

**East Tennessee State University**

**Occupational Health and Safety Program  
for Personnel  
Exposed to Vertebrate Animals**

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For information on this program please contact:

UCAC Occupational Health Coordinator  
Department of Internal Medicine  
Box 70622  
East Tennessee State University  
Tel. 423-439-6282

Greg Hanley, DVM, PhD  
Director  
Div. of Laboratory Animal Resources  
East Tennessee State University  
Tel. 423-439-6783  
email: [hanley@etsu.edu](mailto:hanley@etsu.edu)

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**I. OH&S PROGRAMS FOR PERSONNEL EXPOSED TO VERTEBRATE ANIMALS AT ETSU.**

**A. Purpose**

The purpose of this OH&SP is to provide health and safety information related to use and care of laboratory animals and to minimize risks of occupational injury and illness by controlling or eliminating hazards in the workplace. The program is designed to protect personnel exposed to animals as well as the animals used.

This program is intended to comply with OSHA regulations and NIH requirements to establish an occupational health and safety program for personnel with animal contact. The ETSU program follows the recommendations published by the NIH and by the Institute for Laboratory Animal Resources in: “Occupational Health and Safety in the Care and Use of Research Animals.” (National Research Council, Nat. Academy Press, Washington, DC 1997, ISBN 0-309-05299-8).

**B. Program Components and Administration:**

The components of the OH&SP at ETSU are listed in the following table:

Component	Administrator
Occupational Health Care Program	UCAC Occupational Health Coordinator Tel. 439-6282
<a href="#">Workers’ Compensation Program</a>	Human Resources, Tel. 439-4457
<a href="#">Chemical Hygiene Plan</a>	ETSU Health & Safety Office, Tel. 439-7785 Dr. Mark Jee
<a href="#">Hazard Communication w/GHS Policy</a>	ETSU Health & Safety Office, Tel. 439-7785 Dr. Mark Jee
<a href="#">Hazardous Waste Management Plan</a>	ETSU Health & Safety Office, Tel. 439-7785 Dr. Mark Jee
<a href="#">Emergency Preparedness Plan</a>	ETSU Health & Safety Office, Tel. 439-7785 Dr. Mark Jee
<a href="#">Bloodborne Pathogen Exposure Control</a>	ETSU Health & Safety Office, Tel. 439-7785 Dr. Mark Jee
<a href="#">Radiation Emergency</a>	Radiation Safety Office. Tel. 439-6056 Mark Jee
Use of recombinant DNA material in animals	ETSU Institutional Biosafety and Chemical Safety Committee (IBC), Tel. 439-7078 Phil Scheurman

**C. Eligibility and Participation**

All ETSU personnel who work in laboratory animal facilities or work with vertebrate animals or their viable tissues, body fluids, or wastes must be familiar with and participate in this program. Individuals involved in isolated one-time, non-recurrent exposure should be informed of potential risks and should take appropriate precautions but are not required to complete the entire program. These individuals are provided with the information sheet entitled “Information for Visitors, Maintenance Personnel, and Contractors” (appendix).

**D. Training**

An important factor in protecting the health of personnel engaged in animal care and research is training. All employees need to be aware of and understand the potential health risks when using experimental animals or

hazardous agents. It is the responsibility of the supervisor, principal investigator, or lab director to inform the employee of the potential risks before exposure to animals or hazardous agents. Proper training in working with animals should be included in the health and safety training program for the laboratory. Universal precautions to be applied in animal facilities and animal use laboratories are similar to the precautions for work with human pathogens. The “Universal Precautions in Animal Facilities and Laboratories” are provided in the Appendix.

## II. HAZARDS ENCOUNTERED WHEN WORKING WITH LAB ANIMALS

Cuts, scratches, bites and allergic reactions are the most common hazards. In general, health and safety matters are related to the animal species, the frequency and type of contact, to facility design, equipment design, human behavior, and each person’s health status.

### A. Types of Hazards:

**Animal Bites and Scratches:** Bites and scratches can expose animal technicians, laboratory personnel and others working with animals to biologic hazards transmitted through contaminated saliva, secretions or blood. These injuries are largely preventable through proper training in animal handling techniques. Inappropriate handling can induce discomfort, pain, and distress in an animal, provoking it to inflict injury on its handler. Anybody picking up or restraining an animal must be trained in proper handling techniques. Intractable animals might have to be sedated before they are physically restrained. Training in the proper handling techniques of laboratory animals is available at ETSU in the Division of Laboratory Animal Resources.

Animal bites, including those with little tissue damage inflicted by rodents can result in contamination by the normal oral flora of the animals. The early initiation of antimicrobial therapy for animal bites may be warranted, if advised by a physician. All personnel working with animals must have current tetanus immunization. The biting animal should be evaluated by a veterinarian. Rabies, hantavirus infection, cat-scratch fever, tularemia, rat-bite fever, brucellosis, and Orf are among the specific diseases that can be transmitted by animal bites.

**Allergens:** Allergic reactions to animals are among the most common conditions that adversely affect the health of workers involved in the care and use of animals in research. All personnel should be aware that laboratory animals, particularly rats, rabbits, guinea pigs, hamsters and birds, are sources of potent allergens. Products from animals that may induce allergic reactions are animal skin, dander, fur, urine, and saliva. The route of exposure is most often due to airborne allergens, however, contact allergies are quite common. Depending on the exposure, the allergic reaction may induce respiratory symptoms, itchy eyes and rashes. Symptoms usually evolve over an exposure period of 1-2 years. Latex in rubber gloves is another cause of contact allergies.

Persons with sensitivities to laboratory animals should avoid repetitive exposure. Development of aerosols and dust should be avoided when working with animals. Some work practices and personal protective equipment can reduce the potential development of allergies and perhaps alter the severity. Protective clothing such as a laboratory coat and should be worn when working with animals. Once sensitization has occurred it may be necessary to wear a dust-mist respirator; disposable surgical masks usually do not provide sufficient protection. More details are described in the information sheet “Animal Related Allergies” in the Appendix.

**Physical Hazards:** Sharp objects, ergonomic hazards (heavy lifting or repetitive motions), high temperature, flammable materials, pressure vessels (compressed gas cylinders, high-pressure washing equipment, autoclaves), heavy machinery, electricity, lasers, x-ray equipment, excessive noise, slippery floors, broken or weak supports, and many other conditions are physical hazards encountered in an animal housing facility and an animal use laboratory. Precautionary measures should be taken where these hazards occur.

**Radioisotopes:** Radioisotopes are radioactive forms of normally nonradioactive elements. They emit low levels of radiation, which makes them valuable as tracers in biological investigations of metabolic processes. Usually these types of isotopes are dangerous only if contacted directly. The use of some, however, requires stringent precautions and safety measures. A radiation monitoring badge that records radiation exposure must be worn by all staff working with radioisotopes. The Radiation Safety Officer may be contacted for information and advice at tel. 439-7785.

**Toxins and Hazardous Chemicals:** Toxins are poisonous substances produced by bacterial, plant, or animal cells. For example, the bacterium *Clostridium tetani* produces tetanus toxins, and castor bean plants produce a toxin called ricin. Anesthetic gases and drugs may be toxic. Potentially hazardous chemicals used in the laboratory or animal housing areas may be found in disinfectants, cleaning agents, or pesticides, and as feed and bedding contaminants. Toxic and chemical waste should be handled with special precautions. The Health and Safety Officer may be contacted with questions concerning chemical safety and hazardous waste removal at tel. 439-7785.

**Mutagens:** Mutagens are substances that cause changes in chromosomes and thereby induce the occurrence of mutations. Carcinogens are substances that can produce cancer directly.

**Pathogens:** Pathogens are live infectious bacteria, viruses, fungi, or parasites that pose a threat to humans and animals. Many pathogens are blood-borne. Other pathogens are utilized as a component of research studies. In all cases a set of standard precautions should be developed by the facility/laboratory management to protect personnel.

**Zoonoses** are infectious diseases of animals transmissible to man. As a rule, the incidence of zoonoses is low among personnel handling or using laboratory animals and a long listing of these diseases may produce a distorted impression of the actual risks involved. Overall, the scope of possible zoonotic infections is quite large - over 150 diseases may be classified as zoonotic. Only the more important diseases for laboratory workers will be described in this document. Further information can be obtained from the office of the Division of Laboratory Animal Resources, from the UCAC Occupational Health Coordinator or from your personal physician or on Internet sites such as the NIH Centers for Disease Control and Prevention at <https://www.cdc.gov/diseasesconditions/index.html>, and <http://www.cdc.gov/ncidod/dpd/parasites/listing.htm>, or Pathogen Safety Data Sheets, Government of Canada, Centre for Biosecurity): <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html>

## **B. Hazard Containment:**

Exposure to potentially hazardous physical conditions or biological, chemical, radiological agents should be monitored. Protective devices should be used when possible, and safety practices consistent with current safety guidelines should be adopted.

