Appendix A: Disease-Specific Chapters

Chapter: Leprosy

Revised January 2014
Leprosy

Communicable

Virulent

Health Protection and Promotion Act, Section 1 (1)

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1.0 Aetiologic Agent

*Mycobacterium leprae* (*M. leprae*) is the bacterium which causes leprosy. It is an obligate intracellular, acid-fast bacillus that can be Gram-stain variable.¹

1.1 Surveillance Case Definition

See Appendix B

1.2 Outbreak Case Definition

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:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed; and,
4. Special attributes of cases (e.g., age, underlying conditions).

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

2.0 Identification

2.1 Clinical Presentation

A chronic bacterial disease characterized by the involvement primarily of skin as well as peripheral nerves and the mucosa of the upper airway. Clinical forms of the disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease:²,¹

- Tuberculoid: one or a few well-demarcated, hypopigmented and anesthetic skin lesions, frequently with active spreading edges and a clearing centre; peripheral nerve swelling or thickening also may occur;
• Lepromatous: a number of erythematous papules, plaques, or nodules or an infiltration of the face, hands and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin;
• Borderline (dimorphous): skin lesions characteristic of both the tuberculoid and lepromatous forms; and
• Indeterminate: early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features.

2.2 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

3.0 Epidemiology

3.1 Occurrence
More common in tropical and subtropical areas.²

Transmission within Canada has not been documented however, cases of leprosy are imported from areas of endemicity regularly.³ In Ontario between 2008 and 2012, an average of three leprosy cases was reported each year.

For more information on infectious diseases activity in Ontario, refer to the current versions of the Ontario Annual Infectious Diseases Epidemiology Reports and the Monthly Infectious Diseases Surveillance Report.⁴,⁵

3.2 Reservoir
Humans.²

3.3 Modes of Transmission
The mode of transmission remains unclear. Likely transmitted from nasal mucosa of an infected person to the skin and respiratory tract of another person via droplets, from the nose and mouth, during close and frequent contact with untreated cases.¹

3.4 Incubation Period
Nine (9) months to 20 years with the average incubation period probably 4 years for tuberculoid leprosy and 8 years for lepromatous leprosy.²

3.5 Period of Communicability
Clinical and laboratory evidence suggest that infectiousness is lost in most instances within a day of treatment with multidrug therapy.²
3.6 Host Susceptibility and Resistance

Infection among close contacts of cases is frequent, however clinical disease occurs only in a small proportion of those infected; the form of leprosy depends on the ability to develop cell-mediated immunity. It is important to understand that only 5% of individuals worldwide are susceptible to disease from *M. leprae*.

4.0 Reporting Requirements

4.1 To local Board of Health

Individuals who have or may have leprosy 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 (HPPA).

4.2 To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry

Report only case classifications specified in the case definition.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases and Outbreaks.

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the HPPA;
- The disease-specific User Guides published by PHO; and,
- Bulletins and directives issued by PHO.

5.0 Prevention and Control Measures

5.1 Personal Prevention Measures

The best preventative measure is early diagnosis and treatment of cases. Health education should stress the availability of effective multidrug therapy, the non-infectivity of persons under continuous treatment and the importance of completing treatment. The Ministry provides medications at no cost for the treatment of leprosy cases and contacts.

5.2 Infection Prevention and Control Strategies

If hospitalized, routine practices are indicated. Hand hygiene is recommended for all people in contact with a case, as well as disinfection of nasal secretions, handkerchiefs and other fomites, until treatment is established.

Refer to Public Health Ontario’s website at www.publichealthontario.ca to search for the most up-to-date Provincial Infectious Diseases Advisory Committee (PIDAC) best practices on Infection Prevention and Control (IPAC). PIDAC best practice documents can be found at:

5.3 Management of Cases

Investigate the case to determine source of infection.

Public health intervention is minimal especially after initiation of treatment when communicability is low; no restrictions in employment or attendance at school are indicated for persons whose disease is regarded as non-infectious.

Treatment should be under the direction of an infectious disease specialist, refer to World Health Organization (WHO) treatment recommendations. As above, medications are provided at no cost in Ontario through the Ministry, Public Health Division, Public Health Policy and Programs Branch.

5.4 Management of Contacts

Contacts are defined as persons who have been in close, continuous household contact for a month or more within 5 years prior to diagnosis or during any period of inadequate treatment. Persons residing with cases in areas of endemicity are particularly vulnerable.

Initial examination of contacts should take place, and then periodic examination of household and other close contacts for skin lesions is recommended annually for up to five years after the last contact with an infectious case.

5.5 Management of Outbreaks

Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak. As per the Infectious Diseases Protocol, 2008 (or as current) outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report; and
- Declare the outbreak over in collaboration with the outbreak team currently reviewing them.

6.0 References


7.0 Additional Resources


# 8.0 Document History

## Table 1: History of Revisions

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Document Section</th>
<th>Description of Revisions</th>
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<tr>
<td>January 2014</td>
<td>General</td>
<td>New template.</td>
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<tr>
<td></td>
<td></td>
<td>Title of Section 3.6 changed from “Susceptibility and Resistance” to “Host Susceptibility and Resistance”</td>
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<td>Title of Section 4.2 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”</td>
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<td>Section 8.0 Document History added.</td>
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<tr>
<td>1.2 Outbreak Case Definition</td>
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<td>Entire section revised.</td>
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<tr>
<td>2.1 Clinical Presentation</td>
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<td>First paragraph, second bullet changed from “Lepromatous: a number of erythematous papules and nodules or an infiltration of the face, hands and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin” to “Lepromatous: a number of erythematous papules, plaques, or nodules or an infiltration of the face, hands and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin”</td>
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<td>2.2 Diagnosis</td>
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<td>3.1 Occurrence</td>
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<td>First paragraph, removed “Leprosy is rare in Ontario with few cases having been reported over the past decade.”</td>
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<td>Second paragraph, addition of second and third sentence “Transmission within Canada has not been documented however, cases of leprosy are imported from areas of endemicity regularly. In Ontario between 2008 and 2012, an average of three leprosy cases was reported each year.”</td>
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<td>3.3 Modes of Transmission</td>
<td>First paragraph changed from “The mode of transmission remains unclear but it is not highly communicable.” to “The mode of transmission remains unclear.”</td>
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<tr>
<td>3.6 Host Susceptibility and Resistance</td>
<td>Addition of second sentence “It is important to understand that…”</td>
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<tr>
<td>5.2 Infection Prevention and Control Strategies</td>
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<tr>
<td>5.3 Management of Cases</td>
<td>First paragraph, removed second sentence and bullet points. Third paragraph changed from “Treatment recommended by World Health Organization (WHO) for lepromatous leprosy is triple therapy with rifampin, dapsone and clofazimine for twelve months and should be under the direction of an infectious disease specialist. As above, medications are provided at no cost in Ontario.” To “Treatment should be under the direction of an infectious disease specialist, refer to World Health Organization (WHO) treatment recommendations. As above, medications are provided at no cost in Ontario through the Ministry, Public Health Division, Public Health Policy and Programs Branch.”</td>
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