HEALTH AND SAFETY INFORMATION FOR ANIMAL USERS

All faculty, staff, students and fellows are responsible for compliance with appropriate safety and health standards. Faculty, staff, students and fellows are to follow safe work practices and report all unsafe conditions.

Supervisors and faculty are the keystone of the University of Pittsburgh Safety Program. Supervisors and faculty train employees to develop and maintain safe work practices. Supervisors and faculty must frequently inspect the workplace to ascertain unsafe conditions.

The University's Department of Environmental Health and Safety (EH&S) is responsible for providing guidance and direction in all phases of the Safety Program. Environmental Health and Safety conducts safety inspections, and advises management of unsafe conditions or noncompliance with policy, regulations and standards.

1. Incident and Injury Reporting

All incidents which result in an injury to faculty, staff or students MUST be appropriately documented and reported. In the event of a work-related incident involving an animal you should:

1. Clean the wound
2. Promptly report to your supervisor
3. Proceed to: Employee Health Services (M-F 7:30am-4pm)
   Medical Arts Building, 3708 Fifth Ave, Suite 500.59
   Phone: 412-647-3695

On evenings, weekends and holidays proceed to UPMC Presbyterian Hospital Emergency Department.

Assist your supervisor in documenting the incident or injury on the Report of Incident form.

If the injury is life threatening, or if the injured individual believes his or her injury is of an emergent nature, call the emergency number for Oakland campus: 412-624-2121.

2. Physical Hazards for Animal Users

If you receive an animal bite, scratch or splash, stop work. Wash the site with soap and water. Report all bites, scratches and splashes to your supervisor and proceed to Employee Health Services.

If bitten, scratched or splashed by a monkey, notify DLAR of the identification number for the animal and its location so that the veterinarian may examine the animal and take appropriate steps to determine the potential hazard. Notify your supervisor and immediately obtain a non-human primate exposure kit. Please familiarize yourself with these instructions regarding wound care and medical evaluation prior to working with monkeys. Immediately proceed to Employee Health Services for treatment and evaluation after initial wound care.

If your eyes, nose or mouth have been splashed/exposed to potentially infectious material, flush the site with water for fifteen minutes using the eyewash; and proceed to Employee Health Services.

Musculoskeletal disorders are syndromes characterized by discomfort, impairment, disability or persistent pain in joints, muscle tendons or other soft tissues with or without physical manifestations. These may result from moving equipment such as cage racks or drums of detergent. Follow established procedures for moving and lifting equipment, and use mechanical aids such as drum jacks and dollies when possible. If you experience any of these conditions while performing your job, please report to the occupational injury clinic currently, Concentra Medical Centers, 120 Lytton Ave, Suite 275. If you would like a proactive ergonomic assessment of your work site, ask your supervisor to contact Environmental Health and Safety at 412-624-9505.

Wet floors are a prominent physical hazard in animal areas. Do your part in promptly reporting or abating wet floor surfaces. If it is necessary to transverse wet floors, use extreme caution. Proper non-slip shoes or protective boots are recommended for environments that consistently have wet floor surfaces. When possible, post wet floor signage to alert coworkers and visitors of this hazard.

High pressure water and steam are physical hazards for animal users who utilize autoclaves, power washers and other equipment. Avoid skin contact with high pressure water and steam. When unloading an autoclave, verify that the pressure is near zero prior to opening the door. Slowly crack open the door and allow the steam to gradually escape. Allow materials in the autoclave to cool for 10 minutes prior to removal, and use heat resistant gloves and a face shields as necessary.

Electricity is another prominent physical hazard. Extension cords are prohibited by fire safety standards, unless an emergency situation is declared by University administration. Use caution with power equipment, radios and other electrical devices, particularly in areas with wet floors, and water or steam sources.

All individuals using radioactive materials and/or animals containing radioactive materials must be registered with the University of Pittsburgh Radiation Safety Office (412-624-2728).

3. Chemical Hazards for Animal Users

The University of Pittsburgh Chemical Hygiene Plan (www.ehs.pitt.edu) provides guidance for faculty, staff and students working with hazardous materials. Material Safety Data Sheets (MSDS) give employees a means to find information about the hazards associated with any material in their workplace. They summarize information about the hazards, handling procedures, emergency first aid and required protective equipment regarding each substance. If you have a concern about any substance in your workplace, discuss the situation with your supervisor. If the supervisor is unable to answer your questions, contact Environmental Health and Safety (412-624-9505.)