While working with animals every effort must be made to prevent human infection and to protect the animals from exposure to human carriers. The Universal Precautions for working with blood borne pathogens are widely accepted in laboratories where human tissue is handled. The “Universal Precautions in Animal Facilities and Laboratories” are very similar and are attached in the Appendix.

There are some common sense steps that can be taken to lessen the risk of infection in general. These include cleanliness in routine tasks around animals, wearing protective clothing, protection against animal bites and scratches, and hand washing after completion of animal work. A certified biological safety cabinet and gloves should be used when handling infectious materials, and a certified fume hood should be used when handling toxic materials. All work surfaces should be decontaminated after each use. All contaminated materials should be decontaminated (by autoclaving or chemical disinfection) before washing, reuse, or disposal.

### **1. Personal protection**

**a. Personal hygiene:** This is probably the most important factor in protecting the health of personnel engaged in animal care and research. Hand washing is a crucial activity for safeguarding personnel in the animal facility and in laboratories. Hands should be washed after contact with contaminated or potentially contaminated surfaces, animals, their body fluids or waste and after removal of contaminated gloves. Personnel should avoid touching their eyes, face, mouth, or other body surfaces with contaminated hands or gloves.

Hands should be routinely washed before eating, drinking, applying cosmetics, before touching contact lenses, and before leaving the animal facility. Effective hand washing consists of at least a 20-second lathering with soap and warm water followed by a thorough rinse.

Showers are an excellent adjunct to personal hygiene, and may be required when working with certain hazardous agents. Showers are available in both animal facilities as well as on the second floor of Building VA 119 and on the first floor of Building VA 178.

**Eating, drinking, smoking, chewing (gum or tobacco products) or application of cosmetics are not permitted in animal rooms and auxiliary support areas or in research laboratories where animals or their tissues are handled.**

Employees' food and beverages should be stored only in refrigerators and/or freezers designated exclusively for such use and placed away from animal care and use areas.

**b. Protective clothing and devices:** For personnel exposed to animals or their waste and tissues, protective clothing depends on the procedures to be performed. As a minimum, a clean lab coat must be worn when entering an animal room or when handling animals or animal tissues in the laboratory. Additionally, gloves must be worn when handling animals or their wastes. For employees with allergies to animals, other appropriate items such as respirators may need to be worn. Uniforms are provided for all employees in the DLAR and are worn while performing care and maintenance duties within the animal facilities.

Soiled protective clothing should not be worn outside the laboratory or the animal facility. Laundry should be provided by the employer for washable protective clothing. Never should protective clothing be worn home or taken home to be laundered. Disposable protective clothing should be discarded when soiled.

Disposable gloves are useful to prevent the transmission of diseases between animal rooms and in limiting disease transmission between animals and humans. They are also useful to limit exposure to contact allergens. Disposable gloves are available in every animal room and should be available to personnel in the laboratory. Some personnel may develop contact dermatitis allergy to the material that is used to lubricate disposable gloves or to the glove material itself, especially latex; alternative gloves or lubricants are available for these cases.

Special equipment and clothing may be required when personnel are engaged in studies that involve hazardous agents. The specific measures needed must be appropriate for the agents used.

**c. Hearing protection:** Noise levels may reach potentially damaging levels in certain areas of the animal facility, especially in the dog housing rooms and in the cage wash areas. Hearing protection devices, such as head-set type protectors and disposable foam ear plugs, are available in the animal facilities and should be worn by personnel entering areas with high noise levels.

**d. Eye protection:** Protective eye wear should be used by employees who handle corrosive or otherwise dangerous liquids. These devices should completely shield the eyes. Persons wearing contact lenses should use safety eye glasses or goggles in high-dust areas.

**C. If you work with RABBITS or RODENTS (e.g. GERBILS, GUINEA PIGS, HAMSTERS, MICE, RATS)**

Rodents and rabbits used at ETSU arrive from pre-approved sources where the animals were tested and found to be free of human and animal pathogens. After receipt at ETSU, these animals are usually maintained pathogen-free through use of proper control measures, e.g., quarantine and health monitoring, including laboratory tests. Thus the chance of contracting an infectious disease from a small laboratory animal at ETSU is minimal. However, precautions against injury (bites and scratches) should be taken when handling these animals. Contact with wild rodents requires special precautions. Also, everybody working with rodents and rabbits should be aware of the possibility of allergic reactions.

Some of the diseases reportedly acquired from rodents and rabbits in laboratories are rat bite fever, toxoplasmosis, lymphocytic choriomeningitis (LCM), hantavirus infection, salmonellosis, tularemia, leptospirosis, bubonic plague, tapeworm infection as well as ringworm, and other dermatomycoses.

**D. If you work with DOGS or CATS**

Contact with dogs and cats requires precautions against such infections as rabies (dogs and cats), tetanus (dogs and cats), cat scratch fever, campylobacteriosis (dogs), brucellosis (dogs), helicobacter infections (most animals), toxoplasmosis (cats), and Q fever (cats). Parasites such as visceral larval migrans, some tapeworms, and sarcoptic mange are a potential risk to those handling infected animals. Ringworm, a fungal disease of the skin, is a common infection in cats and is readily transferable to man. Those working with cats also should be conscious of possible allergic reactions. Strict adherence to personal hygiene practices during and after handling dogs and cats is essential.

Dogs and cats used in long term studies at ETSU are vaccinated against rabies. An exception is made for those animals used in acute experiments (housed at ETSU less than one (1) week). Even though the dogs and cats are under a veterinarian's supervision, some risk of exposure to rabies exists because the observation period may be too short to allow typical symptoms of the disease to develop. Further details are described in the informational sheet on "Rabies".

Cat scratch disease is a zoonotic infection caused by the rickettsia *Bartonella henselae* and is characterized by a skin papule at the site of the cat scratch followed by regional lymphadenitis and signs of systemic infection, including a mild and short-lasting fever. While the prognosis usually is excellent and the disease in most cases is self-limiting, an examination by a physician is recommended.

Women of child-bearing capacity and immunosuppressed persons planning to work with cats should be aware of possible exposure to toxoplasmosis and are encouraged to have a blood sample drawn for a *Toxoplasma* antibody titer prior to beginning work with cats and annually thereafter. Please refer to the informational sheet in the Appendix for more details on toxoplasmosis.

**E. If you work with FARM ANIMALS (e.g. CATTLE, GOATS, SHEEP, PIGS)**

Q fever is a potentially serious human disease. It is caused by the rickettsia *Coxiella burnetii*, an organism shed abundantly from the placental membranes of sheep as well as other animals. Gloves, mask and protective clothing are required for individuals working with pregnant sheep and goats. Infected persons can be treated with antibiotics.

Erysipelas in pigs can be transmitted as a severe focal skin infection to man. Pigs showing diagnostic lesions should be handled with care. Similar appearing, though less severe, skin lesions are seen on the hands after contact with sheep and goats infected with contagious ecthyma (Orf).

*Campylobacter*, *Helicobacter*, and *Salmonella* spp. can be transferred between humans and from animals to humans. Precautions, such as careful hand washing, should be taken after contact with feces of farm animals.

**F. If you work with PRIMATES (e.g. BABOONS, CHIMPANZEES, MONKEYS)**

Non-human primates are not housed at ETSU at this time. However, contact with these animals or their tissues and waste at other institutions may pose significant health risks. The occupational health and safety program at the institution of exposure should be consulted for details on personal protective measures.

**G. If you work with WILD VERTEBRATE ANIMALS OR ARE DOING FIELD RESEARCH**

Field Studies, especially when handling wild animals, may expose persons to a variety of infectious agents. *Salmonella* spp. are frequently harbored in turtles and other reptiles and amphibians. External and internal parasites may be transmitted from wild animals to humans, e.g. the ascarid causing raccoon round worm disease. Therefore, if wild animals or their products are handled, wearing gloves and good hand washing are always recommended. Personal protection against injury is important. Protection against blood-sucking mosquitos and animal parasites (fleas, ticks, mites) should be stressed, as these can transmit a variety of infectious agents.

Unusual research species pose certain other risks. Birds may transmit diseases such as psittacosis, avian tuberculosis, and campylobacteriosis. Only inspected and properly quarantined birds should be used in research studies or teaching demonstrations.



