BRITISH COLUMBIA | Ministry of Agriculture and Food

Coxiellosis

Alternate Names: Q Fever.

Species Affected: Mainly domestic ruminants (cattle, sheep, and goats). Cats, wild animals, and humans can also become infected.

What causes coxiellosis? *Coxiella burnetii*, a type of bacteria that can infect mammals, birds, reptiles, and arthropods (invertebrate animals such as insects, ticks and spiders).

How is coxiellosis transmitted? There are 2 major patterns of transmission: one between wild animals and ticks, and a separate cycle affecting domestic ruminants (cattle, sheep, and goats).

C. burnetii are shed in milk, urine, feces, birthing fluids, and placenta ("fresh fluids"). *C. burnetii* also form spores in the environment which are resistant to heat, drying, and commonly used disinfectants. Spores remain dormant for up to several years, but they can revert to being infectious again.

The highest risk of transmission is during birthing of cattle, sheep, and goats by breathing, licking or eating contaminated birthing fluids and afterbirth (placenta and membranes). Animals can also get infected by breathing spores carried by the wind or present in contaminated environments.

What are the clinical signs of coxiellosis? Infection in ruminants is usually subclinical (mild enough so that animals don't show signs of disease). In some cases, pregnant animals go off feed and abort near the end of pregnancy ("late abortion").

What are the consequences of coxiellosis? Reproductive failure including abortion and infertility.

How is coxiellosis detected? Based on clinical signs, herd history and laboratory testing. Intermittent shedding makes it difficult to detect *C. burnetii.* Serology (a blood test to detect antibodies) indicates previous infection but an active coxiellosis requires confirmation of *C. burnetii* in tissue samples (aborted fetuses, placentas) by microscopy or PCR (a molecular test to detect bacterial genetic material)

How is coxiellosis prevented? Good management practices around birthing time including: separating pregnant animals close to birthing from the rest of the herd, cleaning birthing pens and disposing of birthing material using personal protective equipment such as gloves and face masks. Abortions and stillbirths should be investigated by the herd veterinarian. There is no available vaccine in Canada.

How is coxiellosis treated? There is no specific treatment for coxiellosis in animals.

Is coxiellosis a reportable disease in BC? Yes, cases of Q Fever caused by *Coxiella burnetii* must be reported within 24 hours to the Office of the Chief Veterinarian in British Columbia.

Is coxiellosis zoonotic (transmitted from animal to humans)? Yes, Q Fever caused by *Coxiella burnetii* is highly infectious in humans. Q fever is an occupational hazard for people working closely with ruminants during birthing including farmers, veterinarians, slaughterhouse workers and staff in research stations. *C. burnetii* can also be transmitted through consumption of unpasteurized milk.

Most healthy people infected with *C. burnetii* show no signs of disease or a mild flu-like illness. However, people with weak immune systems are at higher risk of severe lung, heart, and liver disease. *C. burnetii* cause spontaneous abortions so pregnant women should avoid exposure to birthing ruminants and their birthing fluids.

References:

- Plummer, P. J. (2022, October). *Coxiellosis in animals*. Merck Veterinary Manual https://www.merckvetmanual.com/generalized-conditions/coxiellosis/coxiellosis-in-animals?query=Q%20fever
- *Q fever*. (2024, February). WOAH - World Organisation for Animal Health. https://www.woah.org/en/disease/q-fever/