

Zoonoses Associated with Cattle

This document provides information on various diseases that can be passed from cattle to humans. Many times these diseases do not make the animal appear sick but can cause serious illness in humans. Persons with specific medical conditions such as an immunodeficiency and pregnancy may be at higher risk of developing disease or complications from a zoonotic disease and should consult with their physician before working with cattle. The diseases associated with cattle include: ringworm, Q fever, chlamydiosis, leptospirosis, campylobacteriosis, salmonellosis, listeriosis, yersiniosis, cryptosporidiosis and infections with pathogenic strains of *Escherichia coli* and *Mycobacterium paratuberculosis*.

Diseases associated with direct contact:

Tuberculosis and brucellosis are potential zoonoses in cattle but due to a federal eradication program for *Mycobacterium bovis*, *Brucella abortus* and *Brucella melitensis*, these diseases are uncommon in the United States except in a few areas where it persists in wild deer, elk or bison. Accidental exposure to live *Brucella abortus* vaccine can transmit infection and requires prompt medical attention.

Dermatophytosis is a fungal skin infection commonly known as “ringworm” and is seen in both animals and people as scaly round areas of hair loss. Transmission of ringworm is by direct contact with an infected animal. For prevention, wear gloves when handling animals and wash hands after contact.

Diseases associated vectors and contaminated materials:

Q fever, *Chlamydomphila psittaci* and *Chlamydomphila abortus* are agents associated with abortion in pregnant cattle but may be also carried by normal animals. Q fever and *Chlamydomphila* infections in pregnant women are associated with abortion. There is a high concentration of the above agents at the time that the animals give birth, so particular care needs to be used in handling new born animals, placental tissues and other products of conception. These agents can be acquired by direct contact with placental membranes and fetuses, by aerosol of birth fluids from infected cattle and by accidental exposure to live vaccine. Persons who are pregnant, immunosuppressed, or with heart valve defects or other chronic disease condition should consult with a physician before working with pregnant or birthing cattle.

Leptospirosis causes reproductive failure, anemia, liver and kidney disease in cattle and is typically shed in the urine of infected animals. People acquire the infection by oral ingestion and contact with contaminated urine, placenta, and fetal tissues. The organism can infect hosts through abraded skin.

Mycobacterium paratuberculosis is the causative agent of Johne’s disease in cattle and may be associated with Crohn’s disease in people but it is not yet determined if this agent causes disease in people.

Salmonellosis, campylobacteriosis, listeriosis, yersiniosis, cryptosporidiosis and infections with pathogenic *E. coli* and *Mycobacterium paratuberculosis* are acquired by contact and accidental oral ingestion of fecal material from infected animals. Animals infected with these diseases typically have diarrhea but some animals may show no symptoms of disease. Any animal with diarrhea should be suspect of having a zoonotic disease.

Individuals with exposure to animals and animal environments may develop allergic reactions to animal proteins (allergens). Approximately 20-30 percent of individuals working with laboratory animals will

develop an allergic reaction to animal proteins and 5-10 percent of individuals will develop asthma. Personnel may be exposed to allergens through inhalation and contact with skin, eyes and mucous membranes. Animal allergens may be present in animal dander, hair, skin, urine, saliva, serum and any contaminated feed or bedding materials. Risk factors for developing an allergic reaction include history of previous allergies to animals. The signs and symptoms of an allergic reaction are nasal discharge and congestion, conjunctivitis, tearing and eye itching, skin redness, rash or hives and lower airway symptoms (coughing, wheezing and shortness of breath). Individuals with symptoms suggestive of an allergic reaction related to a workplace allergen should report their concerns to their supervisor and consult a physician.

Transmission of zoonotic diseases from animals is primarily by direct contact, contact with contaminated bedding or materials, oral ingestion or inhalation of aerosolized fluids. We can protect ourselves from most diseases by using the following procedures:

- Handle animals safely to avoid kicks and crush injuries.
- Do not eat, drink, apply makeup or use tobacco products while handling animals or in animal housing areas.
- Wear gloves when handling ill animals, animal tissues, body fluids and waste and wash hands after contact.
- Wear dedicated protective clothing such as a coat or coveralls and shoe-covers or boots when handling animals. Launder the soiled clothing separate from your personal clothes and preferably at the animal facility.
- Wear respiratory protection when appropriate.
- Keep animal areas clean and disinfect equipment after using it on animals or in animal areas.

Most importantly, familiarize yourself about the animals that you will be working with and the potential zoonotic diseases associated with each species. If at any time, you suspect that you have acquired a zoonotic disease, inform your supervisor and seek medical care.

If you have further questions, contact:

Office of Research Assurances	208-885-6162	Email: IACUC@uidaho.edu
Biosafety Officer	208-885-4054	Email: biosafety@uidaho.edu
Campus Veterinarian	208-885-8958	Email: campusvet@uidaho.edu