Rabies can be a threat in blood-sucking bats. Therefore, personnel working with these species or entering caves where these animals might live are advised to participate in the pre-exposure rabies prophylaxis program. Contact the Occupational Health Office or the Office of the Division of Laboratory Animal Resources for further information.

#### **H. If you work with HAZARDOUS AGENTS**

All hazardous agents to be used in vertebrate animals must be approved by the University Committee on Animal Care and the Institutional Biosafety Committee (IBC). Instructions on handling the agents, on personnel protection, on special animal housing and waste removal must be developed before approval of use of these agents in animals is granted. In addition to the use of hazardous agents for research purposes one should not overlook that potentially hazardous chemicals may be found in disinfectants and cleaning agents.

Hands should be washed after handling chemicals, infectious materials, animals, and before leaving the laboratory. A biological safety cabinet should be used when handling infectious materials and a fume hood when handling toxic materials. All work surfaces should be decontaminated daily. All contaminated materials should be decontaminated (by autoclaving or chemical disinfection) before washing, reuse, or disposal.

Pregnant women or those planning to become pregnant should confer with their physician, or with the UCAC Occupational Health Coordinator prior to exposure to toxins, hazardous chemicals, infectious agents or radioactive substances.

#### **I. If you are PREGNANT**

Because of the risk of congenital Toxoplasma infection exists, precautions should always be taken. Pregnant women without immunity to toxoplasmosis should not be exposed to sources of Toxoplasma infection nor should they have contact with cats. Since asymptomatic Toxoplasma infection is common before child-bearing years, serum samples should be taken of all women handling high-risk animal species prior to beginning work to avoid confusion about the significance of positive antibody tests in case of subsequent pregnancy. Direct contact with cat feces should be avoided. Gloves should be worn when working in areas potentially contaminated with cat feces. Thorough hand washing after handling any potential source of infection is necessary.

Working with hazardous agents, in particular exposure to the possible inhalation of toxic chemicals, in the first trimester of pregnancy is discouraged.

#### **J. If you have an IMPAIRED IMMUNE SYSTEM**

The risk of contracting a disease from animals is minimal. However, individuals with an impaired immune system due to disease or medication should be aware of their increased risks of zoonotic infections and should limit their exposure to animals.

#### **K. If you are INJURED while performing your duties at ETSU or suspect a JOB-RELATED ILLNESS**

Employees and students should bring all work / classroom-related injuries and illnesses to the attention of the supervisor. An initial determination should be made whether treatment is necessary. When there is uncertainty, a physician or other appropriate health professional should be consulted; however, appropriate first aid should be administered immediately.

All injuries/illnesses of ETSU employees and RSWP students should be reported to the immediate supervisor and to the CorVel Workplace Injury Call Center at (866) 245-8588 as soon as possible. The Call Center line is answered 24/7 by a nurse who will inform you what medical facilities are authorized to treat injuries for the State of TN. Accidents to visitors, volunteers and non-work study students should be reported immediately to Division of Claims Administration of the State Treasury Department, 423-439-4414. If the injury is life threatening then immediately call 911. OSHA Definitions: **Injuries** include cases such as, but not limited to, a cut, fracture, sprain, or amputation. **Illnesses** include both acute and chronic illnesses, such as, but not limited to, allergies, skin disease, respiratory disorder, or poisoning. Only work-related injuries and illnesses should be reported. An injury or illness is considered

**work-related** if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. More information on conditions that should be reported under the Workers' Compensation program is available on the ETSU Human Resources' web site..

### III. THE OCCUPATIONAL HEALTH CARE PROGRAM FOR PERSONNEL EXPOSED TO VERTEBRATE ANIMALS AT ETSU.

The occupational health care program at ETSU is designed

- to provide information on the risks of working with animals;
- to foster the prevention of occupationally acquired illnesses and injuries;
- to determine each individual's physical fitness to perform the duties of his/her position satisfactorily and without risk to the health and safety of fellow employees, students and visitors;
- to offer occupationally indicated immunizations and tests; and
- to provide a mechanism for reporting and treatment of work related injuries and illnesses.

It is the intent of this program to ensure that risks associated with the use of research and teaching animals are kept to an acceptable minimum.

Identification of at-risk individuals for inclusion in the occupational health care program is essential to ensure their protection. Participation in this program is mandatory at ETSU for all personnel with exposure to vertebrate animals, their viable tissue or waste. This includes faculty, staff, students, visitors and volunteers.

A critical component of the program is the identification of potential hazards. Evaluation of proposed animal use studies by the University Committee on Animal Care (UCAC) includes a review of the potential hazards involved. This review process provides an opportunity for identifying personnel who will be involved in an animal study protocol and therefore the persons potentially exposed to the associated hazards.

Occupational health care services for this program are provided and coordinated by the Department of Internal Medicine (UCAC Occupational Health Coordinator Tel. 439-6282. Physicians with expertise in occupational medicine, work related allergies and infectious diseases as well as individuals responsible for the overall ETSU Health & Safety Program are available as consultants.

#### A. Health Care Services for all personnel with exposure to vertebrate animals or animal products at ETSU

**1. Education and training:** Personnel training is the most important element of the safety program in a laboratory. It is the responsibility of the PI / instructor to establish safety rules and procedures in his/her laboratory, to monitor compliance with established procedures and to periodically review their appropriateness. Personnel working in the laboratory must be informed of the rules and procedures. As part of the training program the PI must:

- inform his/her laboratory personnel and students of any possible exposure to zoonoses or hazardous material before the exposure occurs;
- ensure that each exposed individual is familiar with the applicable parts of this occupational health and safety program and with precautionary measures as listed in the "Universal Precautions in Animal Facilities and Laboratories";
- train each individual in the proper use of protective clothing, equipment and hygiene practices;
- educate the individual about early warning signs of occupational illness or injury that should prompt medical action or evaluation;
- inform the individual of the requirement for current tetanus prophylaxis;
- inform the individual of the availability of medical evaluation and treatment for occupational injuries and illnesses, including allergies;
- ensure that each individual with animal exposure receives annual training and updates in occupational health and safety.

**2. Risk inventory and health assessment:** A work and health history and a knowledge of workplace risks are the principal surveillance tool for this program. Before an employee or other person is assigned to working with

animals, their viable tissues, body fluids, or waste the individual must be enrolled in the occupational health care program. To enroll, each participant in an animal study or teaching activity completes the Health Assessment form and, in addition, the PI completes the Risk Inventory form:

**a. Risk Inventory form.** This form is completed annually by the principal investigator or instructor (PI) for his/her laboratory. The PI submits the Risk Inventory form directly to the UCAC Occupational Health Coordinator. All information will be reviewed by the Occupational Health Staff and as needed by medical consultants, to determine the risk exposure during an animal study.

**b. Health Assessment form.** Each employee completes a Health Assessment form and forwards it directly in a sealed envelope, stamped 'CONFIDENTIAL' to the UCAC Office, Box 70418. A copy of the most recent Risk Inventory from the PI's laboratory should be included with the Health Assessment form.

The Health Assessment form will be reviewed in strictest confidence by the UCAC Occupational Health Coordinator who will make any recommendations related to animal exposures. Significant health problems will be referred to the consulting occupational physicians for further evaluation. The UCAC Occupational Health Coordinator may contact the employee for further information and/or consultation.

**c. Annual reassessment of risk and health:** An updated risk inventory (from the PI) and a health assessment update (from each participant in an animal study) are required annually. The UCAC Occupational Health Coordinator will send notification for annual updates to each participant.

Immunizations and testing will be offered according to the schedule suggested in this occupational health care program, or as determined by the UCAC Occupational Health Coordinator or the medical consultants.

**3. Tetanus prophylaxis:** Every person handling vertebrate animals at ETSU must have proof of current tetanus vaccination. Tetanus vaccination should be administered at approximately ten-year intervals. Tetanus normally is associated with wounds contaminated with dirt or the feces of some animals. All bite wounds carry the risk of tetanus and should receive medical attention. If a contaminated wound occurs, including all animal bites, cuts and scratches, and it has been five or more years since tetanus vaccination, a booster may be administered at the time the person is seen for evaluation of the wound.

**4. Animal related allergies:** Animal care staff and others who handle animals may become sensitized to animal dander or other allergenic proteins. Preventing exposure to the allergens may require the use of personal protective equipment such as gowns, gloves, and respiratory protection. Individuals with preexisting allergies, asthma, seasonal rhinitis or eczema are encouraged to seek advice from their private health care provider before exposure to animals in the laboratory. Individuals with work-related allergies are encouraged to seek advice from the UCAC Occupational Health Coordinator.

