

BRUCELLOSIS
(Undulant fever, Malta fever, Mediterranean fever) Fact Sheet
(Last updated 5 May 21)

Agent: Zoonotic bacterial disease caused by *Brucella* species. *Brucella* species that cause disease are typically associated with a single animal reservoir, such as *B. abortus* (cattle), *B. melitensis* (sheep and goats), *B. suis* (pigs), and *B. canis* (dogs).

Brief Description: Brucellosis may present as a nonspecific febrile illness that resembles influenza. Common complaints are irregular fever, headache, profound fatigue, chills, sweating, anorexia, weight loss, depression, arthralgia, and myalgia. There may be osteoarticular findings, such as sacroiliitis. The duration of disease varies from several days to a year or longer without adequate treatment. Fatalities are rare. *Brucella* species have a high probability for use in biologic terrorism.

Reservoir: Primarily cattle and swine. Sometimes sheep, goats, horses, dogs, bison, elk, caribou, deer, and coyotes.

Mode of Transmission: Zoonotic. Transmitted through abrasions of the skin when humans handle tissues, blood, urine, vaginal discharges, and aborted fetuses and placentas of infected animals. In the United States, brucellosis occurs more frequently by ingestion of unpasteurized milk and dairy products from infected animals. Hunters may be infected through skin wounds or by accidentally ingesting the bacteria after dressing deer or wild pigs that they have killed. Airborne transmission can occur in animal pens, stables, slaughterhouses, and laboratories. A small number of cases result from accidental self-inoculation when administering vaccine to animals.

Incubation Period: Highly variable. 5-60 days, but occasionally several months.

Laboratory Criteria for Diagnosis:

- Isolation of *Brucella* species from a clinical specimen,
- Fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained 2 weeks or more apart and studied at the same



- laboratory, or
- Demonstration by immunofluorescence of *Brucella* species in a clinical specimen

Diagnostic Testing: A. Serology

1. Specimen: Acute and convalescent blood or serum. Whole blood for febrile agglutination test.
2. Lab Form: Form 3410
3. Lab Test Performed: *Brucella* agglutination titers 4. Lab: State Bacteriology Lab and CDC.

Specimens for serologic testing must first be sent to the Georgia Public Health Laboratory, which forwards them to CDC.

B. Culture

1. Specimen: Refrigerated blood, bone marrow, infected tissue, abscess material, or liver biopsies (USE BIOLOGICAL SAFETY HOOD)
2. Outfits: Culture referral (0505)
3. Lab Form: 3410
4. Lab Test Performed: *Brucella* culture (ensure speciation as it can provide important clues to source of infection).
5. Lab: Bacteriology Lab, Georgia Public Health Laboratory

Case classification:

- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e., *Brucella* agglutination titer of greater than or equal to 1:160 in one or more serum specimens obtained after onset of symptoms)
- *Confirmed*: a clinically compatible case that is laboratory confirmed

Period of Communicability: Direct person-to-person transmission is extremely rare.

Treatment: Antibiotic therapy for no less than 6 weeks to prevent reoccurring infection.



Investigation: The local or district health department should investigate the source of infection. Search for history of exposure to infected animals (especially while hunting game such as deer, elk, moose, or wild boars/pigs) or animal products (especially unpasteurized milk and cheese) and trace to place of origin. Multiple cases have been traced to clinical laboratory exposures. Complete the Brucellosis Case Report Form and fax it to the Notifiable Disease Epidemiology Section (404-657-7517) as soon as possible.

Reporting: Report all cases **IMMEDIATELY** by phone to the local health department, District Health Office, or the Epidemiology Branch at 404-657-2588. If calling after regular business hours report cases to the Epidemiology Branch answering service (770-578-4104). After a verbal report has been made, please transmit the case information electronically through the State Electronic Notifiable Disease Surveillance System (SENDSS) at <http://sendss.state.ga.us>, or complete and mail a GA Notifiable Disease Report Form (#3095).

References:

1. Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions under Public Health Surveillance. *MMWR* 1997; 46(RR10): 1-55.
2. Chin J, ed. BRUCELLOSIS. In: Control of Communicable Diseases Manual. 17th ed. Washington, DC: American Public Health Association, 2000: 75-78.

Links:

- CDC Brucellosis – <http://www.cdc.gov/brucellosis/>
- CDC Emergency Preparedness and Response – <https://emergency.cdc.gov/agent/brucellosis/index.asp>
- US Department of Agriculture, National Center for Animal Health Programs: Brucellosis - <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/nvap/NVAP-Reference-Guide/Control-and-Eradication/Brucellosis>

