• Ceftriaxone 50mg/kg IM up to 250 mg in a single dose[*†] **PLUS** • Azithromycin 20mg/kg (maximum dose of 1 g) PO in a single dose	• Cefixime 8 mg/kg PO BID X 2 doses (maximum 400 mg/dose) **PLUS** • Azithromycin 20mg/kg (maximum dose of 1 g) PO in a single dose
Important notes related to neonates (birth to one month of age): • In neonates the recommended dosage for ceftriaxone is 25-50 g/kg (maximum of 125 mg). • **Routine combination therapy with a macrolide is not recommended** due to the association with pyloric stenosis. Testing should be done for Chlamydia and if results are positive, treatment should be provided as per the Chlamydia chapter.	

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2017. Public Health Agency of Canada Treatment of N. gonorrhoeae in response to the discontinuation of spectinomycin: Alternative treatment guidance statement

Gonococcal ophthalmia and disseminated infections

Table 4. Gonorrhea. Recommended treatment of gonococcal ophthalmia and disseminated infections in adults and youth 9 years of age and older.

Infections	Preferred treatment
Arthritis	Ceftriaxone 2 g IV/IM daily for 7 days **PLUS**[Ψ] Azithromycin 1 g PO in a single dose
Meningitis	Ceftriaxone 2 g IV/IM daily for 10-14 days[Ψ] **PLUS** Azithromycin 1 g PO in a single dose
Endocarditis	Ceftriaxone 2 g IV/IM daily for 28 days[Ψ] **PLUS** Azithromycin 1 g PO in a single dose
Opthalmia	Ceftriaxone 2 g IV/IM in a single dose[Ψ] **PLUS** Azithromycin 1 g PO in a single dose
NOTE: Hospitalization is indicated for meningitis and may also be indicated for other disseminated infections.	

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2013.

Table 5. Gonorrhea. Recommended treatment of gonococcal ophthalmia and disseminated infections in children >1 month and < 9 years of age.

Infections	Preferred treatment
Arthritis	Ceftriaxone 50 mg/kg IV/IM daily for 7 days (maximum dose of 1 g/day)[Ψ] **PLUS** Azithromycin 20 mg/kg (maximum dose of 1 g) PO in a single dose
Meningitis	Ceftriaxone 50 mg/kg IV/IM q 12 h for 10-14 days (maximum dose of 1 g/dose and 2 g/day)[Ψ] **PLUS** Azithromycin 20 mg/kg (maximum dose of 1 g) PO in a single dose
Endocarditis	Ceftriaxone 50 mg/kg IV/IM q 12 h for 28 days (maximum dose of 1 g/dose and 2 g/day)[Ψ] **PLUS** Azithromycin 20 mg/kg (maximum dose of 1 g) PO in a single dose
Ophthalmia beyond neonatal period	Ceftriaxone 50 mg/kg IV/IM in a single dose (maximum dose of 2 g) **PLUS** Azithromycin 20 mg/kg (maximum dose of 1 g) PO in a single dose
NOTE: Hospitalization is indicated for meningitis and may also be indicated for other disseminated infections.	

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2013.

Gonorrhea and Neonates:

Neonates born to infected untreated mothers must be tested and treatment be initiated without waiting for test results.

Culture conjunctivae prior to administering antibiotics. If the infant is unwell in any way, also culture blood and cerebrospinal fluid to rule out disseminated infection.

Table 6. Gonorrhea. Ophthalmia neonatorum

Preferred treatment: Ceftriaxone 25-50 mg/kg IM in a single dose, maximum dose of 125mg
Important notes: • Irrigate eyes immediately with sterile normal saline and at least hourly as long as necessary to eliminate discharge**.** • Prophylactic treatment for possible chlamydial co-infection is not recommended unless follow-up cannot be assured. Testing should be done for chlamydia and if results are positive, treatment should be provided as per *Chlamydia* section. • **Hospitalization and consultation with an expert in infectious diseases should be initiated as soon as possible.** • **Appropriate infection prevention and control precautions are necessary for all cases until 24 hours of effective therapy completed.**

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2013.

Table 7. Gonorrhea. Neonates born to women infected with gonorrhea

Preferred treatment: Ceftriaxone 25-50 mg/kg IM in a single dose (maximum dose of 125 mg)
Important notes: • Prophylactic treatment for possible chlamydial co-infection is not recommended unless follow-up cannot be assured. Testing should be done for Chlamydia and if results are positive, treatment should be provided as per Chlamydia section.