**5. Reporting, assessment, and treatment of work related illnesses or injuries:** All injuries/illnesses of ETSU employees and RSWP students should be reported to the immediate supervisor and to the CorVel Workplace Injury Call Center at (866) 245-8588 as soon as possible. The Call Center line is answered 24/7 by a nurse who will inform you what medical facilities are authorized to treat injuries for the State of TN. Accidents to visitors, volunteers and non-work study students should be reported immediately to the Division of Claims Administration of the State Treasury Department, 423-439-4414. If the injury is life threatening then immediately call 911. Animal bites from potentially rabid animals (dog, cats, bats) must be reported immediately to the Division of Laboratory Animal Resources, tel. 439-6292, so that arrangements can be made for diagnostic evaluation of the biting animal. Personnel should also report any gastrointestinal, respiratory or dermal illness with signs or symptoms which resemble those occurring in the animals with which they have contact.

**6. Records and files:** A medical records file will be established by the UCAC Occupational Health Coordinator for each participant. The results of all occupational health evaluations and clinical tests will be maintained in this file. Copies may be made available to a participant and/or their private health provider upon written request by the participant.

**7. Medical exclusion:** During pre-assignment evaluations, employees determined to have a medical condition which could impair their ability to safely work with animals will be removed from further consideration.

Examples of medical conditions which would disqualify an applicant may include, but are not limited to, severe and uncontrollable allergies to the animal species involved, immunosuppression for any reason, and inability to manipulate equipment or animals associated with the intended position.

Once a participant has been assigned to his or her responsibilities, every reasonable effort will be made to resolve short-term medical conditions (e.g. pregnancy) through temporary reassignments to other duties, if available, or medical leave of absence. If a temporary medical condition places an employee at risk of injury in the opinion of the consulting physician, the supervisor may require the employee to take medical leave until the condition is resolved. In cases where permanent or long-term medical conditions arise after assignment to duty (e.g. immunosuppression due to long-term chemotherapy, chronic illness, or severe allergies to animals), every reasonable effort will be made to accommodate the participant by assignment to non-hazardous duties. However, other steps (including disability retirement or dismissal) may be necessary in order to protect the employer.

**8. Employees electing non-participation in the Occupational Health Care Program:** Persons who decline participation must sign the Health Assessment form in the space provided. Refusal to participate in the Occupational Health Care Program or parts of it will result in disapproval to work with animals and associated potentially infectious materials, and may affect the individual's employment status.

**B. Additional medical services for personnel working with large animals (cats, dogs, farm animals)**

In addition to the services described above, employees who have contact with dogs, cats, or certain wild animals receive the following:

- 1. Toxoplasmosis antibody screening:** Toxoplasmosis antibody titers are determined annually on any female employee or student of childbearing capacity and immunosuppressed workers who are occupationally exposed to cats or their feces and whose *Toxoplasma* titer is unknown or has been negative previously. A titer of <1:16 by immunofluorescent testing is indicative of the absence of immunity. Females of childbearing capacity who lack immunity and plan to work with cats must be informed of their susceptibility and be provided additional information on toxoplasmosis by the PI or, upon request, by the UCAC Occupational Health Coordinator. Every effort should be made by the supervisor to arrange a temporary job re-assignment while a susceptible employee or student is pregnant. When this is not possible, consultation with a physician should be encouraged to identify other ways to protect the employee or student.
- 2. Hearing test:** Personnel with recurrent exposure to high-noise areas, e.g. to dogs in their housing quarters or to cage wash areas, are offered an annual hearing evaluation through the UCAC Occupational Health Coordinator.
- 3. Medical recalls:** Certain procedures should be repeated on a periodic basis. Toxoplasmosis antibody titer is monitored every year. When an individual is due for such service or procedure, he/she will be contacted by the UCAC Occupational Health Coordinator and an appointment will be scheduled.

**C. Additional services for DLAR personnel**

Due to the nature of their work, employees of the Division of Laboratory Animal Resources (DLAR) receive the following additional services:

- 1. Preemployment health assessment:** When hired, these employees will report to the UCAC Occupational Health Coordinator for a health assessment with medical and work history, recording of allergies, immunizations, immunosuppressive diseases or the use of immunosuppressive medications, and physical limitations. They will receive a tetanus vaccination update, if needed. .

**Recalls:** Personnel in this group will return to the UCAC Occupational Health Coordinator for an annual health assessment update, and a TB skin test or chest radiograph if appropriate - see above; vaccination and antibody titer updates are given as indicated.

#### IV. CONCLUSION

On a day to day basis, each person is responsible for his/her own actions, and for strict adherence to the practices and procedures established by each laboratory and each department to minimize occupational hazards. This can be accomplished by using common sense, wearing appropriate personal protection equipment, participating in the occupational health and safety program, attending educational programs and following established standard operating procedures for the work to be done.

#### V. References:

1. Occupational Health and Safety in the Care and Use of Research Animals. National Research Council, Nat. Academy Press, Washington, DC 1997, ISBN 0-3090-5299-8. <https://www.nap.edu/catalog/4988/occupational-health-and-safety-in-the-care-and-use-of-research-animals>
2. Biosafety in microbiological and biomedical laboratories. Department of Health & Human Services Pub. No. (CDC) 93-8395, 1999. ISBN 0-1704-0547-4. <https://www.cdc.gov/labs/BMBL.html>
3. Health Topics A - Z, Centers for Disease Control and Prevention: <http://www.cdc.gov/health/diseases.htm>
4. Parasitic Disease Information, Centers for Disease Control and Prevention: <http://www.cdc.gov/ncidod/dpd/parasites/listing.htm>,
5. Pathogen Safety Data Sheets, Government of Canada, Centre for Biosecurity): <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html>

**Occupational Health Program for Personnel Exposed to Vertebrate Animals  
East Tennessee State University**

## **Animal-Related Allergies**

Allergic reactions to animals are among the most common conditions that adversely affect the health of workers involved in the care and use of animals in research.

The estimated prevalence of allergic symptoms in this group ranges from 10% to 44%. Up to 73% of persons with pre-existing allergic disease eventually develop an allergy to laboratory animals.

Allergy is most often manifested by nasal symptoms, itchy eyes and rashes. Symptoms usually evolve over an exposure period of one (1) to two (2) years. Occupation-related asthma, a more serious disorder, can develop in about 10% of persons with allergic disease who work with laboratory animals. This condition can lead to chronic symptoms, persisting for months to years, even after exposure ceases.

Contact urticaria ('hives') is typically due to the application of an allergen (usually a protein or glycoprotein) directly onto the skin. A common example is the development of wheal and flare reactions that produce welts when a person's skin and the tail of a mouse or rat come into contact. Scratches by cats and dogs can produce similar responses. Latex in rubber gloves is another cause of contact urticaria.

In rare instances, a person who has become sensitized to an animal protein experiences a generalized allergic reaction termed anaphylaxis when bitten by an animal. Anaphylactic reactions vary from mild generalized urticaria reactions to profound life-threatening reactions. Anaphylaxis can be evident as diffuse itching hives, and swelling of the face, lips, and tongue. Some people experience difficulty in breathing because of laryngeal edema or develop asthma with wheezing. In some cases shock can lead to loss of consciousness.

The diagnosis of animal sensitivity is

based on the history of symptoms in conjunction with exposure as well as on 'allergy tests', the demonstration of specific IgE antibodies to animal allergens.

Exposure reduction and exposure avoidance measures should be undertaken when people become sensitized and develop animal-related allergy symptoms. Medicines to reduce or prevent allergic reactions might be necessary. Many highly sensitized people will continue to have symptoms in spite of exposure reduction and appropriate medication and therefore must avoid animal allergen exposure completely.

Persons with sensitivities to laboratory animals should avoid repetitive exposure. Also some work practices and personal protective equipment can reduce the potential development of allergies and perhaps alter the severity. Development of aerosols and dust should be avoided when working with animals. Protective clothing such as a long sleeved coat and gloves should be worn while working with animals. Once sensitization has occurred it may be necessary to also wear a dust-mist respirator, disposable surgical masks usually are not sufficient for protection.

**Remember: If you think you are developing allergy symptoms related to laboratory animal exposure, you should consult with your physician or contact the UCAC Occupational Health Coordinator for a consultation**

**Reference:** Occupational Health and Safety in the Care and Use of Research Animals. National Research Council. National Academy Press 1997. ISBN 309-05299-8

## **Occupational Health Program for Personnel Exposed to Vertebrate Animals East Tennessee State University**

### **Field Studies or Working with Wild Vertebrate Animals**

All wild animals are potentially dangerous to researchers either from traumatic injury due to direct contact or from infectious diseases that are carried by the animals or their parasites. Therefore, researchers as well as their staff and students dealing with wild-caught animals in the field or in the laboratory should work under the assumption that the animals they are handling pose some risk to their health and safety.

