

# Animal Exposure Occupational Health Program (AEOHP)

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# Animal Exposure Occupational Health Program (AEOHP)

## 1. Purpose

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To evaluate the health risks, work processes and hazardous materials related to those persons exposed to vertebrate animals in their work and the environment in which it is conducted, whether in teaching, testing or research at Purdue. This includes any person working with non-fixed animal tissue, blood or body fluids within a laboratory or work environment. It is also to inform the individual of any risk and ways to mitigate those risks.

## 2. Scope

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The AEOHP is an important part of Purdue University's institutional animal care and use program and is based upon risk assessment and risk reduction. This program, operated through the Executive Vice President for Research & Partnerships (EVPRP) office and the Institutional Animal Care and Use Committee ([IACUC](#)), is designed to protect both personnel and vertebrate animals. The AEOHP applies to Purdue University's West Lafayette campus, regional campuses, and research and teaching farms.

Vertebrate animals have the potential to cause injury, transmit zoonotic disease, and/or cause allergic reaction to those who have contact. This can be either direct contact from handling an animal or from being in close proximity, i.e., working or passing through an animal housing/procedure room. The program applies to personnel who in the conduct of their work in research, testing and teaching have direct contact with vertebrate animals including their tissues, body fluids, wastes and/or indirect animal aerosol exposure. Personnel who have these types of exposures need to be provided with the appropriate awareness training. Understanding routes of disease transmission, disease or allergy signs and symptoms, personal protective equipment, waste handling, and emergency contacts is very important. The AEOHP strives to provide a safe working environment for employees who work in areas that house or use vertebrate animals.

The requirements of this program are based on guidelines found in the [Public Health Service \(PHS\) policy](#) and the [Guide for the Care and Use of Laboratory Animals](#). The [PHS](#) Policy on Humane Care and Use of Laboratory Animals requires institutions that receive federal funds to provide occupational healthcare services to employees who work in vertebrate animal facilities or have frequent contact with animals. This same policy requires animal care and use programs to follow the recommendations of the Guide for the Care and Use of Laboratory Animals. This guide not only provides guidelines and references for the welfare of animals, but also recommends an Occupational Health and Safety Program for those working in animal facilities and having exposure to animals in other areas. To meet this requirement, Purdue University has established an AEOHP.

## **Animal Exposure Occupational Health Program (AEOHP)**

The following information is an introduction to the AEOHP and provides information and training to individuals with animal exposure concerning the risks associated with that exposure.

### **3. Responsibilities**

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#### **3.1. Occupational Health and Safety Specialist (OHSS)**

- a. monitor adherence with the plan
- b. evaluates individual risk assessment of personnel working with vertebrates based on protocol, animal species, and work environment
- c. increase campus awareness of AEOHP and enrollment procedures
- d. enroll personnel who work with animals or in areas that house animals
- e. provide training for participants (e.g., fit-testing for respirator use)
- f. point of contact for animal exposure risk and hazards

#### **3.2 Principal Investigator (PI)**

- a. assure compliance with the AEOHP
- b. provide employees with AEOHP safety policies and procedures when working with animals
- c. identify employees who work with animals or in areas that house animals and ensure those employees maintain qualifications specific to species they work with
- d. perform hazard assessments of task and activities by identifying potential hazards and implementing applicable controls (e.g., personal protective equipment, lab hoods)

#### **3.3 Animal care workers**

- a. comply with the AEOHP
- b. complete all AEOHP training
- c. bring safety concerns to attention of supervisor
- d. report instance of illness or injury to supervisor

#### **3.4 Facilities Management**

- a. provide employees with AEOHP safety policies and procedures when working with animals
- b. identify employees who work with animals or in areas that house animals
- c. assure compliance with the AEOHP
- d. provide a safe working environment for employees
- e. perform hazard assessments of tasks and activities by identifying potential hazards and implementing applicable controls (e.g., personal protective equipment, lab hoods)

# Animal Exposure Occupational Health Program (AEOHP)

## 4. Enrollment and Procedures

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### 4.1 Why is the AEOHP Offered

Purdue is committed to maintaining AAALAC-I accreditation which includes guidelines for occupational health and safety. The Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals requires institutions that receive federal funds to provide occupational healthcare services to employees who work with vertebrate animals or have frequent contact with animals. This same policy requires Institutional Animal Care and Use Committee programs to follow the recommendations of the Guide for the Care and Use of Laboratory Animals. This guide not only provides guidelines and references for the welfare of research animals, but also recommends an Occupational Health and Safety Program for those working in animal facilities and having exposure to animals.