Labeling is important. All unattended containers must have a label of the common name in English to identify the contents. If applicable, secondary containers must also include the concentration and/or expiration date.

Cleaning agents are a common chemical utilized by animal users. All cleaning agents must be stored in labeled and tightly capped containers at all times. Consult the product label or the MSDS for appropriate protective equipment when handling cleaning agents. Always wear face protection and gloves when handling and dispensing concentrated cleaners. Chemical aprons and heavier chemical-resistant gloves may be needed.

Anesthetic agents have long been associated with health hazards. Chronic exposure to these agents have possible effects on the liver, kidney, nervous system and reproductive system. Engineering controls, such as chemical fume hoods, that scavenge waste gases from the source, are the best methods to control these hazards. Environmental Health and Safety is available to perform monitoring for exposure to waste anesthetic gases.

Formaldehyde, formalin, and paraformaldehyde, are commonly used to fix or preserve animal tissues. Formaldehyde is irritating to eyes, skin, and mucous membranes. Allergic respiratory reactions and possible tissue damage may result from prolonged contact. Formaldehyde is also a probable human carcinogen and suspected reproductive hazard. Formaldehyde should be used only in a chemical fume hood or at a downdraft table that draws air away from the worker and out of the work area. Personal protective equipment (PPE) is required for work with formaldehyde. Skin and eye protection such as safety glasses and lab coats must be worn when handling formaldehyde or fixed tissues. Gloves must be worn whenever formaldehyde is handled. Nitrile gloves are recommended over latex gloves. Formaldehyde waste must be collected and disposed through the chemical waste disposal program. Annual training is required for employees who meet the 0.1 ppm exposure limit. Environmental Health and Safety is available to monitor for formaldehyde exposure.

Hazardous chemicals, such as toxins, carcinogens, mutagens, or reproductive hazards, may be administered to animals as part of an approved research protocol. Environmental Health and Safety generates a Risk Assessment document for each IACUC protocol. The Risk Assessment identifies all hazards listed in the protocol, including chemical hazards, and the requirements for conducting the research safely. These requirements may include using engineering controls to minimize exposures to hazardous chemicals such as: chemical fume hoods; microisolator cages, for containing excreted or exhaled hazardous chemicals; and bedding dump stations, for containing contaminated bedding.

Excess chemicals should be disposed through the University's Chemical Disposal Program managed by Environmental Health and Safety. Never place chemicals in the trash or in the biohazardous waste stream. Bedding from animals exposed to hazardous chemicals may need to be collected specially and incinerated.

If your skin or eyes are exposed to a chemical, flush the affected area with large amounts of running water using an eyewash for 15 minutes. Then proceed to UPMC Presbyterian Hospital Emergency Department.

In the event of a chemical spill:

1. Evaluate the spill. Are the materials corrosive, flammable, toxic or explosive?
    a. Identify all materials by common name.
    b. Estimate how much is spilled.
    c. Evaluate the degree of danger to staff, patients, visitors or animals.
    d. Evaluate the degree of danger to equipment or property.
2. Contain the spill.
3. If the spill cannot be contained, evacuate the area. Also evacuate if the spill is likely to produce irritating, flammable or explosive vapors. Immediately call the emergency number for your building.
4. Spills of innocuous material or small amounts of acids, bases and flammable material can be cleaned up by lab personnel or properly equipped staff in the area.
5. All spills of toxic or explosive materials and large spills of corrosive or flammable material will be cleaned by Environmental Health and Safety. Immediately call the emergency number for your building.

4. Biological Hazards for Animal Users

Animals carry enteric bacteria that can produce disease in humans. Transmission of these organisms to man is by the fecal-oral route. Hand washing is the most effective way to prevent infections to yourself and to coworkers. All animal handling areas should be equipped with a hand sink that is stocked with soap and paper towels. Wash hands often.