Field studies, especially when handling animals, may expose personnel to a variety of infectious agents. *Salmonella* spp. are frequently harbored by turtles and other reptiles and amphibians. Birds may transmit diseases such as ornithosis, avian tuberculosis, and campylobacteriosis. Mammals may serve as reservoirs for numerous rickettsial and bacterial agents causing diseases such as murine typhus, salmonellosis, histoplasmosis, toxoplasmosis, leptospirosis and pasteurellosis.. A number of infectious diseases may be acquired without direct contact with the animals. Arthropod-borne diseases such as Lyme disease, relapsing fever, Ehrlichiosis, Rocky Mountain spotted fever, bubonic plague and encephalitis (caused by various arboviruses) are examples of these agents. Tularemia can be transmitted to humans by arthropoda or by handling or eating infected animals. Internal parasites may be transmitted from wild animals to humans, e.g. the ascarid causing raccoon round worm disease. The list of pathogens that humans can acquire directly or indirectly from wild animals continues to grow, principally because new technologies have become available to detect them.

The risk of injury and infection can be substantially reduced by common sense and good personal hygiene. Field workers should wash their hands frequently and definitely before eating, drinking and smoking. Appropriate training and wearing personal protective equipment (protective clothing, appropriate gloves) will minimize the chances of being bitten or scratched. Direct skin contact with blood and other body fluids or feces should be avoided as they may contain parasites or pathogens that affect humans. Protection against blood-sucking mosquitos and animal parasites (fleas, ticks, mites) is important as these can transmit a variety of infectious agents. Field clothes and tools that come in contact with animals or their blood or body fluids should be washed as soon as possible. Precautions should be taken to prevent contamination of food and living areas with droppings and urine.

All ETSU employees and students participating in field studies or handling wild animals must enroll in the Occupational Health Program and maintain up-to-date tetanus immunizations. Rabies can be a threat when working with carnivores or bats - personnel working with these animals or entering caves where bats might live, are advised to participate in the pre-exposure rabies vaccination program at ETSU (contact the DLAR, tel. 439-6292, for more information).

Individuals who are injured during or become ill after participating in a field study or after handling wild animals in the laboratory should seek medical help. It is important to inform the physician of the possible exposure to agents carried by the animals or their parasites, and the geographic region in which the field work was performed. This information may be critical to receiving prompt and appropriate testing and treatment. All injuries/illnesses of ETSU employees and RSWP students should be reported to the immediate supervisor and to the CorVel Workplace Injury Call Center at (866) 245-8588 as soon as possible. The Call Center line is answered 24/7 by a nurse who will inform you what medical facilities are authorized to treat injuries for the State of TN. Accidents to visitors, volunteers and non-work study students should be reported immediately to the Division of Claims Administration of the State Treasury Department, 423-439-4414. If the injury is life threatening then immediately call 911.. All patients needing emergency medical care should proceed immediately to an emergency rooms in one of the area hospitals or clinics.

More information on infectious diseases and the ETSU Occupational Health Program for Personnel Exposed to Vertebrate Animals can be found on the web site of the University Committee on Animal Care:  
<https://www.etsu.edu/ucac/occupationalhealth.php>

## Occupational Health Program for Personnel Exposed to Vertebrate Animals East Tennessee State University

### Toxoplasmosis

**Reservoir:** *Toxoplasma gondii* is a coccidian parasite with a worldwide distribution among warmblooded animals. Wild and domestic felines are the only definitive hosts of this organism. They are infected by one another or through an intermediate host. Both sexual and asexual reproductive cycles occur in the gastro-intestinal tract of felines and oocysts are shed in the feces. In all other hosts (intermediate hosts) the parasite is an obligate intracellular parasite. Oocysts in the cat feces become infective after sporulation, which occurs in two (2) to three (3) days. Under appropriate environmental conditions, oocysts passed in cat feces can remain infective for a year or more. Serological surveys have indicated that up to 80% of cats have evidence of the infection. There is no practical, simple test to determine which cat may be shedding the organism. Therefore, one should consider all cats to be a potential threat to humans, especially to pregnant women.

**Mode of Transmission:** Intermediate hosts, including humans, can contract the infection from oocysts, which are present only in materials contaminated by cat feces, or by ingesting infectious cysts in raw or undercooked meat or transplacentally in utero. Human infection from improper handling of tissue from an infected intermediate host in the laboratory should be considered a remote possibility.

**Clinical Signs:** In most cases toxoplasmosis produces an asymptomatic or mild infection with fever, myalgia, arthralgia, lymphadenopathy, and sore throat, mimicking infectious mononucleosis in some individuals. *Toxoplasma* infection can have severe consequences in pregnant women and immunologically impaired people. In a pregnant woman with a primary infection, rapidly dividing tachyzoites can circulate in the bloodstream and produce a transplacental infection of the fetus. In early pregnancy, the fetal infection can result in death of the fetus or chorioretinitis, severe brain damage, fever, jaundice, rash, and convulsions at birth or shortly thereafter. Fetal infection during late gestation can result in mild or subclinical disease with delayed manifestations, such as recurrent or chronic chorioretinitis. Infection in immunosuppressed people can be characterized by

maculopapular rash, pneumonia, skeletal myopathy, myocarditis, encephalitis and death.

**Diagnosis and Prevention:** Toxoplasmosis can be diagnosed by finding the organism in clinical specimens, isolating it in an animal or cell culture, or demonstrating rising serum antibody titers. There is no vaccine to protect humans from this parasitic infection. In a laboratory animal facility the control of infection of this zoonosis is centered principally around the management of cats and their waste. Although many other laboratory animals could serve as intermediate hosts and harbor *T. gondii* in extraintestinal sites, they have not proved to be important sources of zoonotic transmission in the laboratory environment. Personnel should practice appropriate personal hygiene practices and maintain rigorous sanitation in an animal facility to prevent exposure to *Toxoplasma*. Cat feces and litter should be disposed of daily to prevent sporocysts from becoming infectious, gloves should be worn when handling waste from cats or other potentially infective material, and hands should be washed before eating.

**Remember: Unless they are known to have antibodies to Toxoplasma, pregnant women or those planning a pregnancy should be advised of the risk involved with exposure to cats since contraction of toxoplasmosis could seriously affect the fetus during early stages of development. All women of childbearing capacity who are working with cats through their employment at ETSU and who have not had a positive Toxoplasma antibody test should have their Toxoplasma titer checked once a year. ETSU Department of Internal medicine can provide this test and the respective department will be charged for the cost. Contact the Division of Laboratory Animal Resources at tel. 439-6292 for more information.**

**References:** Occupational Health and Safety in the Care and Use of Research Animals. National Research Council. National Academy Press 1997. ISBN 309-05299-8  
Toxoplasmosis, CDC Fact Sheet:  
<https://www.cdc.gov/parasites/toxoplasmosis/index.html>



## Rabies

**Reservoir:** Rabies is caused by a number of different strains of highly neurotropic viruses. The virus infects all mammals, but the main reservoirs are wild and domestic canines, cats, skunks, raccoons, bats, and other biting animals. However, historically the disease has not posed a problem in the animal laboratory setting. The incidence of rabies in wildlife in the U.S. has been rising in recent years, and the possibility of rabies transmission to dogs or cats with uncertain vaccination histories must be considered. In addition, rabies-susceptible wildlife introduced into the laboratory have the potential to harbor the infection.

**Mode of Transmission:** Rabies virus is most commonly transmitted by the bite of a rabid animal or the introduction of virus-laden saliva into a fresh skin wound or intact mucous membrane. Airborne transmission probably can occur in caves where rabid bats roost. Since the 1950s bats have increasingly been implicated as wildlife reservoirs for variants of rabies virus transmitted to humans. Apparently even limited contact with bats or other animals infected with a bat variant of rabies may be associated with rabies virus transmission. The virus also has been transmitted through corneal transplants from persons with undiagnosed central nervous system disease. Personnel who handle tissue specimens or other material potentially laden with rabies virus also should be regarded as at risk for infection.

**Clinical Signs:** The incubation period can range from five (5) days to many years. The disease produces an almost invariably fatal acute viral encephalomyelitis. Patients experience a period of apprehension and develop headache, malaise, fever, and sensory changes at the site of the prior animal bite wound. Further progression of the disease is marked by paresis or paralysis, inability to swallow and the related hydrophobia, delirium, convulsions, and coma. Death is often due to respiratory paralysis.