### 4.2 Who must be invited to participate in the Purdue AEOHP

- Anyone that is exposed to or handles vertebrate animals in teaching, testing, or research as part of their employment at Purdue
- Anyone that handles any animal tissues, body fluids, or wastes

### 4.3 How Do I participate in the Purdue AEOHP

You must first complete the AEOHP Risk Assessment Form. In return, you will receive a Risk Summary that includes instructions on participating in the AEOHP.

Individuals who perform tasks with high-risk exposures are required to participate in the AEOHP. Examples include working with biohazards or other hazards that require the use of respiratory protection, working with wildlife species (e.g., bats, raccoons, wild mice, etc.), and/or using a species where vaccinations are recommended (e.g., dogs, cats, ferrets, or other unvaccinated carnivores).

Individuals who perform tasks without high-risk exposures may be allowed to decline participation in the AEOHP after their Risk Assessment Form has been reviewed.

Participation in the AEOHP is provided at no cost to the individual participant. The Office of the Vice President for Physical Facilities oversees the budget for the program.

If after reading this material, you have questions about participation in the AEOHP, please contact the Occupational Health and Safety Specialist (OHSS) at [aeohp@purdue.edu](mailto:aeohp@purdue.edu).

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### 5. Safety Principles

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Employees who work with animals must complete animal specific training modules for the animals(s) they work with. The training is currently provided by the [Collaborative Institutional Training Initiative](#) (CITI). Please contact the IACUC ([lap@purdue.edu](mailto:lap@purdue.edu)) office for additional assistance on completing these training modules.

Employees may need to complete additional safety training deemed necessary by the supervisor, IACUC/LAP or OHSS based on risk assessment and their work assignments. Courses could include:

Bloodborne Pathogens with REM    [Radiation Safety with REM](#)  
[Hazardous Material Management with \(REM\)](#)

Employees can learn more about the training listed above by clicking on the links and completing the form or registering with the appropriate contact person for that area.

### 6. Personal Protective Equipment (PPE) and Personal Hygiene

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The personal protective equipment (PPE) requirements of the Occupational Safety and Health Administration (OSHA) regulations, [29 CFR 1910.132](#) applies to the use of personal protective equipment at the West Lafayette Campus, regional campuses, and research and teaching farms.

Personal protective equipment such as protective clothing, respiratory devices (respirators), shields, and barriers shall be used to protect against chemical, radiological, biological, or mechanical hazards and irritants capable of causing injury or impairment through absorption, inhalation, or physical contact. Purdue University policy is that personal protective equipment be provided, used, and maintained in a sanitary and reliable condition.

PPE is the last barrier between you and the hazard. Working with vertebrate animals exposes personnel to risks including injury from bites and scratches and contracting disease from the animals. Personnel also pose a threat to the health of animals on campus, as humans carry a number of infectious organisms that can be harmful to animals. In addition, allergies to animals are rapidly becoming one of the most common conditions adversely affecting personnel involved with the care and use of animals. Minimize the risk of development of animal allergies or zoonotic disease by working in well-ventilated areas, using good hygiene practices (proper hand washing technique), using personal protective equipment (PPE) such as gloves, and wearing N-95 rated respirators, and laboratory coats or coveralls. Please also review the IACUC Policy on Biosecurity,

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Biosafety, and PPE. <https://www.purdue.edu/research/oevprp/regulatory-affairs/animal-research/docs/Biosecurity%20Biosafety%20and%20PPE.pdf>

To safeguard both personnel and animals, all personnel with direct animal contact must wear the PPE provided by the supervisor or manager.

PPE shall comply with appropriate American National Standard Institute ([ANSI](#)) standards, when standards exist.

### 6.1 PPE Selections, Use, and Maintenance

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#### a. Supervisor Responsibilities

After performing a hazard assessment and determining that risk and hazards are present, or likely to be present, the supervisor shall do the following:

1. Select the types of PPE that the affected employee will use for the hazards identified.
2. Assure the adequacy of the PPE (i.e., proper fit for protection, maintenance, and sanitation).
3. Communicate selection decisions to each affected employee.
4. Ensure every affected employee knows how to use their PPE correctly.
5. Ensure every affected employee uses the required PPE when performing tasks identified that require the use of PPE.
6. Prevent the use of PPE that is defective or damaged. Defective or damaged PPE must be replaced.
7. Never assign a task for which PPE is required but not available.

#### b. Employee Responsibilities

After a hazard assessment has been performed and hazards identified that require PPE, the employee shall do the following:

1. Never perform a task for which PPE is required but not available.
2. Always wear and use required PPE correctly.
3. Never use PPE that is defective or damaged.

