

Ontario Public Health Standards:
Requirements for Programs, Services and Accountability

Infectious Disease Protocol

Appendix 1: Case Definitions and Disease- Specific Information

Disease: Syphilis

Effective: May 2022

Syphilis

Communicable

Virulent

[Health Protection and Promotion Act \(HPPA\)](#)

[Ontario Regulation \(O. Reg.\) 135/18 \(Designation of Diseases\)](#)

Provincial Reporting Requirements

Confirmed case

Probable case

As per Requirement #3 of the "Reporting of Infectious Diseases" section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- [O. Reg. 569](#) (Reports) under the HPPA;¹
- The iPHIS User Guides published by Public Health Ontario (PHO); and
- Bulletins and directives issued by PHO.

Type of Surveillance

Case-by-case

Case Definition

Confirmed Case

Confirmed Case-Primary Syphilis

Laboratory confirmation of infection:

- Identification of *Treponema Pallidum* (*T. pallidum*) by dark-field microscopy, direct fluorescent antibody microscopy, nucleic acid amplification test (NAAT), 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 (NTT) reactivity, in individuals with no previous history of syphilis;

OR

- Presence of one or more typical lesions (chancres) and a significant (i.e., fourfold or greater) rise in the titre over the last known NTT in individuals with a past history of appropriate syphilis treatment.

Confirmed Case-Secondary Syphilis

Laboratory confirmation of infection:

- Identification of *T. pallidum* by dark-field microscopy, direct or indirect fluorescent antibody microscopy, NAAT or equivalent examination of mucocutaneous lesions, condylomata lata and reactive serology (non-treponemal and treponemal)

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 either a reactive serology (non-treponemal and treponemal) or a significant (i.e., fourfold or greater) rise in titre of an NTT.

Confirmed Case-Early Latent Syphilis (<1 year after infection)

Laboratory confirmation of infection:

- An asymptomatic patient with reactive serology (treponemal and/or non-treponemal) * who within the past 12 months had one of the following:
 - Non-reactive serology;
 - Previous signs/symptoms suggestive of primary or secondary syphilis;
or
 - Exposure to a sexual partner with primary, secondary or early latent syphilis.

Confirmed Case-Late Latent Syphilis (>1 year after infection) or of Unknown Duration of Infection)

Laboratory confirmation of infection:

- An asymptomatic patient with reactive serology (treponemal and/or nontreponemal) who does not meet the criteria for early latent disease;

AND one of the following:

- who has not been previously treated adequately for syphilis;

OR

- has a prior history of syphilis and a significant (i.e., fourfold or greater) rise in titre of an NTT > 12 months ago.

***Note:** If the individual has a prior history of adequate syphilis treatment, their reactive serology should include a significant (i.e., fourfold or greater) rise in titre of an NTT in the last 12 months.

Confirmed Case-Neurosyphilis

Infectious (<1 year after infection)

Laboratory confirmation of infection:

- Fits the criteria in case definitions for Primary, Secondary OR Early Latent Syphilis above;

AND one of the following:

- Reactive cerebrospinal fluid – venereal diseases research laboratory (CSFVDRL) in non-bloody cerebrospinal fluid (CSF);

OR

- Clinical evidence of neurosyphilis and either elevated CSF leukocytes or elevated CSF protein in the absence of other known causes.

Non-infectious (>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 CSF;

OR

- Clinical evidence of neurosyphilis and either elevated CSF leukocytes or elevated CSF protein in the absence of other known causes.

Confirmed Case-Early Congenital Syphilis (within 2 years of birth)

Laboratory confirmation of infection:

- Identification of *T. pallidum* by dark-field microscopy, direct fluorescent antibody microscopy, NAAT or equivalent examination of material from nasal discharges, skin lesions, placenta, umbilical cord or autopsy material of a newborn (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;

OR

- Detection of *T. pallidum* deoxyribonucleic acid (DNA) in an appropriate clinical specimen.

Confirmed Case-Tertiary Syphilis Other than Neurosyphilis

Laboratory confirmation of infection:

- Reactive treponemal serology (regardless of NTT reactivity) together with characteristic late 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 considered diagnostic.);

AND

- No clinical or laboratory evidence of neurosyphilis.

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2018* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified, if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.*, confirmed and/or probable).

Clinical Information

Clinical Evidence

A clinical consultation is necessary for diagnosis.