**Diagnosis and Prevention:** Rabies is usually diagnosed with specific immunofluorescent antibody staining of brain tissue, corneal smears, mucosal scrapings or frozen skin-biopsy specimens. Virus isolation (usually from mice injected with tissue from suspected rabid animals) can be used to confirm the diagnosis. Most cases of human rabies in the U.S. result from a lack of identification or recognition of

risks (e.g. contact with bats) and failure to administer treatment. Any bite or scratch from a potentially rabid animal should be reported immediately to the supervisor. Also, the attending veterinarian (ETSU Division of Laboratory Animal Resources) should be notified, so that arrangements can be made for diagnostic evaluation of the biting animal.

**Immediate and thorough washing of all bite wounds and scratches with soap and water markedly reduces the likelihood of rabies.**

Human rabies immune globulin and rabies vaccine are recommended for bites as well as for exposures that do not involve bites (inhalation of dust in caves with bats) unless the patient has been previously vaccinated.

**Preexposure Rabies Prophylaxis:** Rabies preexposure vaccination may be offered at no cost to individuals who have direct contact with unanesthetized dogs and cats and certain wild animals at ETSU. The vaccination consists of a series of three 0.1 ml injection of human diploid cell rabies vaccine (HDCV) into the upper arm on days 0, 7, and 28. Serologic testing for rabies antibodies is performed every two (2) years thereafter. Booster injection of the vaccine is only indicated if the titer falls below the limit recommended by the testing laboratory. Hypersensitivity reactions to HDCV are possible:

**A type I** reaction or immediate hypersensitivity reaction is characterized by bronchospasm, laryngeal edema, generalized puritic rash, urticaria and/or angioedema. Individuals with possible type I reactions should not receive further doses of HDCV.

**A type II reaction** occurs 2-21 days after a dose of HDCV is received. This delayed allergic reaction is characterized by a generalized puritic rash or urticaria, arthralgia, arthritis, angioedema, nausea, vomiting, fever and/or malaise. Individuals with presumed type II hypersensitivity reaction should not receive any further doses of HDCV unless they are bitten by a rabid animal or they are likely to be inapparently or unavoidably exposed to the rabies virus.

**Reference:** Occupational Health and Safety in the Care and Use of Research Animals. National Research Council. National Academy Press 1997. ISBN 309-05299-8

06/02



*East Tennessee State University*

**Visitors, Contractors and Maintenance Personnel  
Risk Assessment and Personal Protective Equipment (PPE)**

Department of \_\_\_\_\_ Building \_\_\_\_\_ Room \_\_\_\_\_

*Hazards are highlighted. Wearing the required PPE will reduce risks when working in the lab.*

<b>Hazard</b>	<b>Risk</b>	<b>PPE Required</b>	<b>Notes</b>
Human Specimens	Infection	Gloves	
Animals/Animal Waste	Allergy	Gloves, Lab Coat	See Information Sheet
Biohazards - All	Infection	Gloves,	
Isotopes	Radiation	Gloves, Lab Coat	
Tissue Culture	Infection	Gloves	
Bacterial Culture	Infection	Gloves	
Viral Cultures	Infection	Gloves, Gowns/Full Covering	
Hazardous Waste	Skin/Inhalation	Gloves	
UV Light	Burn		Avoid exposure to skin and eyes.
Chemicals	Poisoning, Caustic, Flammable		
Noise ≥ 85 decibels	Hearing Loss	Earplugs Ear Muffs	
Liquid Nitrogen -178C	Freezer burn	Gloves, Goggles & Face Shield	
Super Cold Freezers below -50 C	Freezer burn	Thermal Gloves	
Sharps	Cut/puncture		Handle closed container only.
Hot Surfaces	Burn	Thermal Gloves	
Compressed Gas	Explosion, Poisoning		Secure from tipping over.
Natural Gas Lines	Fire, Explosion		Obtain hot work permit before use of flame or heat source near natural gas lines.

**Remove all PPE and wash your hands prior to leaving the lab.**

**In Case of Emergency – Contact:** \_\_\_\_\_

\_\_\_\_\_

## Tetanus

Tetanus is an acute, often fatal, disease caused by an extremely potent exotoxin produced by *Clostridium tetani*. It is characterized by generalized rigidity and painful convulsive spasms of skeletal muscles. The muscle stiffness at first involves the jaw (lockjaw) and neck and then becomes generalized. In recent years about 30-40 cases have occurred throughout the US. The case to death ratio for many years has been approximately 30%. *C. tetani* is a Gram-positive, anaerobic rod that may develop spores. The spores are very resistant to heat and antiseptics. They can survive autoclaving at 121°C for 15 minutes. The bacilli are widely distributed in soil and in the intestine and feces of animals and humans.

**Mode of Transmission:** *C. tetani* usually enters the body through minor or major wounds. Under anaerobic conditions, the spores germinate. Toxins are then produced and disseminated via blood and lymphatics.

**Clinical Signs:** The incubation period varies from three (3) to 21 days, depending on the site of the injury. The first sign of the disease is trismus or lockjaw, followed by stiffness of the neck, difficulty in swallowing and rigidity of abdominal muscles. Other symptoms include sweating, elevated blood pressure and episodic rapid heart rate. Spasms may occur frequently and last for several minutes. These spasms continue for three (3) to four (4) weeks. Complete recovery may take months. Laryngospasm may lead to interference with breathing. Fractures of the spine or long bones may result from sustained contractions and convulsions.

**Diagnosis and Prevention:** There are no laboratory findings characteristic of tetanus. The diagnosis is entirely clinical and does not depend upon bacteriologic confirmation. Most cases of tetanus occur after acute injuries such as punctures, lacerations and abrasions and animal bites. Almost all reported cases of tetanus are in persons who have either never been vaccinated, or who completed a primary series, but have not had a booster in the preceding 10 years. Tetanus toxoid has proven to be a safe and useful vaccine. In adults it is given in combination with diphtheria antigen as **Td vaccine**. While some persons may be protected for life, most persons have antitoxin levels that approach the minimal protective level by 10 years after the last dose. Therefore, routine boosters are recommended every 10 years. To ensure adequate protective antitoxin levels in individuals who sustain a wound that is other than clean and minor, a booster is recommended if more than five (5) years have elapsed since the last tetanus vaccination.

**Remember: Routine boosters are recommended every 10 years. To ensure adequate protective antitoxin levels in individuals who sustain a wound that is other than clean and minor, a booster is recommended if more than five (5) years have elapsed since the last tetanus vaccination.**

**Reference:** Tetanus, CDC Fact Sheet:  
<https://www.cdc.gov/tetanus/about/index.html>

## Universal Precautions in Animal Facilities and Laboratories

- Fresh animal tissues, blood, body fluids or wastes should be recognized as potential sources of zoonotic disease.
- Persons who handle potentially infectious materials and who are at risk of occupational exposure should receive appropriate immunizations or tests for the agents handled or potentially present (Hepatitis B and rabies vaccination, or TB test, etc.).
- Always wear protective clothing; a lab coat, gown or surgical scrub suit is the minimum.
- Personal protective equipment provides additional means of preventing exposure. Nitrile gloves provide very good protection and should be worn when handling potentially infectious materials. Do not re-use or wash disposable gloves, replace them. Utility gloves may be decontaminated between uses if they are intact - not torn or cracked.
- Wash your hands after handling animals or infectious material, after removing gloves and before leaving the animal facility or the laboratory.
- Wear facial protection, like goggles and a mask, or a face shield when performing procedures that may splash or splatter. Persons who wear contact lenses in animal facilities or in the laboratory should also wear goggles or a face shield.
- Engineering controls, such as mechanical pipettes and biosafety cabinets, are the primary means of exposure prevention.
- Work practice controls, like not re-capping used needles and using a broom/dust pan to clean up broken glass, are a secondary method of exposure prevention.
- Conduct all procedures in a manner which will minimize splashing, spraying, splattering, and generation or droplets of blood or other potentially infectious materials, use biological safety cabinets, centrifuge covers, protective environmental coverings.
- Place contaminated sharps in assigned, labeled, puncture-resistant, leak-proof containers.
- Dispose of other potentially infectious waste in a red bag for biomedical waste.
- Label materials and storage areas with the red biohazard symbol.
- Clean and disinfect your work area with a detergent and a disinfectant when you are finished or at the end of the day. A 1:10 freshly prepared dilution of bleach in water is adequate for most types of work.
- Decontaminate equipment before removing it from the area or submitting it for service.
- Report any exposure or injury to your supervisor immediately. Seek medical attention for parenteral, mucous membrane or non-intact skin contact.

Do not eat, drink, smoke, use tobacco products, apply cosmetics or lip balm, or handle contact lenses in the animal facility, in the lab, or around potentially infectious materials.



