

# Animal Research Safety

## Purpose and Scope

Working with laboratory animals, or tissues from laboratory animals, is associated with potential health hazards to humans. These hazards include 1) bites and scratches; 2) allergic reactions; and 3) possible zoonotic diseases. The key to minimizing these hazards is awareness and proper training.

This program applies to all who can reasonably expect to come into contact with laboratory animals in their job or study at West Chester University.

## Responsibilities

### Principal Investigators (PI):

- Responsible for the activities of their staff/students and for the conditions in the rooms within their jurisdiction.
- Being familiar with the requirements needed to provide a safe working environment
- Educating personnel on potential hazards associated with specific tasks and on the appropriate precautions to be taken. Instruct personnel in the proper handling of animals and the correct use of equipment, chemicals, and biohazardous agents, including their safe disposal. Such instruction should include discussion of applicable federal, State, and local regulations. Accurate records relating to training of personnel, including formal training and on-the job instruction, shall be maintained by the principal investigator.
- Monitoring staff to assure compliance with safety procedures
- Contact 911 or Public Safety x3333 if medical attention is needed
- Contact Human Resources (HR) x2800 and Environmental Health and Safety (EHS) x3333 to report and accident/incident
- Investigating the causes of accidents and initiating procedures to prevent their reoccurrence
- Maintaining records of accidents and associated corrective actions and staff training

### Every Individual is Responsible For:

- Being familiar with the hazards associated with their duties
- Instituting appropriate safety practices
- Participation in training
- Contact 911 or Public Safety x3333 if medical attention is needed
- Reporting accidents and unsafe conditions to the principal investigator

## Procedures

### Personal Hygiene

- Do not eat, drink, chew gum, use tobacco products, handle contact lenses, or apply cosmetics in areas where animals are present.
- Keep hands away from your mouth, nose, and eyes when handling animals.
- Wash hands after handling animals and prior to leaving animal care and use areas.

## Personal Protective Equipment

- Laboratory coats, scrubs, or coveralls must be worn when handling animals to protect street clothes from contamination.
- Nitrile or other non-permeable gloves must be worn whenever handling animals, their fluids, tissues, excretions, or soiled bedding to reduce exposure to allergens and potentially zoonotic agents. Gloves must be removed before exiting an animal housing area, and hands must be thoroughly washed with soap and water.
- The same gloves should never be removed and subsequently re-applied.
- Always follow requirements for additional protective equipment that may be required in various activities, such as head covers, surgical masks, eye protection and booties as directed by your PI.
- Protective clothing and equipment should not be worn in public areas (such as cafeteria or library) and should be disposed of properly before leaving the area of use.

*Note that if a person voluntarily chooses to use a respirator, they must sign a Voluntary Respirator Use Form. Contact EHS at X3333 for this form.*

## Sharps

- Exercise caution when using sharps, such as needles, scalpels, razor blades, and glass pipettes. Special care is required in the use of needles to avoid needle stick injuries.
- Always dispose of sharps (including needles, without recapping) directly into an appropriate sharps container.
- Appropriate restraint or sedation of animals during procedures involving needles or other sharps decreases the risk of injury. It may be advisable to have a second person available to assist in animal handling.

## Allergen Reduction

Allergic reactions are among the most common conditions that adversely affect the health of personnel involved in the care and use of animals in research. Rats, mice, rabbits, and cats are the major inducers of allergies in laboratory animal workers. Individuals who are already sensitized (for example due to pre-existing allergies to domestic cats or other pets) may be more susceptible to developing allergies to laboratory animals. Allergens present in the urine, saliva, fur, dander, and/or bedding are often aerosolized during handling of laboratory animals, clipping hair, dumping bedding, and cleaning animal rooms. Procedures should be employed to minimize contact with animal dander, hair, scales, fur, saliva, urine, and feces. This involves the use of PPE (described above) and may also involve use of other specialized equipment, such as biosafety cabinets, hoods, and ventilated dump stations.