Primary syphilis is characterized by one or more superficial ulcerations or chancres, which may differ considerably in clinical appearance, at site of exposure and regional lymphadenopathy. The primary lesion usually appears three weeks after exposure.

Secondary syphilis generally develops following resolution of primary lesion though the primary ulcerative lesion may still be present. It is characterized by macular, maculopapular or papular lesions or a rash, typically involving the trunk, palms, and soles, generalized lymphadenopathy, fever, sore throat, malaise and mucosal lesions. A small number of cases may experience alopecia, meningitis, headaches, uveitis and retinitis.

Latent syphilis is serological evidence of infection in the absence of symptoms.

Tertiary syphilis is rare, may manifest as gummas of the skin, musculoskeletal system, or internal organs, with cardiovascular and neurological involvement, and typically is not infectious.

During secondary, latent and tertiary stages of syphilis, the central nervous system (CNS) can be infected causing neurosyphilis.⁴ Individuals with neurosyphilis can be asymptomatic or experience headache, vertigo, dementia, changes to their personality, and ataxia. Co-infection with HIV increases the risk of development of neurosyphilis.

Early congenital syphilis can result in stillbirth, hydrops fetalis or preterm birth, as well as other systemic complications within the first 4-8 weeks of life.

Clinical Presentation

An acute and chronic treponemal disease characterized clinically by a primary lesion, a secondary eruption involving skin and mucous membranes, long periods of

latency, and late lesions of skin, bone, viscera, the central nervous system (CNS) and cardiovascular system.²

Syphilis infection progresses through four stages if left untreated: primary, secondary, latent and tertiary.³ Latent syphilis is further defined as follows:^{4,5}

- Early latent syphilis, latent syphilis acquired within the preceding year, and
- Late latent syphilis, all other cases of latent syphilis.

Late latent syphilis or syphilis of unknown duration if left untreated can progress to tertiary syphilis.^{2,5}

Primary, secondary, and early latent syphilis are considered infectious.⁴

Symptoms and signs of syphilis may be modified in the presence of HIV co-infection. Persons co-infected with HIV may require a longer course of treatment.⁴

Congenital syphilis, contracted from an infected mother (in infectious or latent stages) via transplacental transmission or at the time of delivery, can result in stillbirth, hydrops fetalis or preterm birth, as well as other systemic complications within the first 4-8 weeks of life. Untreated infants, regardless of whether they were symptomatic in early infancy may develop late manifestations that appear by 2 years of age.^{2,5}

Laboratory Evidence

Laboratory Confirmation

Any of the following will constitute a confirmed case of syphilis:

- Detection of *T. pallidum* or its DNA by validated methods;
- Reactive non-treponemal and treponemal serology;
- Reactive treponemal serology regardless of non-treponemal serology in persons with no previous history of syphilis; or
- A significant (i.e., fourfold or greater) rise in non-treponemal titre.

Approved/Validated Tests

- Dark-field/direct fluorescent antibody microscopy for *T. pallidum*;
- Non-treponemal tests (rapid plasma reagin [RPR], VDRL);
- Treponemal tests (treponema pallidum particle agglutination [TP-PA], chemiluminescent immunoassay [CLIA], fluorescent treponemal antibody absorbed [FTA-ABS]); and
- NAAT for *T. pallidum*.

Indications and Limitations

- Diagnosis of syphilis requires a combination of history including epidemiologic risk factors or exposure, physical examination, and laboratory tests as there is no single optimum diagnostic criterion;
- Dark-field microscopy testing for *T. pallidum* is not reliable for oral/rectal lesions, as non-pathogenic treponemas may be present. Instead, direct fluorescent antibody test for *T. pallidum* should be used on such specimens;
- Reliability of serological tests depends on the type of test and stage of disease;
- NTTs have reduced sensitivity in primary syphilis and late latent syphilis; and
- Persons from endemic countries infected with other treponemas such as yaws, pinta and bejel can cause biological false positive serological results.

For further information about human diagnostic testing, contact the [Public Health Ontario Laboratories](#).

Case Management

In addition to the requirements set out in the Requirement #2 of the “Management of Infectious Diseases – Sporadic Cases” and “Investigation and Management of Infectious Diseases Outbreaks” sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of infection. Refer to Provincial Reporting Requirements above for relevant data to be

collected during case investigation.

Case management should also consider the [Provincial Infectious Diseases Advisory Committee \(PIDAC\) Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations](#) (2009, or as current).

Management depends on the stage of syphilis infection (refer to the resources listed below). Cases should refrain from sexual activity until treatment is completed and symptoms disappear.