## Division of Laboratory Animal Resources

# Information for Visitors, Maintenance Personnel, and Contractors

All visitors, including contractors, must report to the Office of the Division of Laboratory Animal Resources before entering any area in one of the housing facilities. While in the facilities, avoid contact with animals, their waste, or any other potentially contaminated materials unless these are directly related to assigned duties.

### **Hazards that may be encountered in the DLAR**

There are certain risks involved when visiting the animal facilities at ETSU. In general, health and safety matters are related to the animal species, the frequency and type of contact, facility design, equipment design, human behavior, and each person's health status.

**Allergic reactions** to animals are among the most common conditions that adversely affect the health of workers exposed to animals in research. All personnel should be aware that laboratory animals, particularly rats, rabbits, guinea pigs, hamsters, and birds, are sources of potent allergens. Products from animals that may induce allergic reactions are animal skin, dander, fur, urine, and saliva. The route of exposure is most often due to airborne allergen; however, contact allergies are quite common. Depending on the exposure, the allergic reaction may induce respiratory symptoms, itchy eyes, and rashes. Symptoms usually evolve after repeated exposure over a period of 1-2 years; however, allergic reactions may happen on first exposure.

Development of aerosols and dust should be avoided when working around animals. Some work practices and personal protective equipment can reduce the potential development of allergies and perhaps alter the severity.

If you notice symptoms of an allergic reaction such as a skin rash or hives, itchy eyes, or difficulty breathing while in the animal facility or within three days after having been in an animal facility you should notify your supervisor. If you seek medical attention, you should mention to your physician that you might have been exposed to laboratory animals.

**Physical hazards** such as slippery floors, excessive noise, sharp objects, hot surfaces, pressure vessels (compressed gas cylinders, autoclaves) and many other conditions may be present in the animal facility. Precautionary measures should be taken where these hazards occur.

**Radioisotopes** are radioactive forms of normally nonradioactive elements. They emit low levels of radiation, which makes them valuable as tracers in biological investigations of metabolic processes. Usually these types of isotopes are dangerous only if contacted directly. If radioisotopes are present in a room in the animal facility,

there will be a warning sign describing the hazard and recommended protection measures posted on the entrance door.

**Hazard containment:** Eating, drinking, chewing gum, or application of cosmetics is not permitted in the animal facility.

**Protective clothing:** Individuals exposed to animals, their waste, or other products must wear protective clothing. A lab coat must be worn when entering an animal room or other area with potential contamination, and gloves must be worn when handling animals or their bedding. Persons with allergies to the animals may need to take additional precautions.

Personnel should avoid touching their eyes, face, mouth, or other body surfaces with contaminated hands or gloves.

Used protective clothing and devices should not be worn outside the animal facility. Disposable protective clothing should be discarded when soiled. Soiled protective clothing should never be worn or taken home.

**Personal hygiene:** Hand washing is a crucial activity for safeguarding personnel in the animal facility. Hands should be washed after contact with the animals, their waste, or with contaminated or potentially contaminated surfaces and materials, and after removal of contaminated gloves. Hands should be routinely washed before eating, drinking, applying cosmetics, before touching contact lenses, and before leaving the animal facility. Effective hand washing consists of at least a 20-second lathering with soap and water, followed by a thorough rinse.

**Hearing protection:** Noise levels may reach potentially damaging levels in certain areas of the animal facility. Hearing protection is available and should be worn by personnel entering those areas.

**Eye protection:** Persons wearing contact lenses should use safety eyeglasses or goggles.

**Further information** can be obtained from the Office of the Division of Laboratory Animal Resources, 423-439-6292.

**Occupational Health Program for Personnel Exposed to Vertebrate Animals  
East Tennessee State University**

**Work- or Classroom-Related Injuries or Illnesses**

Employees and students must bring all work- or classroom-related injuries and illnesses to the attention of the supervisor or instructor. Appropriate first aid should be administered immediately. Initial determination should be made whether treatment is necessary. If there is uncertainty a physician or other appropriate health professional should be consulted.

All injuries/illnesses of ETSU employees and RSWP students should be reported to the immediate supervisor and to the CorVel Workplace Injury Call Center at (866) 245-8588 as soon as possible. The Call Center line is answered 24/7 by a nurse who will inform you what medical facilities are authorized to treat injuries for the State of TN. Accidents to visitors, volunteers and non-work study students should be reported immediately to the Division of Claims Administration of the State Treasury Department, 423-439-4414. If the injury is life threatening then immediately call 911. Employees and students should also report any gastrointestinal, respiratory or dermal illness with signs or symptoms which resemble those occurring in the animals with which they have contact.

Animal bites from potentially rabid animals (e.g. dogs, cats, bats) must be reported immediately to the Division of Laboratory Animal Resources, tel. 439-6292, so that arrangements can be made for diagnostic evaluation of the biting animal.

**OSHA Definitions:** **Injuries** include cases such as, but not limited to, a cut, fracture, sprain, or amputation. **Illnesses** include both acute and chronic illnesses, such as, but not limited to, allergies, skin disease, respiratory disorder, or poisoning. Only work-related injuries and illnesses should be reported. An injury or illness is considered **work-related** if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. More information on conditions that should be reported under the Workers' Compensation program is available on the ETSU Human Resources' web site: <https://www.etsu.edu/human-resources/benefits/workerscomp.php>.

# Health Assessment

## Occupational Health and Safety Program

- A Health Assessment form must be completed for each participant on an Animal Study Protocol.
- The completed and signed form must be *hand delivered* in a sealed envelope to the DLAR Office Rm 4-02, VA Bldg 119, Attn: Marvin Bowe.
- This form will be reviewed in strict confidence by the Occupational Health physician, who may contact the participant for further information or to make recommendations for precautions which should be taken.
- Annual updates are required for all participants (use the shorter Health Assessment Update form).

## Personal Information

<b>Date:</b>					
<b>Name:</b>	(last)	(first)	(MI)		
<b>Employee E#</b>	<b>Gender:</b>	<input type="checkbox"/> male	<input type="checkbox"/> female	<b>DOB:</b>	
<b>Job Title:</b>	<b>Department:</b>		<b>Supervisor:</b>		
<b>Campus Address:</b>		<b>email:</b>	<b>Phone:</b>		
<b>Home Address:</b>		<b>City/State/Zip:</b>	<b>Phone:</b>		
<b>Name of Personal Health Care Provider:</b>			<b>Provider Address:</b>		
<b>PI's name:</b>		<b>Department:</b>	<b>Phone:</b>		

## Nature of Exposure

List all animal species approved in the protocol(s):

Level of risk (check all statements applicable to the Animal Study Protocol(s) you will be working on:

- I will not be exposed to animals, fluids, tissues, or waste, nor will I work in areas where animals are used. (Health Assessment form does not need to be submitted)
- Peripheral exposure: I will work in rooms or areas where vertebrate animals are used, but I will not handle animals, fluids, tissues, or waste.
- Extensive exposure: I will work with and handle vertebrate animals or their fluids, tissues, or waste and I will provide routine veterinary care or husbandry to animals.
- Routine lifting (lbs):
- Maximum required lifting (lbs):
- Significant overhead work, reaching, or climbing

Duration of animal exposure:

Personal health information necessary to assess occupational risk is requested below (check one and sign)

- I agree to provide such information.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

OR

- I decline to provide such information. In declining, I specifically release ETSU, the State of Tennessee, its offices and employees from liability for damages incurred as a result of my refusal. Please note that declining to provide such information will result in disapproval to work with animals and associated potentially infectious materials..

