BACKGROUND
This document provides information about potential zoonotic exposure while working with or exposed to wild rodents. Wild rodents, or their parasites, can be vectors/reservoirs of pathogens that are zoonotic (i.e. can infect humans). Risk for infection is dependent on: the species of rodent, the geographic location of the rodent, rodent handling practices, prevalence of the disease, and the immunologic status of the persons working with the rodents. The infectious agents listed here are not all inclusive, but provide the most common zoonotic agents seen in wild rodents. The safe work practices are provided as suggestions for staff and researchers who work with animals, in animal facilities, or with animal products.

ZOONOTIC PATHOGENS
Personnel who perform rodent trapping or handle rodents should familiarize themselves with the regional risks for zoonosis. Zoonotic diseases of concern include by are not limited to the following:

1. Hantavirus
2. Tularemia (*Francisella tularensis*)
3. Plague (*Yersinia pestis*)
4. Leptospirosis
5. Salmonellosis
6. Lymphocytic choriomeningitis virus (LCMV)
7. Rabies
8. Rat Bite Fever (*Streptobacillus moniliformis*)

SAFE WORK PRACTICES

1. Good Personal Hygiene
   a. Practice good personal hygiene.
      i. Avoid contact of mucous membranes with contaminated hands or materials.
      ii. Wash hands thoroughly with soap and water as soon as feasible (substitute alcohol-based disinfectants if water is unavailable- if hands are soiled, use “baby wipes” or similar material to remove dirt before using a sanitizer).
   b. Do not eat, drink, or use tobacco products in animal facilities.
2. Personal Protective Equipment
   a. Wear the appropriate PPE when performing tasks that increase the risk of exposure.
   b. Wear disposable protective clothing, coveralls, or apron when handling captured rodents, potentially contaminated traps, or disturbing nests or burrows. Slowly and
carefully turn clothing inside out. Contain soiled clothing appropriately, such as in plastic bags, when tasks are completed.

c. Wear sturdy rubber or leather gloves when handling rodents or cleaning out traps to prevent contact with potentially contaminated urine and feces, and to prevent tearing on sharp edges of traps or bites from animals.

d. Personnel who will use respirators must obtain medical clearance, and be enrolled in the respiratory protection program through URI’s Environmental Health & Safety (EH&S). The use of respiratory protection should be based on a risk assessment. Please contact EH&S to assist in this assessment.

e. Have a bite disinfection kit readily available consisting of disinfectant, brush, soap, and water.

3. Animal Care

    a. Conducting animal work in the field setting presents unique safety hazards, review safety guidelines for field work with URI EH&S.

    b. When in the field, assure that emergency contact information and method of contact are close at hand.

    c. In the Kingston area, emergency veterinary care is available at all times including after working hours and on weekends and holidays (Vet phone: 401-742-2855).

4. Cleaning and Disinfecting

    a. Spray all potentially contaminated materials such as feces, urine, bedding with a 1:10 dilution of bleach or other suitable disinfectant. Avoid stirring up dry, dusty materials, thus minimizing the generation of potentially hazardous aerosol particles.

    b. After rodent use, disinfect traps by submerging in 1:10 dilution of bleach or other suitable disinfectant for 15 to 30 minutes. Rinse with water and let dry in the sun. If traps cannot be disinfected in the field, place in plastic bag for transport to an appropriate location. Disinfectant (e.g., 1:10 dilution of household bleach, 70% alcohol,) and method of application (e.g., sprayer or dunk tank).

5. Transporting live animals back to campus.

    a. An approved IACUC protocol is required before transporting live animals.

    b. Avoid contamination of the passenger compartment of vehicles.

    c. Transfer live animals to microisolator cages, or transport animals in their traps in an air-flow restrictive, secondary container (e.g., loosely tied plastic bag).

    d. Use appropriate respiratory and personal protective equipment when performing these tasks.

6. Medical Attention

    a. Students: Contact URI Health Services (874-4763) for medical evaluation if you suspect any exposure, or if you develop any symptoms associated with infection with zoonotic agents (e.g., fever, malaise, diarrhea, abdominal pain). Alternatively, see your own personal health care provider if any injury or potential exposure to a zoonotic agent occurs.

    b. Employees: Contact URI Environmental health and Safety if you suspect any exposure, or if you develop any symptoms associated with infection with zoonotic agents (e.g., fever, malaise, diarrhea, abdominal pain). Alternatively, see your own personal health care provider if any injury or potential exposure to a zoonotic agent occurs.