Animals may also be naturally infected with viruses, or may be infected with biological agents as part of an approved research protocol. These biological agents may include wild-type or genetically engineered viruses, bacteria, or human cells. These agents may be shed in urine or feces, and animal blood, body fluids, and tissues, may become potentially infectious. Care must be taken in handling live animals, soiled bedding and cages, and animal blood, body fluids, and tissues.

Any exposure to potentially infectious materials should be reported immediately. Exposure to the mucous membranes (eyes, nose, and mouth) should be handled by flushing the exposed area with copious amounts of running water for 15 minutes. Exposure to the skin should be handled by washing the affected area with soap and water. After washing or rinsing, proceed to Employee Health Services. If your exposure is high risk for bloodborne pathogen infection as determined by Employee Health Services clinical staff using CDC Guidelines, post exposure prophylaxis may be recommended. These medications have been shown to be most effective in reducing the risk of HIV infection when initiated within 1-2 hours of exposure.

The basis of Standard Precautions is to treat all human subjects and specimens and all non-human primate subjects and specimens as infectious. Gloves should be used for all cleaning, specimen handling tasks and for handling animals. Always wear face protection when there is the potential for splash or exposure to infectious agents. Laboratory coats, scrubs and/or uniforms should also be worn to prevent skin exposure to biological hazards.

Biohazardous or potentially infectious materials may be administered to animals as part of an approved research protocol. EH&S generates a Risk Assessment document for each IACUC

protocol. The Risk Assessment identifies all hazards listed in the protocol, including biological hazards, and the requirements for conducting the research safely. These requirements may include using engineering controls to minimize exposures to biohazards such as the following: biological safety cabinets; microisolator cages for containing excreted biohazards; and bedding dump stations for containing contaminated bedding. Safety-engineered sharps devices also serve as engineering controls for handling of biohazards.

Sharps injuries may occur when using needles, scalpels, or other sharps devices. Sharps are defined as any item which can puncture human skin. Safety-engineered sharps devices should be utilized wherever possible to reduce the potential for exposure to an infectious agent or a hazardous chemical. Safety-engineered sharps devices include retractable injection needles and sheathing blood collection devices. Needles and sharps are never to be discarded directly into the general waste stream or biohazard trash bags. All needles and sharps must be discarded directly into approved sharps containers. Standard needles should not be recapped or left out in work areas; they should be used and then immediately disposed in approved sharps containers without recapping. Approved sharps containers must be placed in all areas where sharps may be utilized or generated. Filled sharps containers must be properly secured prior to disposal, and are disposed in dedicated waste streams or biohazard boxes lined with red bags

All macaque monkeys are potential carriers of herpes virus-B, also called herpes simiae. While human infection with herpes virus-B is rare, the unfortunate consequences may be death or severe neurological disease. Humans can become infected with herpes virus-B by receiving a bite or scratch from an infected non-human primate, from contact with tissues or splashes with body fluids from an infected non-human primate, or by injury from a cage or sharp that has been contaminated with material from an infected non-human primate. Treat all macaque monkeys as though they are infected with this virus. Prevent infection by always wearing face protection (eyewear and mask), long sleeve lab coat or other protective clothing, and gloves when working with monkeys. Use the provided implements to restrain or capture these animals.

If any individual incurs a bite or a scratch from a non-human primate, stop work, immediately notify your supervisor and clean the wound per the ‘monkey bite kit’ instructions. Note the animal's identification number and provide to DLAR. Proceed to Employee Health Services.

Non-human primates are very susceptible to tuberculosis. Tuberculosis is a chronic disease, primarily of the pulmonary system, caused by bacteria of the genus *Mycobacterium tuberculosis*. All non-human primates entering the University of Pittsburgh are quarantined to allow for thorough tuberculin testing. After the quarantine period, non-human primates are periodically tested to monitor for colony infection.

In order to protect humans who work or come into contact with non-human primates, and in order to protect non-human primates who come into contact with humans, each group is tuberculin tested on a routine basis. All individuals who have access to non-human primates are tuberculin tested every six months.

Also all individuals who directly handle non-human primates must be enrolled in the University Measles Protection Program, which validates the individual’s immunity to measles and protects the non-human primate colonies. This Program is administered through Employee Health Services.

