

6.3 Brucellosis

Case Definition

Confirmed Case

Laboratory confirmation of infection:

- isolation of *Brucella*¹ from an appropriate clinical specimen using serological test positive for agglutinating antibodies and non-agglutinating antibodies (tier 3 laboratory only)

OR

- detection of antibodies to rough-lipopolysaccharide antigens (necessary for *B. canis* confirmation).

Probable Case

- Clinical illness, as defined below, in a person who is epidemiologically linked to a laboratory-confirmed animal/event of *Brucella*, or to a probable infected animal/event.

Suspected Case

- Clinical illness, as defined below, in a person who is not epidemiologically linked to a laboratory-confirmed or probable animal/event infected with *Brucella*

Clinical Presentation

Brucella is a systemic bacterial infection of variable length and intermittency. It can last days, months, or (rarely) years. Symptoms include irregular fever, headache, weakness, profuse sweating, chills, arthralgia, depression, weight loss, generalized aching. Suppurative infection of organs and chronic localized infections may occur. Sometimes it is subclinical. Osteoarticular complication can arise in 20-60% of patients, most frequently sacroilitis. Genitourinary involvement is seen in 2-20% (commonly as orchitis or epididymitis). Case-fatality is 2%, generally from endocarditis associated with *B. melitensis*. Brucellosis is sometimes confused with neurotic symptoms complex

Diagnosis

Case confirmation is based on findings consistent with the above listed case definition.

¹ * *Brucella* illness is associated with *Brucella abortus*, *B. Melitensis*, *B. suis*, and *B. canis*

Epidemiology

Occurrence

Brucella is rare in Canada but is endemic worldwide, most prevalent in and around Mediterranean regions. Risk is generally occupational with veterinarians and agricultural workers being most at risk. Outbreaks only occur occupationally or with the drinking of unpasteurised milk.

Reservoir

The reservoir for this virus is generally domesticated herbivorous animals. Sometimes dogs, *B. canis*.

Transmission

Brucellosis is generally transmitted through breaks in skin contacting infected animal tissue or discharge. It can also occur through ingesting unpasteurized milk or inhalation. Pinprick exposure also occurs from Rev-1 vaccination handling.

Incubation Period

The incubation period is highly variable; anywhere from 5-60 days with 1-2 months being commonplace. This can be longer on occasion.

Period of Communicability

No person-to-person communicability.

Control Measures

Management of Case

Treatment can be complicated. A combination of rifampicin, streptomycin, and doxycycline is required for 6 weeks. Relapse occurs in 5% of individuals and should be treated with doxycycline and rifampicin.

Management of Contacts

Person-to-person transmission has not been documented.

Management of Outbreaks

Outbreaks generally occur around occupation or consumption of unpasteurized milk. Cheese can, on occasion, also produce illness. Contact investigation can determine the link and the appropriate measure can be taken to manage the outbreak, recall of products or implement safety protocols.

Brucella has been cited as a possible bioterrorist agent because it can be aerosolized. A widespread outbreak could potentially produce problems because of complication in treatment and the possibility of relapse. Long term morbidity, if there is a lack of treatment, can also occur.

Preventive Measures

Occupational exposure can be reduced through education of high-risk workers, testing and destruction of infected animals and ensuring milk is pasteurized before consumption. Control of the disease is reliant on eliminating it from the domestic animal population. Canada declared its cattle *Brucella* free in 1985.

Reporting Requirements

The PH Lab will provide case details of any identified cases.

Regional MOH will notify

- Local physicians, nurse practitioners, communicable disease control nurses (CDCNs) and infection control nurses (ICN) in the particular region.
- Provincial office of the CMOH as per list A

Provincial Public Health is responsible for

- Reporting the data related to the disease to PHAC and other regions.
- Analysis of cases and reporting in the Communicable Disease Report (CDR)