### 6.2 Required PPE

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#### a. Dedicated Clothing

- Surgical scrubs and/or a laboratory jacket

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- Dedicated clothing should be worn only while working with the animals and must be laundered on a routine basis by employee or department

### b. Gloves

- The use of disposable vinyl, latex, or nitrile examination gloves reduces direct skin contact with animals and their allergens
- Examination gloves should be discarded after each use and not worn throughout the facility
- Use of protective gloves may be needed to protect against scratches, bites, and for procedures with an increased risk of serious injury (i.e., necropsy)

### c. Eye and Face Protection

- Protective eyewear (goggles and/or face shields) must be used in any area where there is reasonable probability of eye injury. This includes use of corrosive liquids, injurious radiation (lasers), chemicals and when there is possibility of exposure to secretions, sputum or aerosolization of infectious agents.
- Contact the OHSS for assistance in selecting appropriate eye protection.

Note: Areas requiring the use of eye protection should have a sign posted at the entrance. The sign should indicate “EYE PROTECTION REQUIRED.”

Each affected employee shall...

1. Use appropriate eye and face protection equipment when exposed to hazards from flying objects or particles, molten metal, fumes, chemical liquids, gases, vapors, dusts, acids, caustics, and other potentially injurious chemical or physical hazards.
2. Use appropriate eye protection equipment with filter lenses that have a shade number appropriate for the work being performed when exposed to an eye hazard from potentially injurious light radiation.
3. When wearing prescription lenses while engaged in operations that involve eye hazards wear eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses without disturbing the prescription lenses or the protective lenses.

### d. Foot Protection

- Sandals or perforated shoes may not be worn in Purdue’s animal facilities or laboratories. Each employee must wear proper footwear.

## 6.3 Recommended PPE

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### a. Respiratory Protection



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- The use of respiratory protection is recommended to reduce the amount of airborne particulate and allergens that may be inhaled by individuals working with laboratory animals.
  - The use of a surgical mask does not fall under the regulatory requirement of the OSHA standard. The use of surgical masks by staff entering animal areas is only to control bacteria shed in liquid droplets and aerosols from the wearer's mouth and nose. OSHA does not allow surgical masks for protection from infectious aerosols
- Employees that are required to wear a respirator are required to enroll in the University respiratory protection program, administered by REM. The purpose of the program is to ensure that the individual who must wear a respirator receives adequate training to know the limitations and use of respiratory protection, and the proper procedures for donning, cleaning, inspecting and wearing assigned respirators. Employees are fit-tested to determine appropriate size and must complete training on how to use the respirator. To enroll in the program, please contact [REM](#).
  - When working with infectious aerosols, employees may be required to use a N95 respirator approved by the National Institute for Occupational Safety and Health ([NIOSH](#)). N95 respirators do not protect against chemical vapors and are not for work that involves potential exposure to high levels of infectious aerosols. If employees need respiratory protection from chemicals or high levels of infectious agents, contact [REM](#) to have a hazard assessment done.
  - Employees may voluntarily use a N95 respirator for work that does not involve infectious agents. Examples of use may include wearing a N95 to protect against allergens or when working in areas with low levels of nuisance dust. Employees that wear a N95 respirator on a voluntary basis do not need to enroll in the University respiratory protection program. However, they must be provided a copy of OSHA's "[Information for Employees Using Respirators When Not Required Under the Standard](#)" handout, by their supervisor or manager.

**NOTE:** Once individuals develop allergic symptoms, disposable surgical-style masks are usually NOT effective, and it is recommended that National Institute of Occupational Safety and Health (NIOSH) certified respirators be used. Effective use of these devices requires fit testing by the medical surveillance center and must receive training on how to use the device.

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### b. Miscellaneous Safety Equipment

- Disposable shoe covers and hair covers are recommended when working with laboratory animals. Use of these devices limits the risk of transmitting infectious agents into the animal facility and further limit contact with animal allergens.

In addition to that noted above, additional PPE may be required for the type of research, teaching, or testing being performed. An employee's supervisor or OHSS can provide them with more information on the appropriate PPE required for the type of work being performed. Make sure that your selection of PPE fits properly and is appropriate for the job task.

### 6.4 Emergency Showers

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Purdue University provides emergency safety showers in case a person needs to remove a chemical contaminant from their body. To use a safety shower, first remove all contaminated clothing, then stand under the shower and pull the handle. Employees should stay under the shower until emergency medical personnel arrive. REM tests safety showers on an annual basis.

### 6.5 Eyewash Stations

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Purdue University provides eyewash stations in case an employee needs to flush contamination from their eyes. If a contaminant gets into an employee's eyes, they should go to the eyewash station and place their eyes between the eyewash nozzles and push or pull the handle for water. The eyes should be flushed for at least 15 minutes or until emergency help arrives. The group responsible for the area in which the eyewash stations are located should test the stations weekly. After testing them, initial and note the date of the test on the tag attached to the eyewash. Report problems found with eyewash stations to [REM](#) at 46371.

