

Appendix A: Disease-Specific Chapters

Chapter: Syphilis

Effective: February 2019

Syphilis

Communicable

Virulent

**Health Protection and Promotion Act:
O. Reg. 135/18 (Designation of Diseases)**

1.0 Aetiologic Agent

The spirochete *Treponema pallidum* (*T. pallidum*), subspecies *pallidum* is the infective agent.¹

2.0 Case Definition

2.1 Surveillance Case Definition

Refer to [Appendix B](#) for Case Definitions.

2.2 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).

3.0 Identification

3.1 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.¹

Syphilis infection progresses through four stages if left untreated: primary, secondary, latent and tertiary.²

- 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.¹

- 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.¹ A small number of cases may experience alopecia, meningitis, headaches, uveitis and retinitis.³
- Latent syphilis is serological evidence of infection in the absence of symptoms and is further defined as follows:^{3,4}
 - 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.^{1,4}

- 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.^{1,3}

During secondary, latent and tertiary stages of syphilis, the CNS can be infected causing neurosyphilis.⁴ Individuals with neurosyphilis can be asymptomatic or experience headache, vertigo, dementia, changes to their personality, and ataxia.³ Co-infection with HIV increases the risk of development of neurosyphilis.^{1,4}

Primary, secondary, and early latent syphilis are considered infectious.³

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.³

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.^{1,4}

3.2 Diagnosis

See [Appendix B](#) for diagnostic criteria relevant to the Case Definitions.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx>

4.0 Epidemiology

4.1 Occurrence

Worldwide; in developed countries, syphilis is usually more prevalent in urban than rural areas.¹ In developed countries, the rate of infectious syphilis is increasing in both males and females, but more so in males.⁵

From 2010-2015, the rate of infectious syphilis in Canada increased by 85.6%, from 5.0 to 9.3 cases per 100,000 population. The rate also rose faster among males in 2010-2015, a 90.2% increase versus 27.8% among females.⁵ In recent years, localized outbreaks of infectious syphilis have been reported in a number of locations in Ontario including Toronto and Ottawa. The majority of these outbreaks have been in men who have sex with men (MSM) and other outbreaks related to sex trade but some have been locally acquired infections in heterosexual persons not fitting into one of these categories.³

In Ontario, syphilis has recently been more prevalent among men who have sex with men (MSM), with transmission occurring through oral and anal contact. Overall, syphilis rates were declining in Ontario until 2002 when rates began to climb.

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

<http://www.publichealthontario.ca/en/DataAndAnalytics/Pages/DataReports.aspx>

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

4.2 Reservoir

Humans.¹

4.3 Modes of Transmission

The primary mode of transmission is by sexual contact, including vaginal, oral and anal sex.¹ 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.³

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.¹ Breastfeeding by mothers with primary or secondary lesions of syphilis carries a theoretical risk of transmission of syphilis to the baby.³

4.4 Incubation Period

From 10 days to 3 months; usually 3 weeks.¹

4.5 Period of Communicability

Communicability exists when moist mucocutaneous lesions of primary and secondary syphilis are present.¹ 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.³

4.6 Host Susceptibility and Resistance

Universal susceptibility; approximately 30% of exposures result in infection.¹ 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.¹

5.0 Reporting Requirements

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:

- *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);⁶
- The iPHIS User Guides published by PHO; and
- Bulletins and directives issued by PHO.

6.0 Prevention and Control Measures

6.1 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.¹

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.

6.2 Infection Prevention and Control Strategies

Refer to PHO’s website at www.publichealthontario.ca to search for the most up-to-date information on Infection Prevention and Control.

6.3 Management of Cases

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 Section 5: Reporting Requirements above for relevant data to be collected during case investigation.

Case management should also consider the 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.³

6.4 Management of Contacts

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.³

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

6.5 Management of Outbreaks

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.

