

Appendix A: Disease-Specific Chapters

Chapter: Yersiniosis

Yersiniosis

- 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:	<p>Yersiniosis is caused by a Gram-negative enterobacteriaceae of the genus <i>Yersinia</i>. Two species, <i>Yersinia enterocolitica</i> (most common in Canada) and <i>Yersinia pseudotuberculosis</i>, are the causative agents of yersiniosis. <i>Y. enterocolitica</i> and <i>Y. pseudotuberculosis</i> should not be confused with <i>Y. pestis</i>, the causative agent of the plague.</p> <p><i>Y. enterocolitica</i> can multiply under refrigeration and microaerophilic conditions.</p>
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 in establishing an outbreak case definition:</p> <ol style="list-style-type: none">1. Clinical, laboratory and/or epidemiological criteria2. The time frame of occurrence3. The geographic location(s) or place(s) where cases live or became ill/exposed4. Special attributes of cases (e.g. age, underlying conditions and/or the aetiologic agent) <p>Cases may be classified by levels of probability (e.g. confirmed, probable or suspect).</p>
3) Identification:	
Clinical Presentation	<p><i>Yersinia enterocolitica</i> infections typically manifest as fever and diarrhea in young children. Stool often contains leukocytes, blood and mucus. In older children and adults a pseudo-appendicitis syndrome, with fever, abdominal pain, tenderness in the right lower quadrant of the abdomen and leukocytosis predominates (2).</p> <p><i>Yersinia pseudotuberculosis</i> presents with fever, scarlatini-form rash and abdominal symptoms and acute pseudo-appendiceal abdominal</p>

	<p>pain is common. Clinical features can mimic those of Kawasaki disease (2).</p> <p>Complications include post infection arthritis and systemic infections (2).</p>
Diagnosis	<p>See Appendix B</p> <p><i>Y. enterocolitica</i> and <i>Y. pseudotuberculosis</i> can be recovered from stool, throat swabs, mesenteric lymph nodes, peritoneal fluid, and blood. <i>Y. enterocolitica</i> also has been isolated from synovial fluid, bile, urine, cerebrospinal fluid, sputum and wounds (2). Stool cultures generally are positive during the first two weeks of illness (2).</p>

4) Epidemiology:

Occurrence	<p>Worldwide. <i>Y. pseudotuberculosis</i> is primarily a zoonotic disease of wild and domesticated birds and mammals. Globally, <i>Y. enterocolitica</i> is the species most commonly associated with human infection (1).</p> <p>Human cases have been reported in association with disease in household pets, particularly puppies and kittens (1) and this is also prevalent in Canada. Outbreaks, worldwide, have been associated with chocolate milk, tofu and pork chitterlings (1).</p> <p>Between 2003 and 2007, an average of over 320 cases occurred per year in Ontario.</p>
Reservoir	<p>The principal reservoir of <i>Y. enterocolitica</i> is swine (2).</p> <p><i>Y. pseudotuberculosis</i> is widespread among avian and mammalian hosts, particularly rodents and other small mammals (1).</p>
Modes of Transmission	<p>Fecal-oral transmission via contaminated food and water or by contact with infected people or animals such as puppies and kittens; raw pork and pork products are known sources of infection (1).</p>
Incubation Period	<p>Probably 3-7 days, generally less than 10 days (1).</p>
Period of Communicability	<p>Secondary transmission appears rare; fecal shedding occurs as long as symptoms persist, usually 2-3 weeks; if untreated, persons may shed 2-3 months; prolonged asymptomatic carriage has been reported (1).</p>
Susceptibility and Resistance	<p>Diarrhea is more severe in children; complications in adolescents and older adults are more severe and septicemia occurs more often in people with iron overload or immunosuppression (1).</p>

5) Reporting Requirements:

To local Board of Health	<p>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.</p>
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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 (3).</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</i> (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.
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6) Prevention and Control Measures:

Personal Prevention Measures	<p>Preventive measures:</p> <ul style="list-style-type: none"> • Ensure thorough cooking and safe handling of meats, especially pork • Use proper hand hygiene after using sanitary facilities, toileting and diapering, handling pets, and before and after handling food • Consume only pasteurized milk and milk products
Infection Prevention and Control Strategies	<p>Strategies: (2)</p> <ul style="list-style-type: none"> • Contact precautions are indicated for diapered or incontinent children and hospitalized cases for the duration of diarrheal illness • Cohort food preparation and child care responsibilities in relevant settings
Management of Cases	<p>Investigate cases of Yersiniosis to determine 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"> • Detailed exposure history (food and animal contact) • Educate cases about disease transmission and appropriate personal hygiene • Exclude symptomatic food handlers, healthcare staff and daycare staff and attendees until diarrhea free for 24 hours or 48 hours after completion of antibiotic therapy • Treatment is under the direction of the attending health care provider
Management of Contacts	<p>Assess household members for symptoms and if symptomatic advise to seek medical care. Management of symptomatic contacts is the same as for cases.</p>

<p>Management of Outbreaks</p>	<p>Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak.</p> <p>Two or more cases linked in time and place to a common exposure is suggestive of an outbreak</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; • 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) 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)</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. 732 – 734.</p> <p>(3) 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>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</i></p>

Attendees”)

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.