## 7. Animal Hazard Controls and Containment

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Exposure to potentially hazardous biological, chemical, radiological, or physical agents should be monitored. Protective devices should be used when possible, and other safety practices consistent with current safety guidelines should be adopted. Potentially hazardous chemicals in the animal laboratory or care room may be found in disinfectants, cleaning agents, or pesticide, and as feed and bedding contaminants.

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Hands should be washed after removing gloves, handling chemicals, infectious materials, animals, and before leaving the laboratory or animal area. A certified biological safety cabinet and gloves should be used when handling infectious materials and a certified fume hood used when handling toxic materials. All work surfaces—after use and daily—should be decontaminated. All contaminated materials should be decontaminated (by autoclaving or chemical disinfection) before washing, reuse, or disposal. The decontamination procedure will vary with the agent.

Animal facilities use the following methods to contain hazards:

- a. Air pressure differences that result in positive and negative pressure zones, with air flow from “clean” to “dirty.”
- b. Use of special hazard containment units (isolators) or cages
- c. Filtration of exhaust air from laboratories, animal rooms, and ventilated cabinets
- d. Airlocks and pass-through autoclaves located between clean and contaminated areas.
- e. Ultraviolet light barriers at doorways, airlocks, and in special laboratory areas, destroy organisms on surfaces
- f. Sinks with running water, soap, towels, and sometimes change and shower rooms
- g. Provisions for treatment of contaminated sewage from laboratory drains and animal cages
- h. Approved back-flow check valves in the main water supply lines
- i. Physical and traffic flow separation between hazard containment areas and utility systems such as air supplies, compressed gases, steam supplies, central vacuums, laboratory drains, sanitary sewers, and water.
- j. A detailed standard operating procedure for each specific hazardous study, whose rules are followed carefully by animal technicians and investigators

### 7.1 Biological Safety Cabinets

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The Biological Safety Cabinet (BSC) is a special and unique piece of laboratory equipment. Depending on the class, a BSC is used for working with low-, moderate-, or high-risk biological agents and materials. Cabinets are designed for personnel and environmental protection, and product protection. BSCs are among the most effective, as well as the most commonly used, primary containment devices in laboratories working with biohazardous agents. There are three classifications of BSCs, each designed for specific applications.

Training on the proper work practices and procedures for working with Biological Safety Cabinets is available by contacting [REM](#) at 4-7968 or 4-1496.

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BSCs should be certified after installation, but before being used, whenever it is moved, and at least annually, thereafter. Call REM at 4-7968 to schedule repairs and certifications of BSCs.

### **7.2 Sharps and Infectious Waste**

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Sharps are items capable of puncturing, cutting, or abrading the skin such as razor blades, needles, syringes with needles, broken glass, test tubes, petri dishes and glass or plastic pipettes. Employees that routinely work with sharps and those who handle sharps waste should be aware of the risk of being punctured or lacerated during their workday. It is important for these employees to take precautions and properly handle waste materials in order to prevent injury and potential disease transmission. These employees should use appropriate PPE, tools, barrier protection, and engineering controls to protect themselves.

#### **Handling Guidelines**

- a. Do not re-cap the needle and if re-capping, use re-capping guidelines from the LAP (Laboratory Animal Program).
- b. Use appropriate PPE as determined by a risk assessment
- c. Properly decontaminate category 1 waste prior to removal by REM
- d. Do not place sharps into the regular office or lab trash receptacles
- e. Place sharps in specifically designed plastic puncture proof and biohazard labeled sharps containers

Sharps containers are disposed of by filling out the [Biomaterials Pickup Request form](#) attaching it to the container, and calling REM for pickup and removal at 4-0121

## **8. Animal Exposure Occupational Health Training**

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Employees who have potential for animal exposure are those that work with vertebrate animals, work in an animal housing area, maintain equipment, and building services staff assigned to animal housing buildings. Personnel who have both direct and indirect exposure to animals need to be provided with the appropriate awareness training. Understanding routes of disease transmission, disease or allergy signs and symptoms, personal protective equipment (PPE), waste handling, and emergency contacts is very important. The job tasks will determine the potential exposure, i.e., working on a ventilation system will have a greater exposure potential than emptying the trash. The OHSS and REM can provide a risk and hazard assessment before your exposure to the potential hazard.