7.0 References

1. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

2. 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/diseases/syphilis.html>
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/sexually-transmitted-infections.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. Choudhri Y, Miller J, Sandhu J, Leon A, Aho J. Infectious and congenital syphilis in Canada, 2010–2015. Canada Communicable Disease Report. 2018;44(2):43-8.
6. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: <https://www.ontario.ca/laws/regulation/900569>

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
December 2014	General	<p>New template.</p> <p>Title of Section 4.6 changed from “Susceptibility and Resistance” to “Host Susceptibility and Resistance”.</p> <p>Title of Section 5.2 changed from “To Public Health Division (PHD)” to “To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry”.</p> <p>Section 9.0 Document History added.</p>
December 2014	2.2 Outbreak Case Definition	<p>Changed from “Not applicable” to “The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the provincial surveillance case definition and the following criteria when establishing an outbreak case definition....”</p>
December 2014	3.1 Clinical Presentation	<p>Entire section revised.</p>

Revision Date	Document Section	Description of Revisions
December 2014	3.2 Diagnosis	Addition of direction to contact Public Health Ontario Laboratories or PHO website for additional information on human diagnostic testing.
December 2014	4.1 Occurrence	New paragraph started at "In Ontario...". New paragraph changed from "Overall, syphilis rates were declining in Ontario until 2002 when rates began to climb among MSM with the highest reported rates occurring among men in the 30-39 age range" with "Overall, syphilis rates were declining in Ontario until 2002 when rates began to climb particularly among MSM. The highest reported rates between 2007 and 2012 occurred among men in the 40-44 age range". Last paragraph deleted.
December 2014	4.3 Modes of Transmission	Addition of second paragraph regarding transmission of syphilis from mother to fetus.
December 2014	4.4 Incubation Period	Changed from "10 to 3 months" to "10 days to 3 months".
December 2014	5.1 To Local Board of Health	The following was deleted: "Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990." And replaced with: "Individuals who have or may have syphilis shall be reported as soon as possible to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990 (HPPA).

Revision Date	Document Section	Description of Revisions
December 2014	5.2 To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry	The following removed from the end of the first paragraph: “to PHD”. Under the third paragraph the second bullet changed from: “The disease-specific User Guides published by the Ministry” to “The iPHIS User Guides published by PHO”. Under the third paragraph the end of the last bullet changed from: “the Ministry” to “PHO”.
December 2014	6.1 Personal Prevention Measures	Second bullet: “testing” changed to “screening”. Third bullet “transmissible” changed to “infectious”.
December 2014	6.2 Infection Prevention and Control Strategies	Entire section revised.
December 2014	6.3 Management of Cases	Entire section revised.
December 2014	6.4 Management of Contacts	Entire section revised.
December 2014	6.5 Management of Outbreaks	Deletion of “not applicable” and insertion of all new content.
December 2014	7.0 References	Updated.
December 2014	8.0 Additional Resources	Updated.
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance. Common text included in all Disease Specific chapters: Surveillance Case Definition, Outbreak Case Definition, Diagnosis, Reporting Requirements, Management of Cases, and Management of Outbreaks. The epidemiology section and references were updated and Section 8.0 Additional Resources was deleted.

Revision Date	Document Section	Description of Revisions
February 2019	3.1 Clinical Presentation	Minor revisions to the entire section. Second last paragraph added: "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."
February 2019	4.1 Occurrence	Entire section revised.
February 2019	4.3 Modes of Transmission	First paragraph revised.
February 2019	4.5 Period of Communicability	Entire section revised.
February 2019	4.6 Host Susceptibility and Resistance	Added: "Untreated infection leads to gradual development of immunity against <i>T. palladium</i> . Patients treated during the primary and secondary stages do not typically develop immunity and therefore are susceptible to reinfection."
February 2019	6.4 Management of Contacts	First sentence added: "To help prevent (re)infection, partners need to be assessed, tested, treated, and counselled appropriately."

