

GUIDELINES FOR PREVENTION OF Q FEVER IN LABORATORY ANIMAL RESOURCES FACILITIES

Q fever is a rickettsial disease caused by the rickettsia *Coxiella burnetii*. Cattle, sheep and goats are the primary carriers of *Coxiella burnetii*. Because of the prevalence of Q fever in small ruminants (goats/sheep), it should be assumed these species are infected/carriers of Q fever unless their status is confirmed by repetitive serological testing. Human infection may occur by inhalation of dust from contaminated bedding or by direct contact with infected animals. The organism is shed in milk, urine and feces of infected animals. The organism is shed in especially high numbers in the placenta and placental fluids during the periparturiant period (one week prior to and two weeks following lambing/kidding). Extra precautions need to be taken during this period.

Pregnant women, people with valvular heart disease and people with weakened immune systems are at greatest risk from Q fever and should avoid working with small ruminants, particularly during the periparturiant period. Symptoms of Q fever include: fever, chills, headache, sweats, muscle aches, anorexia, and weakness. Anyone experiencing these symptoms in association with small ruminant work should contact McFarland Clinic Occupational HealthWorks immediately for appropriate care.

Precautionary guidelines are outlined as follows:

If disease status of animals is unknown, it must be assumed that the animals are infected with Q fever. The following guidelines are required whenever sheep or goats are handled:

Labeling of Facilities

- ❖ Any facility housing sheep and goats during the lambing/kidding season must be clearly marked with biohazard signs for Q fever. Biohazard door signs are available from EH&S, (515) 294-5359.
- ❖ Door signs must state required entry/exit procedures including appropriate personal protective equipment.
- ❖ Entry into facility should be restricted.

Personal Protective Equipment

- ❖ **Wear gloves** to prevent skin contact with animals or animal waste.
 - ◆ Never wash or reuse disposable gloves such as latex, nitrile or vinyl.
 - ◆ Reusable rubber gloves should be decontaminated before removal. Leather or cotton gloves should be worn over disposable gloves. Discard disposable gloves and leave reusable gloves in the animal facility. A 5% solution of quaternary ammonia is an appropriate disinfectant.
 - ◆ Thoroughly wash hands with soap and water after removing gloves.
 - ◆ If handwashing facilities are not available, use a disinfectant wipe, and wash hands thoroughly as soon as handwashing facilities are available.
- ❖ **Wear eye protection** to minimize exposure to potentially infectious placental fluid, milk, urine or feces.
 - ◆ Safety glasses with side shields or goggles provide appropriate protection.
- ❖ **Wear respiratory protection** to prevent inhalation of contaminated dust and particulate material from animal bedding and waste.
 - ◆ Wear a dust mask respirator designated as N-95 or higher.
 - ◆ Contact EH&S at (515) 294-5359 for information on respirator fit-testing and training requirements.

- ❖ **Use other personal protective equipment** such as rubber boots and coveralls or a Tyvek suit to protect primary clothing. If animals are housed in a shower in/shower out facility, primary clothing should be removed and coveralls worn when working with animals.

Sharps Use and Disposal

- ❖ **Use extreme caution with contaminated sharp items**, including needles, syringes, slides, pipettes, capillary tubes and scalpels. Substitute plastic for glass whenever possible. Dispose of all contaminated sharps items in a puncture-resistant sharps container. Autoclave sharps containers before disposal.

Decontamination

- ❖ **Wash hands thoroughly with soap and water** as soon as feasible.
- ❖ **Remove protective clothing and protective equipment** and place in plastic bags for laundering or autoclaving, as appropriate.
 - ◆ Label bags to alert other personnel of potential hazard.
 - ◆ Shower out if showering facilities are available.
- ❖ **Decontaminate all instruments, equipment, boots, etc.** before removing from facility.
 - ◆ Use an appropriate chemical disinfectant, such as a 5% quaternary ammonia solution with a 30 minute contact time for non-autoclavable items.
 - ◆ Bag and autoclave all other items.
- ❖ **Wash down animal holding areas** and disinfect with a 5% quaternary ammonia solution daily if possible. Use a 30 minute contact time. If daily cleaning is not possible, clean and disinfect at the end of the lambing/kidding season. Apply and maintain a layer of barn lime on non-cleanable surfaces such as dirt floors.

Waste

For specific waste disposal guidelines, refer to the Iowa State University Sharps and Biohazard Waste Procedure (<http://www.ehs.iastate.edu/sites/default/files/uploads/publications/policies/sharps.pdf>)

- ❖ **Bag and label all placenta**, aborted fetuses, stillborn lambs/kids and other birthing materials for incineration.
- ❖ **Bag and label all disposable materials** such as gloves, masks, paper products, etc. for autoclaving.
- ❖ **During the periparturient season, bag and label all bedding** contaminated with placental material, milk, urine or feces for incineration. Dry bedding must be wet with water before removal to reduce aerosolization.

For additional information:

- ❖ **Centers for Disease Control and Prevention's Q fever information**
<http://www.cdc.gov/qfever/>
- ❖ **Biosafety in Microbiological and Biomedical Laboratories, 5th edition; Section VII-E: Rickettsial Agents**
http://www.cdc.gov/biosafety/publications/bmbl5/BMML5_sect_VIII_d.pdf
- ❖ **Health Canada's Laboratory Centre for Disease Control Infectious Agent MSDS for *Coxiella burnetii***
<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/coxiella-burnetii-eng.php>