

Coxiella burnettii

Q fever is caused by the bacteria *Coxiella burnettii*. The organism is extremely hardy and resistant to heat, drying and many common disinfectants that enable the bacteria to survive for long periods in the environment. Infection of humans usually occurs by inhalation of these organisms from air. Very few organisms may be required to cause infection.

Symptoms: It is important to note the combination of symptoms varies greatly from person-to-person.

- Symptoms include high fever (up to 104-105°F), severe headache, general malaise, myalgia, chills and/or sweats, non-productive cough, nausea, vomiting, diarrhea, abdominal pain and/or chest pain.
- *Coxiella burnettii* has the ability to persist for long periods of time in a host after infection. A post-Q fever fatigue syndrome has been reported to occur in 10 per cent to 25 per cent of some acute patients. This syndrome is characterized by constant or recurring fatigue, night sweats, severe headaches, photophobia (eye sensitivity to light), pain in muscles and joints, mood changes, and difficulty sleeping.

Risk Assessment: *C. burnettii* is an obligate intracellular bacterium and is typically transferred through blood and tissues.

- The bacteria can remain viable in the laboratory within stored blood products, including plasma.
- There also is a risk of airborne spread of *C. burnettii*. Humans typically become infected with *C. burnettii* by inhaling aerosols containing the bacterium.

During the acute phase of illness, a sample of whole blood can be tested by polymerase chain reaction (PCR) assay to determine if a patient has Q fever. This method is most sensitive in the first week of illness and rapidly decreases in sensitivity following the administration of appropriate antibiotics. When a person develops Q fever, detectable antibody titers are usually observed by 7 to 10 days after illness onset. **It is important to note a negative test during the first week of illness does not rule out Q fever as a cause of illness.**

Laboratory employees may be exposed to aerosols and to infectious droplets if using automated biochemical systems, manual multi-test kits or single biochemical tests for identifications outside of a bio-safety cabinet.

If an employee may have been exposed, seek immediate medical attention.

References: <http://www.cdc.gov/qfever/symptoms/index.html>; <http://www.cdc.gov/qfever/symptoms/index.html>;
<http://www.cdc.gov/qfever/>;
http://www.ecdc.europa.eu/en/publications/Publications/1005_TER_Risk_Assessment_Qfever.pdf

Referred cultures confirmed by the Illinois Department of Public Health (IDPH) laboratories must be reported to the U. S. Centers for Disease Control and Prevention (CDC) by IDPH and by the submitting laboratory.

- Each facility will complete APHIS/CDC Form 4, which is to be sent to CDC within seven calendar days of the identification of the select agent.
- If an exposure has occurred, the facility must complete APHIS/CDC Form 3. Form 3 must be sent to CDC within seven calendar days of the identification of the select agent.
- Forms and instructions are available at www.selectagents.gov.

For questions concerning testing or reporting, contact the Illinois Department of Public Health Division of Laboratories.

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