Q FEVER

Case Definition

Confirmed Case

Clinical illness[1] with laboratory confirmation of infection:

- Detection of *Coxiella burnetii* nucleic acid[2] in an appropriate clinical specimen[3,4]

OR

- Demonstration of *C. burnetii* by immunohistochemistry from an appropriate clinical specimen[3]

OR

- Fourfold or greater change in antibody titer to *C. burnetii* phase II or phase I antigen in paired serum specimens taken 3-6 weeks apart

OR

- A single supportive Immunoglobulin G (IgG) phase I titre of ≥ 1:1024 by IFA4[4]
  AND
- Symptoms consistent with chronic infection[1]

Probable Case:

Clinical illness[1] and one of the following:

- A single supportive Immunoglobulin G (IgG) phase II titre of ≥ 1: 256 by IFA

OR

- Epidemiologically linked to a confirmed source

In an asymptomatic individual:

- Confirmatory laboratory evidence (as outlined above for a confirmed case)
  AND
- Epidemiologically linked to a confirmed source

Clinical Evidence

Clinical evidence differs between acute and chronic infection, and the following information should be used to support staging:

Acute infection: A febrile illness usually accompanied by rigors, myalgia, malaise, non-productive cough, and retrobulbar headache. Symptoms are usually mild and self-resolving. Severe disease can include acute hepatitis, pneumonia, and meningoencephalitis. Clinical laboratory findings may include elevated liver enzyme levels and abnormal chest imaging. Asymptomatic infections may also occur, more commonly in children and during pregnancy.

Chronic infection: Potentially fatal endocarditis and other endovascular infections may evolve months to years after acute infection, particularly in persons with underlying valvular disease. Other manifestations include hepatitis and bone and joint infections.

[1] See Clinical Evidence section.
[2] 16S testing is a nucleic acid test and meets confirmed case definition.
[3] Blood, cerebrospinal fluid, or tissue.
[4] See Laboratory Comments Section.

Laboratory Comments

Chronic infection can be detected through PCR or IgG, typically with phase I IgG >= 1:1024 and exceeding the phase II titer.

Reinfection

Infection with Q fever is thought to confer lifelong immunity. A client should have only one investigation for Q fever entered in Panorama.

Hospitalized Case

A confirmed or probable case who was admitted to hospital in which the disease under investigation caused or contributed to the hospitalization.

Deceased Case

A death resulting from Q fever in a confirmed or probable case. This disease does not need to be the primary cause of death.[5]

Outbreak Definition

Q fever does not typically spread from person to person. People can become infected through direct contact with infected animal urine, milk, feces, and other fluids, or by inhaling contaminated dust. Primary reservoirs include cattle, goats, and sheep, but it can infect a wide range of domestic and wild animals. Dust-generating activities in areas with livestock or wild animals are an exposure risk.

A Q fever outbreak may be declared when:

- Two or more cases (at least one confirmed) share a common exposure within 6 weeks (based on symptom onset). Exposure may be occupational or non-occupational.
    - Potential exposure sites include hobby farms, farms, petting zoos, slaughter facilities, wildlife rehabilitation centres, or areas with dust-generating activities near these settings
    - Other exposures: consumption of unpasteurized milk or milk products
- Two or more confirmed cases occur in the same geographic area within 6 weeks (based on symptom onset) without identified independent exposures.
- While the incubation period for acute Q fever is typically 2-3 weeks (range: 1-6 weeks), consider a longer time interval for chronic Q fever given it can present much later.

Reporting Requirements

Report confirmed and probable cases to DHW Public Health Surveillance via Panorama.

- If thought to be **locally acquired** (within NS), report confirmed and probable cases to DHW Public Health Surveillance **immediately** via the Surveillance Inbox.

Select appropriate staging option in the “staging” field in Panorama

- Update the staging field if/when new information becomes available.

[5]This includes deaths identified through death certificates that list Q fever as an immediate cause of death, an antecedent cause giving rise to the immediate cause, or another significant condition contributing to, but not causally related to, the immediate cause.

Data Entry

See Appendix I for required DHW Public Health Surveillance minimum dataset elements to be entered into Panorama.

