

Animal Surveillance Case Definition

Q fever (*Coxiella burnetii*)

Clinical description

A communicable disease of animals and people caused by Gram negative rickettsiae, *Coxiella burnetii*. Sheep, cattle, goats, cats, dogs and some wild animals (many species of wild rodents) birds and ticks are natural reservoirs. From the public health standpoint, the most important source of infection to man is livestock (i.e., sheep, goats and cattle). There are two cycles of transmission for *C. burnetii*, one in domestic animals and the other between wild animals and their ectoparasites, especially ticks. The most common route of infection for domestic animals is through the inhalation of aerosols from contaminated placental material and amniotic fluid and excreta (urine and feces). In general, domestic animals infected with Q fever develop clinically inapparent infections. Abortion, stillbirth, retained placenta, endometritis, infertility and small or weak offspring result from infection in ruminants, cats, dogs, and other species. Most abortions occur near term and may be followed by uncomplicated recovery, particularly in small ruminants; in other cases, the disease may remain latent and recur yearly. The usual interval between exposure and onset of illness ranges from 1 to 10 days. The agent can survive in the soil for as long as 6 months after infected animals have left the area.

The main sources of human Q fever are domestic livestock and contaminated products from livestock (e.g., leather and wool). Human infections usually occur by inhalation of contaminated dust and aerosols originating from dried placental material, birth fluid and excreta of infected animals and occasionally from the consumption of raw milk. Human cases have also occurred in laboratory setting associated with sheep and goats. Although humans can be infected through the bite of an infected tick, such cases are rare. There are approximately 150 human cases of Q fever reported in the United States annually.

Q fever is a CDC bioterrorist Class B agent. Pathogens utilized as a bioterrorism agent may have atypical routes of transmission and clinical manifestations. Veterinary practitioners suspecting Q fever in domestic companion animals should immediately notify their local health department or the NJDHSS at 609-826-4872 during working hours and on an emergency basis at 609-392-2020 on nights, weekends and holidays.

Case classification

Confirmed

+/- compatible clinical signs **and**

- isolation of *C. burnetii* from a clinical specimen by culture, **or**
- identification of *C. burnetii* antigen by use of immunofluorescence (fluorescent antibody or IFA) in tissues **or**
- four fold or greater change in serologic antibody titer in 2 specimens obtained at least 2 weeks apart and assayed simultaneously at the same laboratory.

Probable

A clinically compatible case **and**

- an elevated serologic titer in one or more specimens obtained after the onset of signs, **or**
- detection of *C. burnetii* nucleic acids in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay.

Suspect

A clinically compatible case epidemiologically linked to a confirmed case.