

What You Should Know About Health Risks When Working With Laboratory Animals

This information sheet is to help you in understand potential infectious risks faced in the conduct of this training event. 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.

The use of animals for research and teaching is closely controlled by both UT and external agencies. The primary research funding agencies, such as the National Institutes of Health (NIH), have detailed guidelines covering all aspects of animal care and research use. UT adheres to these guidelines in order to be eligible for the research funds. An independent, international association that reviews animal care and research programs also accredits the UT Health Science Campus animal facility. This group is called the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) and is somewhat similar to the JCAHO accreditation. There are two UT committee's, one located on each campus, that oversee all animal care and use. The committee is called the Institutional Animal Care and Use Committee (IACUC) and is made up of faculty (both animal researchers and non-users), lab animal staff, and area community representatives. The IACUC reviews proposals that involve the use of animals.

Each of these agencies has, as a component of their oversight of animal use, a concern about the safety and welfare of humans involved in the animal use. This concern is derived from the fact that there are health and safety issues related to animal use that may be unique to the person's responsibilities. For persons without direct animal use responsibility but who work in the animal facility in the context of other responsibilities, this handout has been produced and supplied. It briefly describes circumstances that could arise within the animal facility and how to respond to minimize health and safety risks.

Personal Hygiene: There are a number of personal hygiene issues that apply to all persons who are exposed to animals.

- a. There should be no eating, drinking, smoking or applying of cosmetics in areas where animals are housed or used.
- b. Laboratory coats should be worn over street clothes when working with animals - this will minimize the contamination of street clothing. Laboratory clothes should be left in the lab and should not be worn when eating or in public eating areas.
- c. Careful hand washing should be done after the handling of animals and prior to leaving the laboratory.
- d. Certain infections are transmitted from animals to humans primarily by the animal's feces or urine contaminating one's hands that may then contaminate objects put into the mouth. Examples of organisms utilizing this mode of transmission are species of *Salmonella*, *Leptospira* and *Entamoeba*. Every precaution should be taken to avoid this mode of transmission by alertness and careful personal hygiene. Additional health problems are encountered when these organisms are carried home and children/family members are exposed.

Zoonotic Disease Information

The pigs used in this laboratory are from a regional farm and represent potential zoonotic disease risks of general U.S. food production stock.

Leptospirosis: Leptospirosis is an infection caused by various bacteria in the genus, *Leptospira*. Research animals that have not been specifically bred and raised for research represent a potential source of this infection. Farm-type animals, such as cattle and pigs, can potentially harbor the bacteria without demonstrating signs of it. *Leptospira* are viable in wet environments, are highly infectious and are capable of penetrating intact mucous membranes. Hence, infections are usually established following contact with water contaminated with *Leptospira*-containing urine. Infection may cause a variety of clinical syndromes: photosensitization, hemolytic anemia, hepatic or renal failure, or abortion may be seen. The infection can be fatal. Avoidance of contact with infected animals, their urine, and contaminated water sources are important to lessen risk. Use of protective clothing such as exam gloves and frequent hand washing is also important.

Cryptosporidiosis: Cryptosporidia are tiny protozoan parasites of the gastrointestinal tract. Infection risk is ever present when dealing with domestic livestock but a wide range of other mammals and birds may carry it. The organism is shed in the feces. In immunocompetent persons, infection varies from no symptoms to mild enteritis to marked watery diarrhea without mucus or gross or microscopic blood. Low-grade fever, malaise, nausea, vomiting, abdominal cramps, anorexia and weight loss may occur. The infection is generally self-limited and lasts a few days to about 2 weeks. In immunologically deficient patients, the illness is characterized by profuse, cholera-like diarrhea and by fever, severe malabsorption, marked weight loss, and lymphadenopathy. In AIDS, infection may involve any part of the GI tract, and multisystemic involvement has been described, especially involving the respiratory tract. Treatment is palliative. As transmission is by the fecal-oral route, hand washing is important to minimizing exposure. Contaminated water sources have also been implicated in transmission and should be avoided.

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.

Other Zoonotic Disease Causing Agents Associated with Pigs:

- Ascaris
- Balantidiasis coli
- Chlamydia psittaci
- Coxiella burnetii (Q Fever)
- E. coli (multiple strains)
- Erysipelothrix rhusiopathiae
- Influenza
- Listeria spp (serology and culture)
- Salmonella spp (especially MDR S. typhimurium DT104)