All infectious materials and all contaminated equipment or apparatus should be decontaminated before being washed or stored. Autoclaving is the preferred method for decontamination and disinfection for contaminated equipment such as rodent cages and water bottles. All areas and equipment involving any contact with sheep or goats or products of conception from sheep or goats shall be cleaned and disinfected on a regular basis and immediately after each invasive procedure. Transport carts shall be decontaminated after use. Use appropriate disinfectants, and follow the manufacturer's recommendation for concentration, contact time, and expiration. Disposable materials associated with potentially infectious agents and exposed animals should be disposed in red labeled biohazard bags and boxes.

The containment of infectious agents is performed according to the applicable biosafety level.

- Biosafety Level 1 (BSL-1) generally involves agents of no known or minimal potential hazard to laboratory personnel and the environment.
- Biosafety Level 2 (BSL-2) includes all Biosafety Level 1 practices plus containment equipment such as certified biological safety cabinets, protective barriers such as lab coats, gloves, and face protection, and limited access to the laboratory. BSL-2 involves agents of moderate potential hazard to personnel and the environment.
- Biosafety Level 2+ is a University designation, which signifies that specified BSL-2 agents are to be used only in the full containment practices for Biosafety Level 3.
- Biosafety Level 3 (BSL-3) is designated for research utilizing indigenous or exotic agents which may cause serious or potentially lethal disease as a result of exposure by the aerosol route.

5. Research Registration and Inspection Programs

In order to control and monitor biological hazards in the work environment, the University of Pittsburgh is establishing research registration programs in accordance with federal guidelines. All research involving biological agents or materials, recombinant DNA, or animals must be properly registered with designees of the University.

Experimental animal studies are not to be initiated without prior approval from the Institutional Animal Care and Use Committee. Visit www.iacuc.pitt.edu for more information.

All principal investigators conducting recombinant DNA research are required to register such protocols with the Institutional Biosafety Committee. Research involving recombinant DNA requires strict adherence to the most current NIH guidelines. Visit www.rcco.pitt.edu/rDNA/ for more information.

Each principal investigator is to register with EH&S all biohazardous agents and materials presently in use for investigative research and all agents maintained in stock culture collections for research and/or teaching purposes. Visit www.ehs.pitt.edu/biosafety/biochemreg.htm for more information.

It is the responsibility of the principal investigator to demonstrate his/her understanding of the hazards associated with biological and chemical hazards identified in the IACUC protocol, to assure that individuals working with the registered agents and materials are appropriately trained,

and to assure that the protocols are conducted in compliance with University policies and applicable standards.

Environmental Health and Safety conducts a comprehensive inspection program to ensure that work within laboratories is occurring safely. Research laboratories are inspected annually. The lab inspection focuses on ensuring that all workers are aware of the risks associated with the IACUC protocol, including animal hazards, physical hazards, biological hazards and chemical hazards, that all workers are trained on how to mitigate those risks, that the EHS Risk Assessment is readily available for workers to review, that the lab meets the biosafety level (BSL) assigned for the IACUC protocol, and that appropriate chemical hygiene practices are implemented in the laboratory. Environmental Health and Safety also inspects all animal housing facilities twice yearly.

6. Allergies

Allergy is an important risk associated with animals. If you have a stuffy nose or other respiratory symptoms that seem to last longer than a common cold (weeks instead of days), or if you develop hives or redness and itching of the skin, you may be suffering from an allergy. If you develop these symptoms when exposed to a certain animal species, then you're likely to have an animal allergy. The majority of animal users don't suffer from allergies to the animals under their care; However, animal users have a higher incidence of allergy and asthma than workers who do not work with animals.

If you feel you may suffer from an allergy to the animals you work with, report it to your supervisor and proceed to Employee Health Services for evaluation. Allergy can usually be managed by a combination of medical and workplace strategies. It's important to consult with Employee Health Services to determine the cause of allergy in order to manage it effectively.