Appendix I: DHW Public Health Surveillance Required Minimum Data Set for Q Fever

Panorama Variable	Description	Surveillance Rationale
Client details		
First Name	First name of case	
Last Name	Last name of case	
Date of Birth	Date case was born	Allows for age-based analysis.
Gender	Legal sex of case (this field is called gender in Panorama)	Allows for sex-based analysis.
HCN	Health card number of case	Allows for linkage with administrative health data.
Address, including postal code	Address where case resides	Allows for geographic analysis.
Investigation details		
Disease	Disease under investigation	
Microorganism	Name of microorganism causing the specific disease	
Classification	Case classification. **Do not close case as a PUI.**	Used for counting of cases in surveillance reporting.
Staging	Choose acute or chronic	Allows for analysis by stage.
Disposition	Case disposition	Allows for exclusion cases as applicable for surveillance reporting.
Responsible organization	Local public health unit	Allows for geographical analysis when address information is unknown.
Client address at time of investigation	Where client was residing at time of disease event, including postal code.	Allows for geographical analysis.
Laboratory -- only if manually entering lab results		
Laboratory ID/Accession Number	ID assigned by the PPHLN	Allows for data linkage.
Test Name	Type of test carried out	Used for analysis of laboratory data.
Specimen Type	Type of specimen collected, e.g., blood, tissue.	Allows for analysis by specimen type.
Specimen Site	Site of specimen collected	Allows for analysis by specimen site.
Specimen Collection Date	The date when the specimen was collected.	Used to place disease event in time, allows for accurate epidemiological analysis.
Result Name	Test result description	Used for analysis of laboratory data.
Result Status	Status of test result (e.g. preliminary, final, etc.)	Used for analysis of laboratory data.
Interpreted Result	Laboratory interpretation of test performed	Used for analysis of laboratory data.

Panorama Variable	Description	Surveillance Rationale
Disease	Disease for which testing carried out	Used for analysis of laboratory data.
Microorganism	Name of microorganism causing the specific disease	Used for analysis of laboratory data.
Outcomes		
Enter all case outcomes related to disease under investigation.	Enter all outcomes investigator becomes aware of during the course of investigation. All cases must have at least one outcome entered.	Allows for analysis of severity of illness.
Risk Factors		
Exposure - Any of the acquisition risks identified occurred while outside of Canada	Did any of the acquisition risks identified occur outside of Canada, including related to travel or recent immigration?	Used to evaluate whether disease was acquired outside the country.
Exposure - Any of the acquisition risks identified occurred while outside of NS, but within Canada	Did any of the acquisition risks identified occur outside of Nova Scotia, but within Canada, including related to travel or recent immigration?	Used to evaluate whether disease was acquired outside the province
Exposure - Blood/body fluid - breastmilk of infected mother	If an infant, whether case was exposed through breastmilk of an infected mother.	The risk of transmitting Q fever through breastmilk is currently unknown.
Exposure - Contact with birthing animals or their birth products	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case have contact with birthing animals or their birth products?	*C. burnetii* is shed in high numbers in birthing products of infected animals.
Exposure - Contact with infected animals or their contaminated products	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case have contact with infected animals or their contaminated products?	Used to evaluate risk among individuals who had contact with infected animals/animal products.
Exposure - Contact with pets, farm, petting zoo, or wildlife	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case have contact with pets, farm, petting zoo, or wildlife (including in wildlife rehabilitation centres)?	Used to evaluate risk from non-occupational animal exposures.
Exposure - Occupational - occupationally acquired infection	Did the case have an occupational unprotected exposure to the blood or body fluids of humans, animals, or birds, or to airborne particles, containing Q fever, including in laboratory settings.	Used to evaluate occupational risk.
Food - Dairy - cheese - soft/unpasteurized	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case consume unpasteurized cheese?	Consumption of unpasteurized dairy products is a risk factor for Q fever.
Food - Dairy - milk - unpasteurized	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case consume unpasteurized milk?	Consumption of unpasteurized dairy products is a risk factor for Q fever.
Medical - Received a donation of blood, blood products	In the 6 weeks prior to symptom onset or diagnosis (use earlier date), did the case receive a transfusion?	Q fever can potentially be transmitted via transfusion.

Panorama Variable	Description	Surveillance Rationale
Special population - Pregnant	Whether case was pregnant at time of diagnosis. Specify conception date (estimated) as the 'effective from' date, and delivery date (actual or anticipated) as the 'effective to' date.	People who are infected during pregnancy may be at risk for miscarriage, stillbirth, pre-term delivery, or low infant birth weight.
Transmission Events – if donated blood or tissue in the 6 weeks prior to symptom onset or diagnosis (use earlier date)		
Mode of transmission	Choose "All natures of transmission."	
Nature of transmission	Choose "Donation of tissues/organs/semen/blood products."	Allows for analysis of risk associated with donation of tissues/organs/semen/blood products.
Transmission Event – for pregnant cases with confirmed vertical transmission		
Mode of transmission	Choose "Vertical transmission."	Allows for the identification of vertical transmission.
Acquisition Event - for newborn cases with confirmed vertical acquisition only		
Potential mode of acquisition	Choose "Vertical transmission."	Allows for the identification of vertical transmission.

*For chronic infection, discuss with MOH to determine proper lookback period.

Appendix II: Updates to Q fever surveillance guidelines

Date	Updates
April 2026	First version of Q fever surveillance guidelines.