

6.7 Q Fever

Case Definition

Confirmed Case

Clinical illness³ with laboratory confirmation of infection:

- fourfold or greater change in antibody titre to *Coxiella (C) burnetii* phase 11 or phase 1 antigen in paired serum specimens ideally taken 3-6 weeks apart
OR
- isolation of *C burnetii* from a clinical specimen by culture
OR
- demonstration of *C burnetii* in a clinical specimen by detection of antigen or nucleic acid
OR
- demonstration of *C burnetii* in tissues by immunostaining or electron microscopy

Probable Case

- Clinical illness with a single supportive Immunoglobulin G (IgG) or Immunoglobulin M (IgM) titre or clinical illness in a person who is epidemiologically linked to a confirmed case.

Chronic infection can cause fatal endocarditis and may evolve months to years after an acute infection, particularly in person with underlying valvular disease. A chronic fatigue-like syndrome has been reported in some Q fever patients.

Clinical Presentation

Q (Query) fever is a zoonosis. Over half of the infections are asymptomatic. There are three distinct manifestation of acute Q fever: i) a self-limited febrile illness ii) pneumonia and iii) hepatitis. Fever is the most common manifestation with duration of approximately ten days.

Diagnosis

Clinical signs and symptoms must be confirmed by laboratory findings

³ Clinical illness can be attributed to acute or chronic infection:

Acute infection is characterized by a febrile illness usually accompanied by rigors, myalgia, malaise, and retrobulbar headache. Severe disease can include acute hepatitis, pneumonia and meningoencephalitis. Asymptomatic infections may also occur

Epidemiology

Occurrence

Q fever occurs worldwide. Its real incidence is unknown due to the asymptomatic nature of some infections, the lack of availability of diagnostic assays and varying reporting requirements. Epidemics have occurred among workers in abattoirs, meat packing plants, and in medical and veterinary centers that use sheep and goats for research. In Newfoundland Labrador the first documented cases were reported in 1999.

Reservoir

Cattle, sheep and goats are the primary reservoirs of Q fever for man. *C burnetti* localizes to the uterus and mammary glands of infected animals.

Transmission

Inhalation of contaminated aerosols is the most common mode of transmission. Indirect exposure to contaminated material may also lead to Q fever such as contact with contaminated clothing.

Incubation Period

Dependent on the size of the infecting dose; typically-3 weeks; range is from 3 – 30 days

Period of Communicability

Person-to-person transmission occurs rarely

Control Measures

Management of Cases

Treat the symptoms and giving antibiotics can shorten the course of acute illness and reduce the risk of complications. Tetracycline compounds have been the mainstay of treatment in chronic Q fever. Provide information on the disease and preventative measures needed. Interview the case to determine if others have been infected. Routine practices are recommended for those providing care to a case.

Management of Contacts

Contact investigation should be initiated and a search for the source of the infection.

Management of Outbreaks

An outbreak management team should be established to address infection prevention and control measures.

Education and Preventive Measures

- Educate person in high-risk occupations (sheep, goat and dairy farmers, veterinary researchers, abattoir workers, etc.) on sources of infection and the necessity for adequate disinfection and disposal of animal products of conception
- Observe strict hygienic measures when working in high-risk occupations
- Avoid unpasteurized milk and milk products
- Do not use manure from contaminated farms in gardens
- Require biosafety level 3 facilities for the manipulation of contaminated specimens and cultivation of the organism
- A fact sheet is available at:
<http://www.ccohs.ca/oshanswers/diseases/qfever.html>

Reporting Requirements and Procedures

- Physicians, laboratories and communicable disease control nurses (CDCNs), and infection control practitioners (ICPs) must immediately report suspect or confirmed cases to the Regional Medical Officer of Health (RMOH)
- RMOH office will notify local physicians, nurse practitioners, environmental health officers, community health nurses, CDCNs, and ICPs, in the particular region as required for follow-up and case investigation
- RMOH reports to provincial office as per list B
- CDCN enters the case into the electronic reporting system and completes an outbreak report form if indicated
- Provincial Disease Control
 - Reports the identified case to other health regions
 - Reports the identified case to Public Health Agency of Canada
 - Provides an analysis of the case/s with reports in the Communicable Disease Report (CDR)