

Appendix A: Disease-Specific Chapters

Chapter: Cholera

Cholera

- 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) Aetiologic Agent:	Cholera is caused by toxigenic strains of <i>Vibrio cholerae</i> , which is a gram-negative, curved, motile bacillus with many serogroups. Only serogroups O1, O139 and O141 cause clinical cholera associated with enterotoxin (2).
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 criteria2. The time frame for 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 aetiologic agent <p>Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).</p> <p>Note: Cholera is not endemic to Canada. However, clusters can occur among travellers returning from cholera endemic locales and among their household contacts if there is a high likelihood of secondary transmission.</p>
3) Identification:	
Clinical Presentation	Most persons infected with cholera do not become ill, although the bacterium is present in their feces for 7-14 days. When illness does occur, infection causes only mild or moderate diarrhea in roughly 90% of individuals. In 5-10% of cases, infected individuals develop severe, watery diarrhea and vomiting. Stools are typically colourless

	with flecks of mucous referred to as “rice water” diarrhoea (2). The resulting loss of fluids in an infected individual can rapidly lead to severe dehydration. If not treated, death can occur within hours (3).
Diagnosis	<p>See Appendix B</p> <p>Diagnosis is confirmed by laboratory isolation of <i>Vibrio cholerae</i>, serogroups O1 and O139 from feces or vomitus, or by serology for evidence of recent infection (1, 2).</p>

4) Epidemiology:

Occurrence	<p>Cholera is one of the oldest and best understood epidemic diseases. Epidemics and pandemics are strongly linked to the consumption of fecally contaminated water, poor hygiene, poor sanitation and crowded living conditions, such as in many developing countries in Asia and Africa (1).</p> <p>Cholera is not endemic to Canada: it is rare in Canada with just 27 reported cases since 1986. In Ontario, an average of one case has been reported per year in the last 5 years, with all cases due to travel to cholera endemic destinations outside Canada.</p>
Reservoir	Humans are the only documented natural hosts, but living <i>V. cholerae</i> organisms can exist in the aquatic environment (2).
Modes of Transmission	Ingestion of food or water contaminated with feces or vomitus of cases and occasionally feces of carriers; consumption of raw or improperly cooked seafood, and other foods harvested from estuarine water or seawater (1). Direct person-to-person transmission has not been documented (2).
Incubation Period	From a few hours to 5 days, usually 2-3 days (1).
Period of Communicability	For the duration of the stool-positive stage, usually until 2-3 days after recovery, however, carrier state may persist for months. Appropriate antibiotics can shorten the period of communicability, but are not recommended for treatment (1).
Susceptibility and Resistance	<p>Susceptibility is variable; gastric achlorhydria and the lack of immunity seen in small children may increase the risk of illness. Breastfed infants are protected. Cholera occurs more often in persons with blood type O (1).</p> <p>In endemic areas, most people acquire antibodies by early adulthood. Infection with O1 serogroup affords no protection against O139 infection and vice versa (1).</p>

5) Reporting Requirements:

To local Board of Health	Confirmed and suspected cases shall be reported immediately 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.
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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 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</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>Traveller education:</p> <ul style="list-style-type: none"> • Stress food and water precautions while travelling in endemic areas • Avoid eating raw oysters and undercooked shellfish and fish • Consult with a travel clinic regarding occurrence of cholera and vaccination recommendations • Disseminate general public health education messages about hand hygiene and food safety • Educate the general public and especially food handlers about careful hand washing after defecation, sexual contact and before preparing or eating food
Infection Prevention and Control Strategies	<p>Preventative strategies:</p> <ul style="list-style-type: none"> • Use routine practices and additional precautions for hospitalized cases, including contact precautions for diapered or incontinent persons for the duration of illness (2)
Management of Cases	<p>Investigate cases of cholera 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> <p>Epidemiological Investigation:</p> <ul style="list-style-type: none"> • Symptoms and date of symptom onset • History of travel • Food history for last 5 days • History of exposure or risk behaviours • Earliest and latest exposure dates • Residency/attendance/occupation at a facility or institution <p>Treatment is under the direction of the attending health care</p>

	<p>provider.</p> <p>Provide education about the illness and how to prevent the spread of infection as above.</p> <p>Exclude infected persons from high risk settings (food preparation, daycare and health care) until 24 hours after cessation of symptoms, and 48 hours after antibiotic therapy.</p>
Management of Contacts	<p>Meal companions in the 5 days before onset should be assessed for symptoms and advised to seek medical care if indicated. Chemoprophylaxis is indicated if the likelihood of secondary transmission among household contacts is high.</p>
Management of Outbreaks	<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; • Prepare a written report, and • Declare the outbreak over in collaboration with the outbreak team.
7) References	<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. 725-7.</p> <p>(3) Notifiable Diseases On-Line [Internet]. Ottawa: Public Health Agency of Canada; 2003. Cholera; 2003 Dec 11 [cited 2009 Feb 12]. Available from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/diseases/chol_e.html.</p> <p>(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</p>

8) Additional Resources

National Advisory Committee on Immunization. Canadian immunization guide. 7th ed. Ottawa: Public Health Agency of Canada; 2006. Available from: <http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php>.

WHO Epidemic and Pandemic Alert and Response [Internet]. Geneva: World Health Organization; 2009. Cholera; [cited 2009 Feb 7]. Available from <http://www.who.int/csr/don/archive/disease/cholera/en/index.html>.

Travel Health [Internet]. Ottawa: Public Health Agency of Canada; 2008. Disease information: cholera; 2000 Nov 2 [cited 2009 Feb 1]. Available from <http://www.phac-aspc.gc.ca/tmp-pmv/info/cholera-eng.php>.

Gregg MB, editor. Field epidemiology. 2nd ed. New York: Oxford 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.