REFERENCES

3. Hantavirus pulmonary syndrome, risk reduction-CDC: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5109a1.htm

APPENDIX – SPECIFIC ZOONOSIS INFORMATION

1. Hantavirus
   a. Work upwind of the trap or nest as much as possible. Define an exclusion zone in which workers without personal protective equipment are not permitted. Perform all procedures so as to minimize creation of aerosols and disturbance of dust.
   b. Consult EHS regarding regional and personal risk for assessment of appropriate PPE. Based on this assessment, use of respirators may be advised to reduce or eliminate exposure to aerosol particles from rodent excreta and procedures that may generate airborne contaminants.
   c. Personnel who develop a fever, respiratory illness, lethargy other signs of illness within 45 days of potential exposure should seek medical care immediately. Inform the physician about the potential occupational risk of hantavirus (or applicable agents listed below) infection.

2. Tularemia
   a. Work upwind of the trap or nest as much as possible. Define an exclusion zone in which workers without personal protective equipment are not permitted. Perform all procedures so as to minimize creation of aerosols and disturbance of dust.
   b. Consult EHS regarding regional and personal risk for assessment of appropriate PPE. Based on this assessment, use of respirators may be advised to reduce or eliminate exposure to aerosol particles from rodent excreta and procedures that may generate airborne contaminants.
   c. In addition to respiratory transmission, ticks are potential carriers. Euthanasia of animals carrying Tularemia infected ticks will result in ticks leaving the carcass.
      i. Place the dead animal in a clear plastic bag immediately following euthanasia. Ticks will be noted leaving the carcass within 30-60 minutes following euthanasia.
      ii. If ticks are noted, introduce of a tick specific insecticide (e.g. VET-KEM Ovitrol®) into the bag. Do not open the bag until the ticks are dead.
   d. Personnel who develop any skin ulcers &/or glandular sensitivity/swelling within 14 days of potential exposure should seek prompt medical care and inform the physician about possible exposure to tularemia.
3. Plague
   a. Work upwind of the trap or nest as much as possible. Define an exclusion zone in which workers without personal protective equipment are not permitted. Perform all procedures so as to minimize creation of aerosols and disturbance of dust.
   b. Consult EHS regarding regional and personal risk for assessment of appropriate PPE. Based on this assessment, use of respirators may be advised to reduce or eliminate exposure to aerosol particles from rodent excreta and procedures that may generate airborne contaminants.
   c. Euthanasia of animals carrying plague infected fleas will result in fleas leaving the carcass.
      i. Place the dead animal in a clear plastic bag immediately following euthanasia. Fleas will be noted leaving the carcass within 30-60 minutes following euthanasia.
      ii. If fleas are noted, introduce a flea specific insecticide (e.g. VET-KEM Ovitrol®) into the bag. Do not open the bag until the fleas are dead.
   d. Symptoms from plague can be highly variable. For more details, consult the Mayo Clinic reference cited in section 6, References, of this document. Personnel who develop symptoms within 7 days of potential exposure should seek prompt medical care and inform the physician of possible exposure to plague bacteria.

4. LCMV
   a. Work upwind of the trap or nest as much as possible. Define an exclusion zone in which workers without personal protective equipment are not permitted. Perform all procedures so as to minimize creation of aerosols and disturbance of dust.
   b. Consult EHS regarding regional and personal risk for assessment of appropriate PPE. Based on this assessment, use of respirators may be advised to reduce or eliminate exposure to aerosol particles from rodent excreta and procedures that may generate airborne contaminants.
   c. Symptoms from lymphocytic choriomeningitis virus (LCMV) can be highly variable. For more details, consult the CDC reference cited in section 6, References, of this document. Personnel who develop symptoms within 21 days of potential exposure should seek prompt medical care and inform the physician of possible exposure to LCMV.

5. Leptospirosis
   a. Work upwind of the trap or nest as much as possible. Define an exclusion zone in which workers without personal protective equipment are not permitted. Perform all procedures so as to minimize creation of aerosols and disturbance of dust.
   b. Consult EHS regarding regional and personal risk for assessment of appropriate PPE. Based on this assessment, use of respirators may be advised to reduce or eliminate exposure to aerosol particles from rodent excreta and procedures that may generate airborne contaminants.
   c. Symptoms for leptospirosis include high fever, severe headache, chills, muscle aches, and vomiting, and may include jaundice (yellow skin and eyes), red eyes, abdominal pain, diarrhea, or a rash. Personnel who develop symptoms within 28 days of potential exposure should seek prompt medical care and inform the physician of possible exposure to leptospirosis bacteria.