

Public health recommendations for the prevention and control of Q fever (*Coxiella burnetii*)

Background

Q fever is a disease caused by the bacteria *Coxiella burnetii* that can result in fever, fatigue, chills, muscle pain, and pneumonia and may lead to miscarriages in pregnant women. A small number of people who have Q fever go on to develop long-term infections, which can be life-threatening if not treated.

Goats, sheep, and cattle are the main sources of human infection. People can be exposed when they come in contact with infected animal body fluids or tissues, particularly placenta, birth fluids, and newborn animals. People can also be exposed when they breathe dust or air particles contaminated by animal waste. Feces, urine, milk, and blood can also serve as sources of Q fever.

Persons at increased risk to develop Q fever


Certain occupations are associated with increased risk for exposure to *C. burnetii*. Q fever outbreaks have been reported among workers in slaughterhouses, farms, animal research facilities, military units, and, rarely, hospitals and diagnostic laboratories. Employees in high-risk occupations should be educated about the risk for exposure and the symptoms of Q fever.

People who have the following health conditions are at increased risk of serious complications from Q fever:

- Valvular heart disease
- Pregnancy
- Prosthetic heart valves or vascular grafts
- Liver disease
- Decreased immune function from any cause, including corticosteroid use, chemotherapy, HIV infection, or diabetes

People who have these health conditions should talk to their physician and occupational health program before they begin any work with sheep or goats.

Preventive measures to decrease the risk of Q fever transmission when working with goats, sheep, or cattle during birthing time

- 1) Use dedicated clothing and boots to work in birthing areas.
- 2) Wear personal protective equipment (PPE), including disposable gloves, arm-length plastic sleeves, goggles, and respiratory protection (N95 respirator recommended) when you:
 - o Assist with animal births
 - o Clean birthing areas
 - o Dispose of birth products and animal waste from the birthing area
 - o Do anything around high-risk animals that creates a dusty environment, such as: 
 - Moving livestock
 - Moving used bedding material, especially if used in birthing pens
 - Cleaning barns or animal areas
 - Working with manure and compost piles
- 3) Promptly remove and dispose of the placenta, aborted fetuses, bedding, and any other materials contaminated with birthing fluids from the birthing area in accordance with facility-specific guidelines for infectious waste.
 - o Minimize dust generation or formation of aerosols (i.e., avoid pressure washing and handle materials with care).
 - o Avoid moving these materials through non-birthing areas if possible.
 - o Clean and disinfect surfaces in contact with contaminated materials, such as walls and concrete floors.
- 4) Do not bring food or beverages into the animal area.
- 5) Wash hands thoroughly with sanitizing soap and water right after you work with animals, bedding, feed, or other materials in the birthing area.
- 6) Change your clothes and shower as soon as possible after you work with the animals or handle contaminated materials.

- 7) Use hot water to wash and then dry contaminated clothing separately from routine household laundry, preferably using dedicated washers and dryers in the animal area.
- 8) People who are at high risk of complications from Q fever (described above) should avoid contact with sheep, goats, and cattle during birthing.
- 9) Students who work with livestock should be educated about the zoonotic agents they may encounter through the course of their work. Instructors or supervisors should verify that staff and students understand zoonotic risks associated with work, signs and symptoms of disease, relevant precautions, and the appropriate response if they experience symptoms.
- 10) If you become ill with fever and/or flu-like symptoms after you work with goats, sheep, or cattle during birthing time, seek medical attention and tell your healthcare provider that you work with animals and may have been exposed to Q fever.

Recommendations following a confirmed animal case of Q fever

- 1) The affected facility should make sure all of the above preventive measures are appropriately followed.
- 2) If not already in practice, PPE should be enhanced to include a properly fitted respirator mask (N95 or higher rated) that will effectively filter out bacteria which may be present in the air. You should also use eye protection such as safety glasses, goggles, or face shields to reduce exposure to splatters when you assist with birthing and whenever splashes or sprays are likely to occur.
- 3) Limit access to the birthing area to essential personnel.
- 4) Conduct a risk assessment to evaluate human exposures to the infected animal(s) and the animal birthing area (see "Animal exposure risk assessment" section below).
- 5) Prophylactic treatment with antimicrobials is **not** recommended after exposure to Q fever.
- 6) Initiate 3-6 week self-monitoring for symptoms for all personnel who have moderate or high-risk exposures.
- 7) Anyone who becomes ill with fever and/or flu-like symptoms should:

- o Seek medical attention right away and tell their healthcare provider they had a known exposure to Q fever.
- o Initiate treatment with doxycycline, test the person for Q fever, and report the illness to the local health department.

Animal exposure risk assessment

Risk level	Exposure type	Response actions
Low	In the birthing area during or immediately following* a birth involving a known infected animal <u>while wearing PPE</u> (N95 or higher respirator mask, gloves, eye protection, coveralls)	Seek immediate treatment for an acute febrile illness within 6 weeks of exposure.
Moderate	Close (<6 ft) or direct exposure to a known infected animal or an infected animal's body fluids <u>while wearing PPE</u> <i>or</i> In the birthing area during or immediately following* a birth involving a known infected animal without PPE	<ul style="list-style-type: none"> • Self-monitor daily for fever and/or flu-like symptoms for a minimum of 3 weeks. • Seek immediate treatment for an acute febrile illness within 6 weeks of exposure.
High	Close (<6 ft) or direct exposure to a known infected animal or an infected animal's body fluids without PPE	Seek immediate treatment for an acute febrile illness within 6 weeks of exposure.

*Before the birthing area has been cleaned and disinfected.

References

- [Centers for Disease Control and Prevention. \[Diagnosis and Management of Q Fever — United States, 2013\]. MMWR 2013;62\(No. RR-3\):\[1-30\]](#)
- [Guidelines for Reducing the Risk of Exposure to the Q Fever Agent \(*Coxiella burnetii*\) for the University of Wisconsin- Madison](#)
- [Prevention and Control of *Coxiella burnetii* Infection among Humans and Animals: Guidance for a Coordinated Public Health and Animal Health Response, 2013](#)
- [Q fever Safety at Livestock Birthing Exhibits: Information for Operators and Managers](#)