If applicable, identify and treat sexual contacts, provide education about the infection and methods of preventing further spread and encourage testing for HIV and other STIs.

Treatment, follow-up, repeat serology and the management of complications, determined as per attending health care provider; refer to the [Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018](#) (or as current) for a list of publicly funded STI medications, and the [Canadian Guidelines on Sexually Transmitted Infections](#), for treatment recommendations.⁴

Contact Management

To help prevent (re)infection, partners need to be assessed, tested, treated, and counselled appropriately. For recommendations on contact management refer to PIDAC Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations (2009, or as current) and the Canadian Guidelines on Sexually Transmitted Infections.⁴

For contact management of cases refer to the *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current).

Outbreak Management

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

Prevention and Control Measures

Personal Prevention Measures

Measures:

- Education about safer sex practices including use of barrier methods;
- Early detection of infection by screening of people at risk;
- Effective treatment of persons with infectious syphilis and their contacts; and
- Prenatal screening for syphilis should continue to be recommended as one of the routine tests provided during a prenatal workup.²

For more information on prevention measures refer to the ministry document: the *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current), and the references listed below.

Infection Prevention and Control Strategies

Refer to [PHO's website](#) to search for the most up-to-date information on Infection Prevention and Control (IPAC).

Disease Characteristics

Aetiologic Agent - The spirochete *Treponema pallidum* (*T. pallidum*), subspecies *pallidum* is the infective agent.²

Modes of Transmission - The primary mode of transmission is by sexual contact, including vaginal, oral and anal sex.² Kissing (oral-oral contact), sharing of needles and injection equipment, blood transfusion, accidental inoculation (e.g., needle stick injury) and solid organ transplantation have rarely been reported as routes of transmission.⁴

Transmission of syphilis from an infected mother to her infant can occur before or at the time of birth. Mother to fetus is most probable during early maternal syphilis but can occur throughout the latent period. Infected infants may have moist mucocutaneous lesions that are more widespread than in adult syphilis and are a

potential source of infection.² Breastfeeding by mothers with primary or secondary lesions of syphilis carries a theoretical risk of transmission of syphilis to the baby.⁴

Incubation Period – From 10 days to 3 months; usually 3 weeks.²

Period of Communicability - Communicability exists when moist mucocutaneous lesions of primary and secondary syphilis are present.² Primary, secondary and early latent stages are considered infectious, with an estimated risk of transmission per partner of around 60%. Direct (often intimate) contact with lesions of primary and secondary syphilis poses the greatest risk of transmission. Early latent syphilis is considered infectious because of the 25% chance of relapse to secondary stage.⁴

Reservoir - Humans.²

Host Susceptibility and Resistance - Universal susceptibility; approximately 30% of exposures result in infection.² Untreated infection leads to gradual development of immunity against *T. palladium*. Patients treated during the primary and secondary stages do not typically develop immunity and therefore are susceptible to reinfection.²

Please refer to [PHO's Reportable Disease Trends in Ontario](#) reporting tool and other reports for the most up-to-date information on infectious disease trends in Ontario.

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.

References

1. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: <https://www.ontario.ca/laws/regulation/900569>
2. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

3. Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2018 [cited May 15, 2018]. Available from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines.html>
4. Committee on Infectious Diseases, American Academy of Pediatrics. Section 3: Summaries of Infectious Diseases: Syphilis. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, editors. Red Book: 2018 Report of the Committee on Infectious Diseases. 31 ed. Itasca, IL: American Academy of Pediatrics; 2018.
5. Government of Canada. Syphilis [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2015 [updated July 29, 2015; cited July 27, 2018]. Available from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/syphilis.html>

Case Definition Sources

Centers for Disease Control and Prevention. National Notifiable Disease Surveillance System: Syphilis (*Treponema pallidum*) - 2018 Case Definition [Internet]. Atlanta, GA: U.S. Department of Health & Human Services; 2018 [cited February 23, 2018]. Available from: [Syphilis \(*Treponema pallidum*\) 2018 Case Definition | CDC](#)

Public Health Agency of Canada. Syphilis. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009;35S2.

Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2018 [cited May 15, 2018]. Available from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines.html>

Document History

Revision Date	Document Section	Description of Revisions
April 2022	Entire Document	New template. Appendix A and B merged. No material content changes.
April 2022	Epidemiology: Occurrence section	Removed.
April 2022	ICD Codes	Removed.