The following practices may help reduce your exposure to animal allergens:

- When possible, use engineering controls. For example, perform animal manipulations in a ventilated hood or certified biosafety cabinet. Dispose of soiled bedding using a controlled dump station. House animals in filter-top or microisolator cages to control particulates. If these controls are not possible, a dust mask or surgical mask may be helpful.
- When you are not working in a hood or cabinet, make sure that the animal room or other work area is adequately ventilated and that all the air handling equipment in the room is in good order. If there is doubt, your supervisor should contact Facilities or Environmental Health and Safety. Animal rooms should deliver at least 10 air changes per hour.
- Do not wear your street clothes when working with animals. Wear appropriate personal protective equipment (PPE) for handling animals. Garb requirements are posted at the entrance to each housing facility. Garb may include scrub shirts and pants, disposable Tyvek gowns or suits, shoe covers, hair nets, surgical masks, face shields, and latex and nitrile gloves. These also assist in reducing your skin contact with animals.
- Wash your hands frequently. Wash hands, face and neck before leaving the work area.
- Avoid touching your hands to your face while working with animals and animal equipment.

- Keep cages and your work area clean.

7. Emergencies

All faculty, staff and students should be aware of the procedures. In the event of fire or other emergency:

- Remove anyone from immediate danger.
- Close the door to confine smoke, fire or hazardous conditions.
- Pull the nearest fire alarm box.
- Call the emergency number for your building: 412-624-2121 on the Oakland Campus, or, 911 if you are off-campus.

Part of the emergency response protocols include hazard warning signage. This placard provided by EH&S is required to be posted at the entrances to all laboratories and research areas to indicate the hazards contained therein. These warning placards must contain the names and emergency telephone numbers of two individuals who are familiar with the hazards contained within the area. It is the responsibility of the principal investigator or the area supervisor to include the emergency contact information on the placards. If your area does not have the proper warning signage at its entrances, contact Environmental Health and Safety.

Contact the Department of Environmental Health and Safety
Telephone: 412-624-9505
Address: B-50 Benedum Hall
E-mail: Safety@ehs.pitt.edu

Supplemental information: Table of common zoonotic diseases

Zoonosis	**Animal reservoir**	**Symptoms**	**Transmission**	**Control**
Herpes B virus (Cercopithecine herpesvirus)	Rhesus macaques, pig-tailed macaques, and cynomolgus monkeys.	Fever, rash, weakness, nausea, leading to fatal encephalomyelitis.	Needlestick, animal bite or scratch, splash of blood or body fluids or feces to mucous membranes.	Surveillance and history of animals. Athough animals that repeatedly test negative may harbor the virus.
Lymphocytic choriomeningitis virus	Wild mice. Reported in mice, rats, guinea pigs, hamsters, non-human primates, swine, dogs.	Flu-like illness, rash, enlargement of lymph nodes	Inhalation, needlestick, splash to mucous membranes, exposure to aerosols from bedding and feces.	Animal surveillance. Screening of all tumor cells and cell lines.
Q fever (*Coxiella burnetii*)	Sheep, goats, cattle. Reported in cats and rabbits.	Flu-like illness with fever, headache, chest pain, with potential for liver or cardiac illness.	Exposure to aerosols from urine, feces, milk, and birth products.	Animal surveillance. Animal biosafety level 3 housing of infectious animals.
Rabies	Wild dogs, bats, raccoons. Reported in domesticated dogs and cats.	Anxiety, fever, headache, leading to fatal viral infection.	Bite or splash of saliva to mucous membrane, exposure to aerosols in caves with roosting bats.	Pre-exposure immunization of animals and workers.
Toxoplasmosis (*Toxoplasma gondii*)	Parasite. Cats and other mammals (sheep, goats) are infectious within a few weeks of initial exposure to the parasite.	Flu-like symptoms, occasional eye damage. Eye and brain damage in infants born to mothers exposed to parasite for the first time during or just before pregnancy.	Skin contact or inhalation of particles from contaminated feces.	Surveillance of workers to determine if exposure has ever occurred. Prior exposure usually confers immunity, except in the case of immunocompromised persons. BSL-2 housing of infected animals.
Tuberculosis (*Mycobacterium tuberculosis*)	Non-human primates. Reported in mice, cats, swine, and rabbits.	Infection of pulmonary system and potential for systemic dissemination.	Repeated close contact with exposed individuals or animals, especially aerosols produced by coughing.	Surveillance of incoming animals; periodic monitoring of animals; quarantine of infected or suspicious animals; periodic surveillance of workers.