

Appendix A: Disease-Specific Chapters

Chapter: Q Fever

Q Fever

- 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>Q fever is caused by <i>Coxiella burnetii</i> (<i>C. burnetii</i>), an intracellular rickettsial organism. It is classified in the gamma subgroup of Proteobacteria (3). The organism has unusual stability, can reach high concentrations in animal tissues, particularly placenta, and is highly resistant to many disinfectants (1).</p> <p>May be used as a bioterrorism agent.</p>
2) Case Definition:	
Surveillance Case Definition	See Appendix B
Outbreak Case Definition	<p>For use during outbreaks - 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 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). <p>Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).</p>
3) Identification:	
Clinical Presentation	<p>Q fever presents in 2 distinct forms: acute, which typically follows initial exposure, and chronic, which occurs months to years after acute infection. Approximately 60% of initial infections are asymptomatic (2).</p> <p>Symptoms for acute Q fever include abrupt onset of fever, chills, sweats, severe headache (especially behind the eyes), weakness, anorexia, myalgia and cough. Weight loss and weakness can be pronounced (1, 2). The illness typically lasts 1 to 4 weeks and then resolves gradually (2).</p>

	Chronic Q fever occurs in approximately 1% of acutely ill people and manifests as endocarditis with people who have heart disease. Other complications include hepatitis and death if untreated (2).
Diagnosis	See Appendix B 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 .

4) Epidemiology:

Occurrence	Q fever has been reported from all continents; the true incidence is greater than the reported number of cases because of the mild clinical manifestation of many cases, limited clinical suspicion and lack of laboratory services (1). The number of cases of Q Fever per year has fluctuated in the province of Ontario and remains fairly low, with an average of 5 cases reported per year from 2003 to 2007.
Reservoir	Sheep, cattle, goats, cats, dogs, some wild mammals (e.g. rodents), birds and ticks are natural reservoirs (1). Infected animals, including sheep and cats are usually asymptomatic but shed massive numbers of organisms in placental tissues at parturition (1).
Modes of Transmission	When infected, animals shed the bacteria in urine, feces, milk and especially birth products such as placenta (1, 2). Humans are most often affected through the process of inhaling contaminated aerosols; organisms are shed in high numbers during the birthing process of infected animals in amniotic fluid and the placenta. Humans inhale dust contaminated by these products. The dust can be carried downwind one km or more. This allows for sporadic cases to occur. Infections may also occur from direct exposure to infected animals or tissues or through exposure to contaminated materials such as wool, straw or even laundry (1, 2). Raw milk from infected cows may be a source but is not common; direct transmission by blood or marrow transfusion has been reported (1).
Incubation Period	Depends on the size of the infectious doses, usually 2-3 weeks (1). Chronic Q fever can develop years after an initial infection (2).
Period of Communicability	Direct person to person transmission occurs rarely, if ever (1).
Susceptibility and Resistance	Susceptibility is general (1). Those who recover from infection may possess lifelong immunity against re-infection (1).

5) Reporting Requirements:

To Local Board of Health	Confirmed and suspected cases shall be reported to the medical
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	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 (3).</p> <p>The minimum data elements to be reported for each case is specified in the following:</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.

6) Prevention and Control Measures:

Personal Prevention Measures	<p>Preventative measures:</p> <ul style="list-style-type: none"> • Education of workers in high risk occupations such as sheep and dairy farmers veterinary researchers, abattoir workers, veterinarian, meat workers, about the sources of infection and the need for adequate disinfection and disposal of animal products of conception (1); • Recommend that infections in domesticated animal population be identified by a veterinarian; • Education on proper hygiene practices, and • Consumption of only pasteurized milk and dairy products from cows, goats and sheep.
Infection Prevention and Control Strategies	Routine practices are recommended for hospitalized cases.
Management of Cases	<p>Investigate the case to determine source of infection. Refer to <i>Ontario Regulation 569</i> for relevant data to collect and ensure to inquire about the following in the epidemiological investigation:</p> <ul style="list-style-type: none"> • Symptoms and date of symptom onset; • Travel history; • History of exposure during 2-3 weeks prior to symptom onset • Earliest and latest exposure date; • Occupation, and • Residency/living near a farm or livestock operation. <p>Treatment is under the direction of the attending health care provider; acute cases generally require treatment with doxycycline or chloramphenicol for 15-21 days (1).</p>

	<p>Provide cases with information about the infection and how it spreads as listed above.</p> <p>If a source has been identified ask the case for a list of persons who may also have come in contact with the infectious item or area.</p>
Management of Contacts	None, except if exposed to same source, then as above.
Management of Outbreaks	<p>Outbreaks are generally of short duration; control measures include primarily the elimination of sources of infection, observation of exposed persons and provision of antibiotics (1).</p> <p>An outbreak is defined as two or more cases linked in place and time.</p> <p>As per this Protocol, outbreak management shall comprise of but not 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. 550-2.</p> <p>(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</p>
8) Additional Resources	<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>

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.