### **8.1 AEOHP Training**

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- a. Hazards and necessary safeguards

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- b. Policies that promote cleanliness
- c. Good PPE and personal hygiene practices

### 8.2 Hazardous Risk Assessment and Material training is performed by [REM](#) [{top}](#)

- a. Hazard communication training, in accordance with [29 CFR 1910.1200](#)
- b. Lab Safety training in accordance with the Chemical Hygiene Plan (CHP) is required for laboratory workers who directly handle animals.
- c. Respiratory Protection Program training in accordance with [29 CFR 1910.134](#) and [1910.139](#)
- d. Radiological training is required whenever the user handles radiological material
- e. [Handling compressed gases](#)

### 8.3 Bloodborne Pathogen training (<https://www.purdue.edu/chps/rem/training/#B> is performed by REM. [{top}](#)

The University's Institutional Biosafety Committee (IBC) is the campus-based committee that has the responsibility for reviewing and approving all proposals, activities, and experiments involving recombinant DNA, biohazardous materials, and unfixed human tissues, cell lines, or fluids. The IBC reviews protocol applications that deal with Class II or higher biohazards, unfixed human blood or tissues, or recombinant DNA materials.

- a. Bloodborne Pathogen training in accordance with [29 CFR 1910.1030](#), bloodborne pathogens is required for personnel who are potentially exposed to other workers
- b. Biological hazard training is required for workers who are potentially exposed to biological hazards including, allergens

## 9. AEOHP Requirements for Minors [{top}](#)

The policy is directed to include all persons under age 18 whether students, employees, or volunteers. Minors 14 years of age and under are **NEVER PERMITTED** inside of any research laboratory, greenhouse, or animal facility at Purdue University unless enrolled as a Purdue student. An exception is allowed for Purdue sponsored programs which are designed for youth under the age of 15 and which have documented training policies.

- a. All minors are prohibited from working or conducting research in the following:
  - i. Any laboratory or facility designated as BSL-3, ABSL-3, or higher for recombinant or infectious organisms.
  - ii. Any laboratory where select agents or explosives are used or stored.
- b. All minors are prohibited from working with radioactive materials (ionizing) or radiation producing devices unless specifically approved by the Radiation Safety Committee

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## 10. Animal Bite and/or Scratch Exposure and Procedures

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An animal bite or exposure is defined as having one's skin pierced or abraded by animal teeth or claws, or by coming in contact with animal saliva or tissue on abraded skin, eyes, or mucus membranes. Bites and scratches are potentially dangerous not only from the physical damage but also for the potential of contracting zoonotic disease or allergic reactions.

To protect from animal bites or scratches, employees should utilize sedation, anesthesia or a restraining device when possible. They should also use the proper animal handling procedures for the species. Also, be aware of the animals comfort zone and how far it can reach out to bite or scratch.

Since animals can bite through latex gloves, employees should use a thicker over-glove when appropriate. Employees should also consider using a two-person team for complex procedures.

### 10.1 Animal Bite Monitoring

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Potential exposure to serious zoonotic diseases, such as rabies, is monitored by the Indiana State Department of Health, and by the Purdue Animal Exposure Occupational Health Program (AEOHP). Animal bites are a state reportable health event. The Indiana State Department of Health "[Animal Bite Report - Report of Rabies Prophylaxis](#)" form must be completed by the health care provider, you must also complete the First Report of Injury (FROI) form located on [REM's](#) website.

### 10.2 Bite Prevention: Laboratory

- Species specific animal handling techniques are taught by the Laboratory Animal Program training coordinator and the animal facility management staff, as needed.
- Rabies prevention post-bite steps do not apply to laboratory rodents, i.e., rats, mice, rabbits, or hamsters.
- If possible, direct handling of wild animals or any animals suspected of being infected, should be avoided by using tongs, bite gloves, squeeze cages, shields, or other protective equipment.
- Animals known to be aggressive should always be handled by a minimum of two people.

### 10.3 Bite Prevention: Non-Laboratory

- Do not approach or try to pet or handle strange dogs, cats, squirrels, raccoons, possums, bats, or other wild animals.

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- Avoid injured animals or animals that are behaving oddly (staggering or nocturnal animal sighted during the day).
- Report animals that are demonstrating odd behavior to the local animal control officer.

