

Zoonotic Disease Risk Handout

This information sheet is being supplied to you to help assist you in understanding risks faced in the conduct of your job at The University of Toledo (UT). It is supplied to personnel identified as having a reasonable occupational exposure risk to the agent described. This information has been developed with the assistance of the UT Division of Laboratory Animal Medicine, Office of Health and Safety and the Office of Occupational Medicine. Questions and concerns should be directed to any of the units.

Q Fever: Q-fever is a disease caused by the microorganism *Coxiella burnetii* which can be acquired by exposure to placental membranes and fetuses from infected sheep or goats. There is an especially high concentration of these infected materials in animals at the time that the animals give birth, so particular care needs to be used in handling newborn animals, placental tissues and other products of conception. This would include the placenta, amniotic fluid, blood or soiled bedding. In addition, individuals who handle young sheep or goats up to six months of age are at a higher risk, as are individuals who participate in the routine care of sheep or goats such as the animal care workers. This agent is **extremely contagious** and is spread by aerosol.

Acute: In most individuals, the disease manifests itself as an acute illness that could be mistaken for influenza. The person has high fevers up to 104 or 105 degrees Fahrenheit. These are accompanied by general malaise, significant muscle aches and pains, and very frequently by a cough. Up to half of the individuals who develop this acute disease will have a pneumonia that can be seen on chest x-rays. A large number of people will also develop hepatitis. In most patients, the disease is self-limited and will resolve on its own after ten days to two weeks. In older or ill individuals, this acute illness may take one to two months to resolve. Even though it will resolve on its own, it is generally better to treat the disease with tetracycline because this does reduce the duration of fever. It is extremely important that, should an employee who works with sheep or goats develop an influenza type infection, that he/she mention to their physician the possibility of Q-fever. Q-fever is something that would not routinely be thought of and this diagnosis is often missed.

Chronic: A chronic infection with the Q-fever organism is rare, and occurs in less than 1% of infected individuals. It manifests as endocarditis which is an infection on the valves of the heart and is often fatal. Individuals with congenital heart disease, prior valvular heart disease, or who have a chronic immunocompromised state should not work with infected animals at the time of animal parturition (birth process), and it is best that they not work with sheep and goats at all (determined on a case by case basis). Immunocompromised individuals would include those with AIDS or a

positive blood test for the AIDS virus (HIV), or immunocompromised because of medications or certain chronic diseases.

In order to limit the spread of Q-fever, there are a number of procedures that should be followed:

When possible, specific pathogen-free sheep and goats should be used. Sheep or goat laboratories and their animal care housing areas should be strictly off limits to anyone who does not have a specific need to be there. Dedicated clothing and shoes or boots should be worn. Gloves (preferably forearm length) should always be used in handling the placentas and newborns of these animals. It is important that animals be transported carefully to avoid infecting others besides laboratory personnel. Potentially contaminated surfaces should be decontaminated with dilute solutions of chlorine bleach or dilute solutions of Lysol as these organisms are quite resistant to destruction and many ordinary methods of disinfecting will not be adequate. It is extremely important that laboratory doors be kept closed when experiments are in progress. Employees working with potentially infected tissue need to wear protective clothing that is not worn outside the area.

A vaccine to protect humans from Q-fever is not available. Serum tests may be done to see if one has been exposed to Q-fever.

1. Employees at risk of exposure to Q Fever include those who:
 - a. High risk:
 - Have direct contact with the organism *Coxiella burnetii* in a research capacity,
 - Handle or use products of pregnancy or parturition (placenta, amniotic fluid, blood or soiled bedding) from sheep or goats.
 - b. Medium risk:
 - Caring for sheep or goats.
 - Experimenting with sheep or goats or their products.
 - c. Low risk:
 - All persons working along any transportation routes where young or pregnant sheep or goats are moved through the facility
 - All persons entering any space previously occupied by young or pregnant sheep or goats prior to high level disinfection
2. At the time of the enrollment exam, employees are assessed for their likelihood of developing chronic sequelae should they acquire Q Fever. Those employees with valvular or congenital heart defects, or those who are receiving immunosuppressant drugs, or splenectomized are advised of the potential risks involved and

medical clearance for employment will be determined by the OMS on a case by case basis.

When ill, it is important to discuss your possible occupational exposures with your attending physician as this information can be instrumental in timely diagnosis and treatment.