

Appendix A: Disease-Specific Chapters

Chapter: Shigellosis

Shigellosis

- 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:

Shigellosis is an acute bacterial disease, also known as bacillary dysentery caused by an anaerobic Gram-negative bacilli in the family Enterobacteriaceae. Four species with more than 40 serotypes have been identified (1, 2).

- A - *Shigella dysenteriae*
- B - *Shigella flexneri*
- C - *Shigella boydii*
- D - *Shigella sonnei*

Species A, B, and C are further classified into 12, 14, and 18 serotypes and subtypes, respectively.

The infectious dose for humans is low; as few as 10-100 bacteria have been shown to cause disease (1).

2) Case Definition:

Surveillance Case Definition

[See Appendix B](#)

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

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, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent.

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).

3) Identification:

Clinical Presentation:

An acute bacterial disease involving the distal small intestine and

	<p>colon, characterized by watery, loose stools, accompanied by fever, nausea and vomiting in mild cases. Sometimes, toxæmia, abdominal cramps and tenesmus with mucoid stools with or without blood in more severe cases (2). Illness is usually self-limiting, lasting an average of 4 – 7 days (1). Severity and case-fatality vary with the age of the host and the serotype of <i>Shigella</i> (1).</p>
Diagnosis	<p>See Appendix B</p> <p>Diagnosis is made by the isolation of <i>Shigella</i> spp. from feces or rectal swab. <i>Shigella</i> remains viable outside the body for only a short period of time, therefore specimens need to be processed rapidly after collection (1).</p> <p>More information on diagnostic testing is available in the Ministry of Health Long-Term Care, Public Health Laboratory. Specimen Collection Guide, Testing Guidelines, June 2008.</p>
4) Epidemiology:	
Occurrence	<p>Occurrence is worldwide (3). In developed countries, <i>S. sonnei</i> is the most commonly reported species. Between 2003 and 2007, an average of 270 cases of shigellosis occurred each year in Ontario.</p>
Reservoir	<p>Humans (1)</p>
Modes of Transmission	<p>Primary mode of transmission is fecal-oral. Transmission occurs through person-to-person contact, contact with contaminated inanimate objects, ingestion of contaminated food or water and through sexual contact (2). Direct transmission is common in children and from infected persons who do not thoroughly clean their hands and under fingernails following defecation. Indirect transmission is usually via contaminated food or water and less commonly via inanimate objects (1). Risk of transmission occurs particularly among men having sex with men and in areas of overcrowding where sanitation is poor, such as jails, institutions for children, daycare centres and mental hospitals. Multi-antibiotic resistant strains have appeared worldwide, resulting from wide spread use of antibiotics. Foodborne outbreak of shigellosis associated with an infected food handler has occurred in Ontario.</p>
Incubation Period	<p>Usually 1-3 days but may range from 12 - 96 hours and up to one week for <i>S. Dysenteriae</i> 1 (1).</p>
Period of Communicability	<p>Susceptibility is general; the elderly, the debilitated and the malnourished of all ages are particularly susceptible to severe disease and death (1).</p>
Susceptibility and Resistance	<p>During acute infection and until the infectious agent is no longer present in feces, usually within 4 weeks after illness. Secondary attack rates in households can be as high as 40% (1). Asymptomatic carriers may transmit infection (1). Appropriate antimicrobial treatment usually reduces duration of carriage to a few days (1).</p>

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 one (1) business day 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">• Ontario Regulation 569 (Reports) 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.

6) Prevention and Control Measures:

Personal Prevention Measures	<p>Preventive measures: (1, 2)</p> <ul style="list-style-type: none">• Practice good hygiene, especially hand washing, before food preparation and eating, and after using sanitary facilities;• The use of alcohol-based hand rubs may be effective where access to soap and clean water is limited;• Emphasize proper food handling practices including cold storage of salads and other foods that require refrigeration;• Use proper food handling techniques that minimize contamination;• Wash fresh fruits and vegetables using clean running water;• Follow proper diapering procedures, and• Educate the general public and especially travellers about consuming foods and beverages from unsafe sources.
Infection Prevention and Control Strategies	<p>Strategies:</p> <ul style="list-style-type: none">• Contact precautions are indicated for the duration of the illness in addition to routine practices for hospitalized cases;• Promote and emphasize frequent and proper hand washing with soap and water, and• Exclude infected persons from food handling and care giving in child care and health care settings, and from attending these settings.
Management of Cases:	Investigate cases of shigellosis to determine the source of infection. Refer to Section 5: <i>Reporting Requirements</i> above for relevant data

	<p>to be collected during case investigation.</p> <p>The following disease-specific information pertaining to the 3 days prior to onset should also be obtained during case management:</p> <ul style="list-style-type: none"> • Symptoms and date of symptom onset; • History of travel, including earliest and latest exposure dates; • Food and history of other exposures for the 3 day period prior to symptom onset; • Known exposure to an individual with signs and symptoms compatible with shigellosis, and • History of occupation involving susceptible populations, food handling, childcare and healthcare. • Identify close contacts (see definition below). • Educate the case regarding the transmission of infection and proper hand hygiene. <p>Treatment and follow up is under the direction of the attending health care provider.</p> <p>Exclusion Criteria:</p> <ul style="list-style-type: none"> • Exclude symptomatic and asymptomatic cases who are food handlers, care givers or daycare attendees until 2 successive negative stool samples or rectal swabs collected at least 24 hours apart AND at least 24 hours after cessation of symptoms OR 48 hours after completion of antibiotic therapy are found to be negative for <i>Shigella</i>.
<p>Management of Contacts</p>	<p>Contacts are household members of a case or persons who have had close contact with a case (3). Symptomatic contacts should be assessed by their health care provider and should be excluded from occupations as listed above for cases. Contacts should be instructed about disease transmission, appropriate personal hygiene, routine practices and contact precautions.</p>
<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.</p> <p>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;

	<ul style="list-style-type: none"> • 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.
<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) 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. 589-91.</p> <p>(3) Notifiable Diseases On-Line [Internet]. Ottawa: Public Health Agency of Canada; 2003. Shigellosis; 2003 Dec 11 [cited 2009 Feb 12]. Available from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/diseases/shig_e.html.</p> <p>(4) Ministry of Health and Long-Term Care. Timely entry of cases. <i>iPHIS Bulletin</i>. 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 Long Term-Care, Public Health Laboratories. Specimen collection guide: testing guidelines. Toronto: Queen’s Printer for Ontario; 2008. Available from http://www.health.gov.on.ca/english/providers/pub/labs/specimen_guide/testing_guidelines.pdf.</p> <p>Gregg MB, editor. Field epidemiology. 2nd ed. New York: Oxford University Press; 2002.</p> <p>Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, <i>Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers</i>, 1990 (Currently being revised as “<i>Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and Attendees</i>”)</p> <p><i>Health Protection and Promotion Act</i>, R.S.O. 1990, c. H.7. Available from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm.</p> <p>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</p>

	h_standards/ophis/infdipro.html (or as current)
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