### 10.4 Post-Bite Procedures

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- Bite incidents may require that the animal be quarantined, especially if the animal's vaccination history is unknown. If possible, confine the animal to prevent any further injuries and to allow quarantine or immediate rabies testing. It is important to have the name and address of the animal's owner so that AEOHP can conduct follow-up procedures. If ownership is unknown, record the address where the bite occurred so the local animal control officer can begin a search. Random source dog, cat, or wild animal bites may need special attention.
- If the bite breaks the skin, treat it as a minor wound. Wash the area thoroughly with soap and water, apply an antibiotic cream, and cover it with a clean bandage. If the bite creates a deep puncture or the skin is badly torn and bleeding, apply pressure to stop the bleeding. Injuries sustained from a cat or dog should be washed thoroughly for 15 minutes.
- Seek medical attention as soon as possible for any animal bite or injury. Based on the information gathered, a post-exposure prophylaxis recommendation will be developed by the health care provider.
- Irrigate splashes to the eyes, nose, or mouth for 15 minutes with rapidly flowing water.
- Immediately report the incident to the your supervisor, OHSS, and the Principal Investigator.
- For any non-emergency injury, if an employee wishes to see a physician, he or she should be encouraged to contact his or her personal physician.
- A tetanus immunization should be current (within 10 years). If the employee's tetanus vaccination program is not current, he or she should receive a tetanus immunization.

### 10.5 Animal Bite Related Diseases

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- Pasteurellosis: The most common bite-associated infection is caused by a bacterium called Pasteurella . Most cats and dogs, even healthy ones, naturally carry this organism in their mouths. When an animal bites a person, these bacteria can enter the wound and start an infection. The first signs of pasteurellosis usually occur within 2 to 12 hours of the bite and include pain, reddening, and swelling of the area around the site of the bite. Pasteurellosis can progress quickly, spreading through the body from the bitten area. Untreated, this infection can lead to severe complications. Bites to the hand need special attention. If pasteurellosis develops in the tissues of the hand, the bacteria can infect tendons or even bones and

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sometimes cause permanent damage if appropriate medical care is not administered promptly.

- **Rat-Bite Fever:** Rat-bite fever is caused by *Streptobacillus moniliformis* or *Spirillum minor*. These organisms are in the respiratory tracts and mouths of rodents, especially rats. Most human infections are the result of a bite wound. Symptoms include chills, fever, malaise, headache and muscle pain. A rash can develop along with painful joints, abscesses, endocarditis, pneumonia, hepatitis pyelonephritis, and enteritis.
- **Rabies:** Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The vast majority of rabies cases reported to the Centers for Disease Control and Prevention (CDC) each year occur in wild animals like raccoons, skunks, bats, and foxes. Domestic animals account for less than 10% of the reported rabies cases, with cats, cattle, and dogs most often reported rabid.
- Rabies virus infects the central nervous system, causing encephalopathy and ultimately death. Early symptoms of rabies in humans are nonspecific, consisting of fever, headache, and general malaise. As the disease progresses, neurological symptoms appear and may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation (foaming at the mouth), difficulty swallowing, and hydrophobia. Death usually occurs within days of the onset of symptoms.
- Additional information regarding [Animal Bite and Scratch Exposure](#) can be found on REM's website

### 11. Allergies to Vertebrate Animals

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An allergen is a substance, usually a protein that can cause your immune system to react as if you are being infected with a cold virus. Allergies and the development of allergies are perhaps the most common hazard associated with working with and around animals. Allergies to animals are a common and important occupational health problem for persons who care for or work with animals. Allergic hazards are associated with breathing or contacting animal hair, dander or protein allergens (among others).

Species most commonly implicated in allergies are cats, dogs, rabbits, mice, rats, birds, hamsters and guinea pigs. Exposure to animal related allergens (fur, saliva, hair, dander, and protein from urine) may occur by inhaling contaminants or by direct contact. Direct skin contact when handling animals may result in wheals (skin rash), urticarial (hives), and more chronic symptoms such as eczema. Bites and scratches must be avoided.

Animal allergens can originate from shed dander and hair, or can be contained in urine, saliva, serum, or tissues. Allergies develop after you have been exposed to foreign proteins. Example: after being exposed to an animal protein found in rat urine, you can become sensitized (your body is ready to fight this reoccurring foreign protein).

Scenario: you enter a room housing rats just like you have done many, many times before but this time your immune system recognizes the rat urine protein as an invader and is



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prepared for battle. Special cells called "mast cells" release chemical defense agents that have been stored up just for this occasion (notably histamine). This release of defense chemicals is what causes hives, sneezing, nasal drainage, and shortness of breath. All people are capable of having an allergic reaction, some more so than others.

Allergy symptoms include rhinitis (runny nose and sneezing similar to hay fever), conjunctivitis (irritation and tearing of the eyes), asthma, and/or dermatitis (skin reactions). Some people react quickly and begin having temporary symptoms within 10 - 15 minutes after exposure. Others can have a delayed reaction starting several hours after exposure. There are some people, due to their genetic composition, who react by developing more severe allergy related diseases like asthma or dermatitis. Allergic reactions are implicated if symptoms are reduced or stop after leaving the work place.