**Reason for non-participation:** \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Personal Health

## Information

Have you had prior animal exposure (including pets)?

yes

no

Number of yrs:

Types of animals:

Have you ever contracted a disease from or had an injury related to working with animals (including bites, scratches, needle sticks, etc.)?

yes

no

If yes, please explain:



Do you have any history of:								
	yes	no		yes	no		yes	no
Heart disease	<input type="checkbox"/>	<input type="checkbox"/>	Allergy to pollen	<input type="checkbox"/>	<input type="checkbox"/>	Hay fever	<input type="checkbox"/>	<input type="checkbox"/>
Heart valve disease or surgery	<input type="checkbox"/>	<input type="checkbox"/>	Allergy to known chemicals	<input type="checkbox"/>	<input type="checkbox"/>	Sneezing spells	<input type="checkbox"/>	<input type="checkbox"/>
Lung disease	<input type="checkbox"/>	<input type="checkbox"/>	Allergy to house dust	<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	Latex allergy	<input type="checkbox"/>	<input type="checkbox"/>	Wheezing in chest	<input type="checkbox"/>	<input type="checkbox"/>
Hearing problems or ear injuries	<input type="checkbox"/>	<input type="checkbox"/>	Allergic skin problems or eczema	<input type="checkbox"/>	<input type="checkbox"/>	Coughing	<input type="checkbox"/>	<input type="checkbox"/>
Problems with vision	<input type="checkbox"/>	<input type="checkbox"/>	Reactions to stinging insects	<input type="checkbox"/>	<input type="checkbox"/>	Asthma	<input type="checkbox"/>	<input type="checkbox"/>
Back injuries or problems	<input type="checkbox"/>	<input type="checkbox"/>	Allergies to trees, molds, or grasses	<input type="checkbox"/>	<input type="checkbox"/>	Runny nose	<input type="checkbox"/>	<input type="checkbox"/>
Musculoskeletal injuries or problems	<input type="checkbox"/>	<input type="checkbox"/>	Reactions to animal dander	<input type="checkbox"/>	<input type="checkbox"/>	Species: Type of reaction:		
Previous work-related injuries	<input type="checkbox"/>	<input type="checkbox"/>	Limitations in activity	<input type="checkbox"/>	<input type="checkbox"/>	Other (list):		
List any surgeries you have had:								

If you are female, are you pregnant?  yes  no

I agree to confirm a pregnancy as soon as possible and to report the pregnancy to the ETSU Internal Medicine Occupational Health Office, Campus Box 70622 or 423-439-6282.

Signature: \_\_\_\_\_

Do you take regular medications? <input type="checkbox"/> yes <input type="checkbox"/> no				
Medication	Frequency	Dosage	Allergy Shots	Frequency

Do you have problems with your immune system? <input type="checkbox"/> yes <input type="checkbox"/> no				
Corticosteroid therapy	<input type="checkbox"/> yes <input type="checkbox"/> no	Chemotherapy	<input type="checkbox"/> yes <input type="checkbox"/> no	
Splenectomy	<input type="checkbox"/> yes <input type="checkbox"/> no	Other (list):		

Previous immunizations and tests (Provide the following information if applicable):		
<input type="checkbox"/>	Tetanus: date of last booster -	Tetanus vaccination is required every 10 years and is the responsibility of each participant. Immunizations are available for a small fee at the Washington County Health Department of at the ETSU Student Clinic (registered students only).
<input type="checkbox"/>	Rabies: date of last booster - <i>(rabies only required if working with dogs or cats)</i>	Date of last rabies ab titer -
<input type="checkbox"/>	PPD: date of last test -	Results:
<input type="checkbox"/>	Toxoplasmosis ab titer: date of last test -	Results:
<input type="checkbox"/>	Audiogram: date of last test -	Provider:
<input type="checkbox"/>	Pulmonary function: date of last test -	Results:

Please confirm that the principal investigator has obtained approval from the University Committee on Animal Care for the project before you work with the associated animals. Further, make sure that you have been informed of all risks involved in working with the animals and of measures, including appropriate training, to protect your own health and safety.

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# Health Assessment Update

## Occupational Health and Safety Program

- A Health Assessment form must be completed for each participant on an Animal Study Protocol.
- The completed and signed form must be hand delivered in a sealed envelope to the DLAR Office Rm 4-02, VA Bldg 119, Attn: Marvin Bowe.
- This form will be reviewed in strict confidence by the Occupational Health physician, who may contact the participant for further information or to make recommendations for precautions which should be taken.
- Annual updates are required for all participants (use this shorter Health Assessment Update form).

## Personal Information

**Date:**

**Name:**

(last)

(first)

(MI)

Personal health information necessary to assess occupational risk is requested below (check one and sign)

I agree to provide such information.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

OR

I decline to provide such information. In declining, I specifically release ETSU, the State of Tennessee, its offices and employees from liability for damages incurred as a result of my refusal. Please note that declining to provide such information will result in disapproval to work with animals and associated potentially infectious materials.

**Reason for non-participation:** \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Are there any changes in the level of risk or duration of animal exposure?  yes  no

If so, please indicate:

## Health History

Do you have any changes in your health history from the previous form regarding allergies/asthma, immune function, pregnancy/risk of pregnancy, or musculoskeletal fitness?  yes  no

If yes, please indicate the changes:

Have you had any updated immunizations or tests? (e.g tetanus vaccine, spirometry, etc)  yes  no

If yes, please list immunization or test *and* date:

Please confirm that the principle investigator has obtained approval from the University Committee on Animal Care for the project before you work with the associated animals. Further, make certain that you have been informed of all risks involved in working with the animal and of measures, including appropriate training, to protect your own health and safety.

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# Risk Assessment

## Occupational Health and Safety Program

- A Risk Inventory form must be completed by the Principal Investigator for all laboratories used in an animal study before an Animal Study Protocol can be approved by the University Committee on Animal Care.
- The completed and signed form must be hand delivered in a sealed envelope to the DLAR Office Rm 4-02, VA Bldg 119, Attn: Marvin Bowe.
- This form will be reviewed in strict confidence by the Occupational Health physician for determination of risk exposure of personnel working with the animals in your laboratory.
- Annual updates are required.

<b>PI name:</b>	<b>Phone:</b>
<b>Department:</b>	<b>email:</b>
<b>Animal Study Protocol Number(s):</b>	

## A. Instructions

Review each listing below and check those situations applicable to your laboratories where animals are used. This information will be reviewed by an occupational health professional to determine the occupational health risk of personnel working in your laboratories.

## B. Nature of Exposure

List all animal species approved in your protocol(s):

## C. Specific Risk Categories (check all statements that apply to your laboratory(ies) and Animal Study Protocol(s) )

### 1. Animal hazards exposure (check all that apply)

- Bite tendency moderate to high (e.g. dogs, cats, rodents, pigs, wild mammals)
- Scratch tendency high (e.g. cats, rabbits, wild mammals, catfish, raptors)
- Allergy potential high (e.g. rats, mice, guinea pigs, horses, cats, birds)
- Venomous potential high (e.g. certain reptiles)
- Kicking, butting, compression potential high (e.g. horses, cattle, swine, sheep, goats)
- Zoonotic disease potential high (e.g. cats, random source dogs, pregnant sheep, wild animals)
- Not applicable

### 2. Animal product hazard exposure (check all that apply)

- Aerosolized (while cleaning animal areas) animal waste
- Feces
- Urine
- Blood
- Fresh carcass or tissue
- Not applicable

### 3. Radiation exposure (check all that apply)

- Research nuclides/radioactive materials; list materials:
- X-ray only
- Lasers; list class:
- Other; list:
- Not applicable

### 4. Biological hazard (to humans and/or to other animals) exposure (check all that apply)

Categories:  rDNA work that comes under NIH Guidelines (i.e. requires Biosafety approval)

Describe:

- BL-1 organism; list agent(s):
- BL-2 organism; list agent(s):
- BL-3 organism; list agent(s):

5. **Chemical/laboratory exposure (check all that apply)**

- Anesthetic gases
- Compressed gases in tanks
- Controlled drugs; list drugs:
- Toxic materials
  - Carcinogens (e.g. formaldehyde, aflatoxins, benzene, ethylene oxide); list:
  - Mutagens/teratogens (e.g. cyclophosphamide, thalidomide, lead, mercury); list:
  - Other toxic material; list:
- Flammables
  - Solvents (e.g. acetone, diethyl ether, methyl alcohol); list:
  - Solids (e.g. naphthalene, nitrocellulose, paraformaldehyde); list:
- Corrosives
  - Acids (e.g. acetic, nitric, sulfuric); list:
  - Bases (e.g. ammonium hydroxide, potassium hydroxide, sodium hydroxide); list:
  - Other caustics; list:
- Reactives (e.g. alkali metals, magnesium nitride, picric acid); list:

6. **Physical hazards (check all that apply)**

- Hypodermic needles and sharps
- Repetitive motion
- Excessive noise, over 85 decibels (e.g. communication within 2 feet requires shouting)
- Lifting (e.g. expected to lift or move 50 lbs or more as part of the job)
- Extreme temperature or humidity
- Outdoor field collections
- Slip/trip hazard (e.g. standing in water, working on slippery floors)
- Low/reduced light levels
- Ladders used (e.g. climbing ladders)
- High pressure/temperature devices used
- Ultrasound used
- Electrical devices used
- Grinding or chipping operation
- Not applicable

This form must be submitted to the Occupational Health Office, via the DLAR (for logging compliance), Campus Box 70418, before the University Committee on Animal Care will approve your Animal Study Protocol. In the Animal Study Protocol form you will be asked to enter the date when this form was submitted.

PI Signature: \_\_\_\_\_ Date: \_\_\_\_\_