

Appendix A: Disease-Specific Chapters

Chapter: Giardiasis, except asymptomatic cases

Giardiasis, except asymptomatic cases

- Communicable
 Virulent

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) Aetiologic Agent:	Giardiasis is caused by the protozoa, <i>Giardia lamblia</i> (also known as <i>G. intestinalis</i> or <i>G. duodenalis</i>). The organism is found in two forms, a pear-shaped trophozoite and an ovoid cyst . The trophozoite is relatively fragile, and dies when excreted from the body. The cyst form, which is environmentally resistant, thrives in warm, still bodies of water such as ponds and stagnant lakes (2). Additionally it can be found in fecal contaminated surfaces and food items.
2) Case Definition:	
Surveillance Case Definition	See Appendix B
Outbreak Case Definition	<p>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:</p> <ol style="list-style-type: none">1. Clinical, laboratory and/or epidemiological criteria;2. The time frame for occurrence;3. The geographic location(s) or place(s) where cases live or became ill/exposed, and4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent. <p>Cases may be classified by levels of probability (i.e. confirmed, probable or suspect).</p>
3) Identification:	
Clinical Presentation	<p>Infection is limited to the small intestine and biliary tract (3).</p> <p>Symptoms include chronic diarrhea, abdominal cramps and bloating, dehydration, frequent passing of loose pale greasy stools due to malabsorption of fats, fatigue and weight loss. Complications, such as arthritis and damage to cells, which line the intestine, can arise from prolonged infection (2). Asymptomatic infections may be present.</p>

Diagnosis	<p>See Appendix B</p> <p>Diagnosis is made by microscopic examination of fecal specimens for <i>G. lamblia</i> cysts or trophozoites, or by Giardia immunoassays for <i>G. lamblia</i> antigen. Three specimens taken 2-3 days apart will identify 80-90% of infections (1).</p>
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4) Epidemiology:

Occurrence	<p>The disease occurs worldwide. In Canada, the illness is common in institutions and daycare centers where children are not yet toilet trained. Children less than 5 years of age, and adults 25-39 years of age (usually the parents of these children) are at increased risk of infection (2). Infection can also be acquired by people with exposure to contaminated lakes and ponds.</p> <p>The greatest number of cases is reported in the warmer months of the year, such as July to October (2).</p> <p>Giardiasis is common in Ontario, with an average of over 1,600 cases occurring per year (2003 to 2007 iPHIS data).</p>
Reservoir	Humans, possibly beavers and other wild and domestic animals (1)
Modes of Transmission	Transmission is fecal-oral, most commonly through the ingestion of contaminated water or by direct person-to-person contact. Anal-oral contact and transmission through food vehicles and fecally contaminated recreational and drinking water may also occur (1).
Incubation Period	Usually 3 – 25 days or longer; median 7 – 10 days (1).
Period of Communicability	The disease is communicable as long as the infected person excretes cysts (3).
Susceptibility and Resistance	Most common in children less than 5 years of age and in adults 25-39 years of age; asymptomatic carrier rates are high; persons with AIDS may have more serious and prolonged illness (1).

5) Reporting Requirements:

To local Board of Health	Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <i>Health Protection and Promotion Act</i> , R.S.O. 1990.
To Public Health Division (PHD)	<p>Report only case classifications specified in the case definition to PHD 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 <i>iPHIS Bulletin</i> Number 17: Timely Entry of Cases (4).</p> <p>The minimum data elements to be reported for each case is specified in the following sources:</p>

	<ul style="list-style-type: none"> • <i>Ontario Regulation 569 (Reports)</i> under the Health Protection and Promotion Act (HPPA) • The disease-specific User Guides published by the Ministry, and • Bulletins and directives issued by the Ministry
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6) Prevention and Control Measures:

Personal Prevention Measures	<p>Prevention Measures:</p> <ul style="list-style-type: none"> • Education of families and personnel of day care centres on personal hygienic practices, such as hand washing before meals, after toilet use and changing diapers (3) • Where water might be contaminated, travelers, campers and hikers should be advised of methods to make water safe for drinking, including boiling, chemical disinfection and filtration (3) • Regular testing of private water supplies is advisable
Infection Prevention and Control Strategies	Routine practices are recommended for hospitalized cases.
Management of Cases	<p>Investigate cases of giardiasis to determine the source of infection. Refer to Section 5: <i>Reporting Requirements</i> above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:</p> <ul style="list-style-type: none"> • Symptoms and date of symptom onset • History of out-of-province or international travel including earliest and latest exposure dates • History of exposure to known sources of Giardia • Residency/attendance or employment at a facility or institution <p>Exclude symptomatic persons from food handling, care of hospitalized patients and from personal care homes and day care centres until 24 hours after diarrhoea has resolved.</p> <p>Cases should not use recreational water venues such as swimming pools, lakes and rivers for 2 weeks after symptoms resolve (3).</p> <p>Provide education about the illness, proper hand hygiene, proper food handling and how to prevent the spread of infection as above.</p> <p>Treatment is as prescribed by the attending health care provider.</p>
Management of Contacts	Household members and other suspected contacts should be assessed for symptoms. Provide information about the spread of infection and how to prevent it. Symptomatic contacts should be excluded from day care settings or high risk occupations such as health care and food handling and should be assessed by their health care provider.

<p>Management of Outbreaks</p>	<p>As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.</p> <p>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:</p> <ul style="list-style-type: none"> • 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, and • Prepare a written report.
<p>7) References</p>	<p>(1) Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public Health Association; 2004.</p> <p>(2) Notifiable Diseases On-Line [Internet]. Ottawa: Public Health Agency of Canada; 2003. Giardiasis; 2003 Dec 11 [cited 2008 Jul 22]. Available from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/diseases/giar_e.html.</p> <p>(3) Pickering LK, Baker CJ, Long SS, McMillan JA, editors. Red book: 2006 report of the Committee on Infectious Diseases. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006. Section 3, Summaries of infectious diseases; p. 296-301.</p> <p>(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</p>
<p>8) Additional Resources</p>	<p>Ministry of Health and Long-Term Care. Food safety protocol. Toronto: Queen’s Printer for Ontario; 2008. Available from http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/protocols/food_safety.pdf. (or as current)</p> <p>Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Food handlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).</p> <p>Gregg MB, editor. Field epidemiology. 2nd ed. New York: Oxford</p>

University Press; 2002.

Ministry of Health and Long-Term Care. Infectious diseases protocol. Toronto: Queen's Printer for Ontario; 2009. Available from http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/infdispro.html (or as current)

Health Protection and Promotion Act, R.S.O. 1990, c. H.7. Available from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm.

Ministry of Health and Long Term Care. Protocol for the investigation and control of Cryptosporidium and Giardia waterborne outbreaks. Toronto: Queen's Printer for Ontario; 1997. *Currently under revision*: Ministry of Health and Long Term Care. Investigation and control of Cryptosporidium and Giardia waterborne outbreaks guidance document. Toronto: Queen's Printer for Ontario; Forthcoming 2009.