Avoiding allergens completely may be the best way to control animal allergies. For these individuals, a variety of practices can help reduce contact with the offending allergens. These include the use of masks and other protective clothing, housing animals in filter-top-cages, and the use of other filtered and ventilated caging systems, improving ventilation, avoiding recirculation of animal room air, increasing the frequency of cage cleaning, and reporting problems promptly to a supervisor or physician.

### **12. Zoonotics Associated with Types of Animals**

[{top}](#)

[See Appendix A](#)

### **13. Transmission of Diseases**

[{top}](#)

Humans are not usually susceptible to infectious diseases suffered by animals. However, there are some important exceptions. Organisms carried by normal-appearing animals may, on some occasions, produce significant disease in people. Such infections, shared by animals and man, are called zoonoses. While the animals have natural resistance to these microorganisms, humans with no previous exposure to the agent lack this protective immunity. Therefore, always be aware of possible consequences when working with each type of animal and take precautions to minimize the risk of infection. In the event that you become ill with a fever or some other sign of infection, let your physician know of the work you do with animals. This history of exposure is often critical in the recognition of disease conditions.

Some specific zoonotic diseases and the animals associated with them are described in more detail in Appendix A. Common sense practices can lessen the risk of infection in general. These include cleanliness in routine tasks around animals and hand washing after completion of animal work. Workers should also wear gloves to protect against accidental self-inoculation, substitute manually operated pipettes for needles and syringes and cannula for needles, take enough time to give injections properly, and use a two-person team to inject animals, if necessary. Do not re-cap needles. Instead discard them in a container designed for proper disposal of contaminated "sharps." For procedures

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such as necropsy, bedding changes, and tissue and fluid sampling, use biological safety cabinets, physical containment devices, or other personal safety gear when appropriate.

The scope of possible zoonotic infections is quite large and not all examples are described here. Zoonotic diseases are those that can be transmitted from animals to humans. Although zoonotic diseases are not common, the prevention, detection, and eradication of zoonotic diseases from the animal facility are a primary concern of the entire animal care staff. It is important to remember that unfixed animal tissues, animal waste materials, as well as the animals themselves, may also transmit zoonotic disease. Pregnant workers can be at very high risk for certain animal diseases. Awareness, common sense, PPE, and avoidance will protect against and prevent most of these diseases.

Below are examples of diseases associated with common vertebrate animals. Use of proper PPE can reduce these risks. All personnel should be aware that laboratory animals (particularly rats, rabbits, guinea pigs, hamsters, and cats) are sources of potent allergens to sensitized persons.

### 13.1 Sheep

[{top}](#)

Ruminants such as sheep, goats, and cattle can present a significant risk to animal handlers for exposure to a highly transmittable disease-causing organism known as *Coxiella burnetii* (“Q fever”). Q fever is a potentially serious human disease caused by the rickettsia *Coxiella burnetii*. It is an airborne rickettsial (organism smaller than bacteria) that causes chills and fever in adults and birth defects for the fetus. It is now known that the organism is shed abundantly from the placental membranes of sheep. In pregnant ruminants, *Coxiella burnetii* builds up to enormous numbers in certain tissues and fluids, i.e., the uterus or womb, the placenta, the mammary glands or udders, birth fluids, and milk. Animal handlers, farm workers, students, and visitors must be made aware of the potential disease development that could result from exposure to the placenta, amniotic fluids, milk, and feces from birthing ruminants.

- This rickettsial organism is extremely resistant to drying and can survive many months in the environment. As few as ten *Coxiella burnetii* microbes can cause an acute infection called Q Fever. Individuals acquire this infection by inhaling aerosols and contaminated dusts generated by animals or animal products. The aerosol route of exposure has been the cause of more recent cases of Q fever pneumonia and other associated symptoms in workers.
- Contagious ecthyma (“Orf”) from the mouth of an infected sheep or goat can be transmitted to humans causing focal skin lesions on the hands. When working where exposure is possible, consider wearing disposable over sleeves.

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- Minimum PPE is required for individuals working with pregnant sheep. Use disposable sleeves to cover gaps between gloves and lab coat, scrubs, or gown. Proper handling/laundry of non-disposable clothing must be followed to prevent possible infection to others.

### Q Fever and Valvular Heart Disease

Persons that have pre-existing valvular heart disease or have a history of vascular graft or prosthetic heart valves are at higher risk for developing chronic Q fever. Employees with valvular or congenital heart defects or those who are receiving immunosuppressant drugs should not work with infected animals at the time of animal birthing or have contact with any fetal or uterine fluids.

If you have a history of valvular heart disease, it is recommended that you discuss your condition and your work environment (animal exposure; frequency and duration, personal protective controls and other safety practices) with the staff at the Regional Occupational Care Center (ROCC) clinic or your personal physician. This allows for planning of special precautions and work assignments according to risk factors.