*The following good laboratory practices may help reduce exposure to animal allergens:*

- When 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 working order.
- Wear personal protective equipment when working with animals.
- Reduce skin contact with animals by wearing gloves and long-sleeved lab coats.
- Wash your hands frequently, especially after removing gloves in an animal room and before leaving the work area.
- Avoid touching your hands to your face while working with animals and animal equipment.

- Consider using a hair cover, since allergens in the hair may be carried home resulting in prolonged exposure.
- Keep the work area as clean as possible; wipe up urine spills and clean the area frequently if shaving animals.
- In some cases, the use of respiratory protection when handling or working around laboratory animals may be recommended in order to reduce inhalation exposure. However, respirators are, in general, less effective than the other methods given above and should not be used as a substitute for good workplace hygiene. Contact EHS x3333 if respiratory protection is used.

### Laboratory Animal Transport

Animals and animal cages must be stored and/or transported in a contained manner to protect personnel from potential exposure to animal allergens, bites, and scratches. For example, in order to minimize liberation of airborne animal allergens, laboratory personnel should ensure that filter tops are placed on mice and rat cages during transport. Soiled cages may also be contained in bags as a means of minimizing allergen exposure during transport. Personnel should use non-public corridors and service elevators if available to minimize potential exposure to the public. Cages of animals that are moved through public-access areas should be visually obscured using cloth or other cloaking material.

### Bites and Scratches

All animals are capable of inflicting bites and scratches. Small animals, such as rodents and rabbits, usually deliver relatively minor wounds. However, bite and scratch wounds can become infected by the normal bacterial flora of the animal's mouth or claws, or by bacterial flora from the individual's skin. To prevent bites and scratches, always use proper animal handling techniques. Protective garments, such as gloves, gauntlets, and long-sleeved laboratory coats can limit injury to the hands and arms. Contact the PI or staff for guidance on appropriate animal handling and restraining devices.

#### *In case of an animal bite or scratch:*

- Wash the injured site with plenty of soap and water (5-10 minutes) immediately.
- If the skin is broken and bleeding, control the bleeding by applying direct pressure (preferably with a sterile gauze or bandage).
- Cover the wound with a clean bandage and antiseptic ointment.
- If necessary, seek emergency medical care.
- Always report all incidents of animal bites or scratches to your immediate supervisor.

### Housekeeping

Poor housekeeping practices can increase the seriousness of other hazards associated with animal care and use. Housekeeping should be sufficient to keep work surfaces clean and clear of clutter, obstructions, waste, and other materials. Keep walkways and egress pathways clean and free of debris at all times. Clean your work area frequently!

### Pressure Vessels

Compressed-gas cylinders and other pressurized vessels present a substantial hazard to workers if an uncontrolled or improper release of pressure occurs. Compressed-gas cylinders must be secured at all times. Do not transport gas cylinders without appropriate personal protective equipment (i.e., safety shoes). Cylinders must be transported on a gas cylinder transport cart and, under no circumstances shall cylinders be “rocked” or “rolled” to a new location.

## Electricity

Electrical equipment in labs and the vivarium must be grounded, with plugs and cords in good repair (i.e., no frayed cords or exposed wires). Extension cords must not be used as a long-term solution in place of permanent wiring, as they can create other hazards such as tripping and fire hazards. A qualified electrician must make electrical repairs.

## High Pressure Water and Steam

High-pressure water and steam are physical hazards for animal handlers who utilize equipment such as autoclaves, power washers, and cage washers. 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 boot covers, as necessary. *Only properly trained personnel may operate such equipment.* Special training is required to operate the cage wash system. Do not allow untrained personnel to operate such equipment.

## Wet floors

Wet floors are a prominent physical hazard in animal areas. Do your part in promptly reporting or eliminating wet floor surfaces. If it is necessary to walk across 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” signs to alert coworkers and visitors of this hazard.

