Grey Bruce Public Health

April 26, 2023

Healthcare Provider Memo

Q Fever (*Coxiella burnetti*)

Grey Bruce Public Health has reported two cases of Q Fever in Bruce County so far in 2023. This memo is intended to provide additional information on Q Fever to Healthcare Providers.

WHAT IS Q FEVER?

Q Fever is an acute or chronic zoonotic infection caused by the bacteria *Coxiella burnetti*, which can cause coxiellosis infection in animals. Q Fever is reportable to Public Health. In Ontario, about 5-15 human cases of Q Fever are reported annually.
Outbreaks have occurred among workers in stockyards, meat processing plants, abattoir laboratories, and medical and veterinary centres that use sheep (especially ewes) in research.

RESERVOIR

- Farm animals;
- Pets;
- Wild animals (mice, birds, coyotes).

TRANSMISSION

- Infected animals shed bacteria in urine, feces, milk, and especially birth products such as placentas.
- Inhalation of *C. burnetti* in dust or aerosols from premises contaminated by placental tissues, birth fluids, and excreta of infected animals.
- Particles containing organisms may be carried downwind >1km. Individual cases may occur where no animal contact can be demonstrated.
- Infections may also occur from direct exposure to infected animals or tissues or through exposure to contaminated materials, such as wool, straw, or even laundry.

INCUBATION PERIOD

- Acute Q fever: average 2-3 weeks, range 3 – 30 days
- Chronic Q fever: weeks to years after initial infection

COMMUNICABILITY

- Direct person-to-person transmission occurs rarely.
- Sporadic cases of nosocomial transmission during autopsies and obstetrical procedures of infected women have occurred.

101 17th Street East, Owen Sound, Ontario N4K 0A5 www.publichealthgreybruce.on.ca

519-376-9420 1-800-263-3456 Fax 519-376-0605

SYMPTOMS

- Approximately half of humans infected with *C. Burnetti* are asymptomatic. If symptomatic, onset of acute Q Fever is usually 2-3 weeks after exposure.

- **Acute Q Fever** infection is commonly characterized by general flu-like symptoms, including fever, severe headache, general malaise, myalgia, chills/sweats, non-productive cough, nausea, vomiting, diarrhea, abdominal pain, and chest pain, though symptoms and severity may vary greatly from person to person.
  Most cases recover successfully; however, some may experience more serious complications (e.g. pneumonia, gramulomatorus hepatitis, myocarditis, CNS complications.
  Pregnant women may be at risk for pre-term delivery, miscarriage, stillbirth or low infant birth weight.
  Approximately 20% of patients with acute Q Fever may experience post-Q Fever fatigue syndrome, characterized by constant fatigue, night sweats, severe headaches, photophobia, muscle and joint pain, mood changes, and difficulty sleeping.

- **Chronic Q Fever** occurs in <5% of patients, months to years after initial infection.
  Symptoms of chronic Q Fever may include endocarditis, aortic aneurysm, and infections of vascular aneurysms, the bone, liver or reproductive organs, such as the testes in males.
  Those at the highest risk for chronic Q fever are pregnant women, immunosuppressed, or have pre-existing heart valve defects.

TESTING

Information on testing for Q Fever is available on Public Health Ontario's website. Generally, acute (collected early after the onset of symptoms) and convalescent (collected 2-3 weeks later) specimens are encouraged for laboratory diagnosis.

TREATMENT

- Obtain disease-specific information including:
  - History of animal exposure during 2-3 weeks prior to symptom onset
  - Earliest and latest exposure date
  - Occupation
  - Residency/living near a farm or livestock operation.

- At physician's discretion. Generally, acute cases require treatment with antibiotics (doxycycline).

INFECTION PREVENTION AND CONTROL (IPAC)

- Education of workers in high-risk occupations, such as sheep and dairy farmers, veterinary researchers, abattoir workers, veterinarians and meat workers about the

sources of infection and the need for adequate disinfection and disposal of animal products of parturition;
- Education on proper hygiene practices;
- Consumption of only pasteurized milk and dairy products from cows, goats, and sheep.

ADDITIONAL READING AND RESOURCES

- Q Fever Disease Specific Chapter – Ministry of Health
- Frequently Asked Questions regarding *Coxiella burnetti* in small ruminants and Q Fever in Humans - OMAFRA
- Prevention and Control of *Coxiella burnetti* infection among Humans and Animals – National Association of State Public Health Veterinarians

Infectious Diseases Team
Grey Bruce Public Health
101 17th Street East, Owen Sound, N4K 0A5
519-376-9420 ext. 6
infectiousdiseases@publichealthgreybruce.on.ca