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2013.

Table 8. Gonorrhea. Neonates with disseminated gonococcal arthritis, meningitis or endocarditis.

Preferred treatment: Cefotaxime 50 mg/kg IV/IM q6h for 10-14 days$^{\Psi}$
Important notes: • **Hospitalization and consultation with an expert in infectious diseases should be initiated as soon as possible.** • Prophylactic treatment for possible chlamydial co-infection is not recommended unless follow-up cannot be assured. Testing should be done for chlamydia and if results are positive, treatment should be provided as per *Chlamydia* section.

Source: Adapted from Public Health Agency of Canada, Gonococcal Infections Revised July 2013.

Footnotes:

[*] Cefixime and ceftriaxone should not be given to persons with a cephalosporin allergy or a history of immediate and/or anaphylactic reactions to penicillins.

[†] The preferred diluent for ceftriaxone is 1% lidocaine without epinephrine (0.9 mL/250 mg, 0.45 mL/125 mg) to reduce discomfort.

[‡] **Alternate combination therapy:** Azithromycin 1 g PO is preferred over the alternative of doxycycline 100 mg PO bid X 7 days, due to significant rates of tetracycline-resistant gonorrhea and concerns regarding compliance with a 7-day treatment regimen. **Doxycycline is contraindicated in pregnant and breastfeeding women.**

[§] There is scientific evidence that cefixime 800 mg is safe and effective in treating gonococcal infections. Pharmacodynamic studies have shown that 800 mg of cefixime compared to 400 mg, increases the period when the free drug concentration exceeds the MIC. Therefore, a dosage of 800 mg may be more effective than the previously recommended 400 mg at reducing the risk of gonococcal treatment failure in settings of reduced cephalosporin susceptibility.

[Ψ] This is the usual duration of therapy but all cases should be discussed with an infectious diseases expert.

Revisions

Date	Change
September 2018	• Removed reference to Spectinomycin • Added Gentamicin as the alternate treatment • Removed reference to use of Azithromycin 2g as monotherapy. • Updated into new format of CDC Manual

Lymphogranuloma Venereum (LGV)

- In the absence of a contraindication, the following treatment options are recommended:

Table 1. LGV. Treatment of lymphogranuloma venereum

First Line	• Doxycycline 100 mg PO bid for 21 days
Alternative	• Erythromycin 500 mg PO qid for 21 days*
Possible	• Azithromycin 1 g PO once weekly for 3 weeks†

Source: Canadian Guidelines on Sexually Transmitted Infections 2010.

*Erythromycin dosage refers to the use of erythromycin base. Equivalent dosages of other formulations may be substituted (with the exception of the estolate formulation, which is contraindicated in pregnancy); erythromycin (NOT the estolate formulation) should be used in pregnancy.
†While some experts believe azithromycin to be effective in the treatment of LGV, clinical data are lacking.

- Clients should be followed until chlamydial tests are negative (test of cure) and the client has clinically recovered. Test of cure should be performed at 4 weeks after the completion of effective treatment.
- Testing for chancroid and donovanosis (granuloma inguinale) should also be considered especially if there has been travel to regions where these infections are endemic.
- Aspiration of buboes may help symptomatically; however, incision/drainage or excision of nodes is not helpful and may delay healing.
- Suspected cases should be treated (with appropriate antibiotic regimen) empirically for LGV while awaiting test results.

Syphilis

- In the absence of a contraindication, the following treatment options are recommended:

Table 1. Syphilis. Treatment: Non-pregnant adults

Stage	Preferred treatment[Ψ]	Alternative treatment for penicillin-allergic patients
All **non-pregnant adults who are not co-infected with HIV** • **Primary** • **Secondary** • **Early latent** (<1year duration)	Benzathine penicillin G 2.4 million units IM as a single dose[*]	• Doxycycline 100mg PO bid for 14 days **Alternative agents (only to be used in exceptional circumstances and should be discussed with the MHO)**[†] • Ceftriaxone 1 g IV or IM daily for 10 days
All non-pregnant adults • **Late latent** syphilis • **Latent** syphilis of unknown duration • **Cardiovascular syphilis** and other **tertiary syphilis** not involving the central nervous system	Benzathine penicillin G 2.4 million units IM weekly for 3 doses	• Consider penicillin desensitization • Doxycycline 100mg PO bid for 28 days **Alternative agents (only to be used in exceptional circumstances and should be discussed with the MHO)**[†] • Ceftriaxone 1 g IV or IM daily for 10 days
All adults • **Neurosyphilis**	Penicillin G 3-4 million units IV q4 h (16-24 million units/day) for 10-14 days	• Strongly consider penicillin desensitization followed by treatment with penicillin • Ceftriaxone 2 g IV/IM qd x 10-14 days