## Ergonomics

Properly designed workspaces and work place practices can reduce the risk of musculoskeletal injury. For example, storing heavy objects on the floor or above chest level should be avoided. Racks or carts should be pushed rather than pulled. The ability to change tasks within a workday helps to lessen static postures or repetitive motions that can result in injury. Contact EHS at X3333 if an ergonomic assessment is desired for a particular task.

## Waste Disposal

Uncontaminated (i.e., not containing hazardous chemical, biological or radiological materials) animal carcasses, tissues, blood, and materials visibly contaminated with blood (such as gauze) must be placed into a non-transparent plastic bag. Bags used for uncontaminated waste disposal should be sealed and labeled before contacting EHS for disposal. Information on hazardous waste disposal can be found on the EHS webpage or contact EHS at x3333 for more information.

## Chemicals

Burns and irritation of the skin are possible chemical injuries associated with animal care and use. Understand the risks and precautions for working with disinfectants, anesthetic gases, chemicals used for preserving tissues (e.g. formaldehyde), and other chemicals. Consult the Safety Data Sheet (SDS) for each chemical in use to better understand the risks associated with a substance.

## Zoonoses

Diseases that are transmissible from animals to humans are called zoonoses. (Rabies is an example that most people know but there are many others.) Zoonoses are *very rarely* encountered in the laboratory animal setting (particularly in the case of mice and rats obtained from commercial suppliers of laboratory animals) but can be of concern in “field research” that is done in the wild. It is far more likely for a person to injure himself or herself from an experiment or other mishap in the lab than to contact a disease from

an animal. However, personnel should be familiar with zoonotic diseases present in the species with which they work and should inform their personal physician that they work with animals.

The risk of zoonotic diseases can be prevented through a variety of means, including use of protective clothes, techniques for the prevention of bites and scratches, proper handling of sharps, appropriate surveillance programs, and prompt and appropriate post-injury treatment. There are several sources of information on zoonotic diseases on the web, including the Center for Disease Control and Prevention (CDC): <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>

#### SUMMARY - BEST PRACTICES TO REDUCE RISKS ASSOCIATED WITH RESEARCH ANIMALS

- Never eat, drink, smoke, handle contact lenses, apply cosmetics, or take or apply medicine in areas where research animals are kept.
- Keep hands away from mouth, nose, and eyes.
- Remove gloves and wash hands after handling animals or tissues derived from them and before leaving areas where animals are kept; do not reuse gloves.
- Wear the required PPE (personal protective equipment) in all areas within the animal facility. Solid-toed shoes are required in all areas.
- Wear PPE required in posted areas and for specific protocols.
- Do not enter areas marked as Biohazard unless you have received proper training and have the necessary PPE and be sure you know how to properly don and remove PPE.
- Avoid the use of sharps whenever possible and dispose of them via designated sharps containers. Take extreme care when using a needle and syringe to inject research animals or when using sharps during necropsy procedures. Never remove, recap, bend, break, or clip used needles from disposable syringes.
- Use mechanical pipetting devices.
- Perform procedures carefully to reduce the possibility of creating splashes or aerosols.
- Conduct operations that generate hazardous aerosols in biological safety cabinets or other ventilated enclosures.
- Keep doors closed to rooms where research animals are kept.
- Promptly decontaminate work surfaces when procedures are completed and after surfaces are soiled by spills of animal material or waste.
- Properly and promptly dispose of animal waste and bedding.
- Do not handle equipment that you have not been trained to operate (autoclave, cage washer, anesthesia device, etc.).
- Exercise extra caution in wet areas (cage washing and aquatic animal zones).
- Never perform any procedure for which you feel you are not adequately trained.

#### REPORTING AND TREATMENT OF ILLNESSES, INJURIES OR ACCIDENTS

- In case of an emergency, call 911 or Public Safety at x3311.
- All injuries, illnesses or accidents must be reported immediately to the employee's supervisor, HR and EHS.
- Individuals who observe conditions or work practices that pose a potential risk should notify their supervisor.

*Reviewed: February, 2023*