Stage	Preferred treatment[Ψ]	Alternative treatment for penicillin-allergic patients
Epidemiological treatment of sexual contacts in the preceding 90 days to primary, secondary and early latent syphilis[§]	Benzathine penicillin G 2.4 million units IM as a single dose.	See comment on Azithromycin[¥]

Source: Adapted from Canadian Guidelines on Sexually Transmitted Infections 2018.

[Ψ]Reports from some jurisdictions have indicated inappropriate use of short-acting benzylpenicillin (Penicillin G) (IM) for the treatment of infectious syphilis rather than long-acting Benzathine penicillin G (Bicillin-LA). Practitioners, pharmacists and purchasing agents should be aware of the similar names of these two products to prevent and avoid inappropriate and inadequate treatment. Long-acting benzathine penicillin achieves detectable serum levels of penicillin for 2-4 weeks in non-pregnant adults and is required to adequately treat infectious syphilis; short acting penicillin agents are not adequate for achieving cure.
[†]The efficacy data supporting the use of these agents is limited, and as such they should only be used in exceptional circumstances and when close patient follow-up is assured.
[*]Some experts recommend 3 weekly doses (total of 7.2 million units) of benzathine penicillin G in HIV infected individuals.
[§]If sexual contact is unreliable or unable to test, then epidemiological treatment should be strongly considered. Epidemiological treatment should be strongly considered in these individuals; even if more than 30 days after exposure (see -Management of Contacts – below).
[¥]Azithromycin In light of recent reports of failure of azithromycin for the treatment of early syphilis and the rapid development of azithromycin resistance in *T. pallidum*, this agent should not be routinely used as a treatment option for early or incubating syphilis unless adequate and close follow up can be ensured, and only in jurisdictions where little to no azithromycin genotypic resistance in *T. pallidum* has been demonstrated. It should be noted, however, that at the present time, very limited Canadian data on the prevalence of Azithromycin resistance in *T. pallidum* is available, with 1 of 47 specimens between 2000-2003 as compared with 4 of 9 specimens from MSM in 2004-2005 collected in Vancouver demonstrating resistance. A recent analysis of specimens from Alberta showed that 4 of 14 syphilis cases between February 2007 and January 2008 were azithromycin resistant; all cases were in MSM except for one neonate with congenital syphilis whose father acquired syphilis outside of Canada.

Table 2. Syphilis. Treatment: Pregnant women

Stage	Preferred treatment[Ψ]	Alternative treatment for penicillin-allergic patients
Pregnant women • **Primary** • **Secondary** • **Early latent** (<1year duration)	Benzathine penicillin G 2.4 million units IM weekly for 1-2 doses[*¥]	• There is no satisfactory alternative to penicillin for the treatment of syphilis in pregnancy; insufficient data exist to recommend ceftriaxone in pregnancy. • Strongly consider penicillin desensitization followed by treatment with penicillin
Pregnant women • **Late latent** syphilis • **Latent** syphilis of unknown duration • **Cardiovascular syphilis** and other **tertiary syphilis** not involving the central nervous system	Benzathine penicillin G 2.4 million units IM weekly for 3 doses	

Source: Adapted from Canadian Guidelines on Sexually Transmitted Infections 2018.

[Ψ]Reports from some jurisdictions have indicated inappropriate use of short-acting benzylpenicillin (Penicillin G) (IM) for the treatment of infectious syphilis rather than long-acting Benzathine penicillin G (Bicillin-LA). Practitioners, pharmacists and purchasing agents should be aware of the similar names of these two products to prevent and avoid inappropriate and inadequate treatment. Long-acting benzathine penicillin achieves detectable serum levels of penicillin for 2-4 weeks in non-pregnant adults and is required to adequately treat infectious syphilis; short acting penicillin agents are not adequate for achieving cure.

[*]Some experts recommend 3 weekly doses (total of 7.2 million units) of benzathine penicillin G in HIV infected individuals.

[¥]Given the complexity of accurately staging early syphilis, some experts recommend that primary, secondary and early latent cases in pregnancy be treated with 2 doses of benzathine penicillin G 2.4 million units 1 week apart; the efficacy of this regimen in preventing fetal syphilis is not known.