#### 13.1.1 What are the signs and symptoms of Q Fever?

[{top}](#)

Individuals can be infected with Q Fever unknowingly, or mistake their symptoms for the flu. Often, it is impossible to diagnose without laboratory tests. Q Fever strikes as a sudden illness, affecting a large number of people in the same workplace. Common signs and symptoms include:

- sudden onset of high fever
- headache
- malaise and fatigue
- nausea and/or vomiting
- chills and sweating
- general feeling of sickness and loss of appetite

More serious complications can affect the immune-compromised, individuals with heart abnormalities, and pregnant human females, i.e., endocarditis and miscarriage or premature birth. Person to person transmission occurs rarely, but contaminated clothing can transmit the organism. Individuals should notify their physician or their occupational health provider if signs and symptoms of Q Fever arise.

#### 13.1.2 How can Q-Fever be prevented?

[{top}](#)

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Personal Protective Equipment such as OB Sleeved gloves, nitrile gloves, N-95 dust mask, and protective outerwear should be available for individuals exposed to ruminants, especially during birthing procedures. Hands should always be washed with a disinfectant soap immediately after contact with the animals, tissues, or wastes.

Surfaces contaminated by ruminant birthing fluids and tissues can be decontaminated with a 1 to 10 bleach and water solution. Contaminated bedding can be composted and tissues can be incinerated or buried. Take care not to produce dust when cleaning and/or decontaminating. If dust production is unavoidable, the use of a properly fitting N-95 dust mask is strongly suggested.

Be aware of the sources of Q Fever, especially fluids and tissues from pregnant ruminants. Only allow authorized individuals who have been made aware of the potential biohazards to enter the ruminant housing and birthing area.

### 13.1.3 Ruminant Standard Operation Procedure [{top}](#)

- In the laboratory setting, handlers of female ruminants should work under BSL2 conditions.
- Q Fever awareness training for staff, students, and visitors who have contact with ruminants, especially potentially pregnant human females and individuals with heart conditions.
  - [CDC Q Fever](#)
  - [IACUC Zoonotic Disease Information](#)
- Personal Protective Equipment should be available for individuals exposed to ruminants, especially during birthing procedures, i.e., OB Sleeved gloves, nitrile gloves, protective outerwear.
- Hands should always be washed with disinfectant soap immediately after contact with the animals, tissues, or wastes.
- Dust reduction methods for cleaning should be utilized.
- Surfaces that come in contact with amniotic fluids can be decontaminated with a 1 to 10 ratio of household bleach with water.
- Placental tissue and contaminated bedding should be appropriately disposed so that it does not present a hazard or releasing *Coxiella* organisms into the environment, i.e., incineration, burying, or composting.
- Only authorized individuals should be allowed in the animal housing and birthing area.
- Individuals should notify their physician or their occupational health provider if signs and symptoms of Q Fever arise.
- Staff handling animals may participate in the [Animal Exposure Occupational Health Program](#).

### 13.2 Dogs and Ferrets [{top}](#)

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- Dogs and Ferrets can be carriers of rabies, a fatal central nervous system attaching virus transmitted from infected mammal saliva. However, the risk of exposure to rabies is very low because research animals of these species are vaccinated and housed such that they are unlikely to have been exposed to rabies. However if your work should ever require any contact with these species, rabies vaccination is available to personnel if desired.
- Other zoonotic diseases that these species may carry include ringworm infection of the skin (fungus), sarcoptic mange (a skin parasite), and roundworms (an intestinal parasite) that may cause visceral larval migrans. However, as with rabies, the risk is very low as animals used today are purchased from colony-bred sources with disease control programs in place.

### 13.3 Rabbits, Guinea Pigs, and Rodents

[{top}](#)

- Development of allergies to those species is the most common health hazard associated with their use. Limit your exposure to their dander and soiled bedding by using the minimum required PPE. Consider using over sleeves to cover any exposed forearm areas.
- **Note:** If you must handle Rabbits and Guinea Pigs on the same day, handle Guinea Pigs first then Rabbits. Rabbits may carry Bordetella bronchiseptica, which is very contagious and harmful to Guinea Pigs. Be sure to change PPE between species.

### 13.4 Amphibians and Turtles

[{top}](#)

- Salmonella is frequently harbored in turtles and amphibians. They may carry and transmit atypical “Mycobacteriosis” caused by Mycobacteria organisms. Use minimum PPE as required when working with these species.

### 13.5 Other Zoonotic Diseases

[{top}](#)

- Toxoplasmosis: a protozoan infection causing mono like symptoms in adults and birth defects in the fetus.
- Leptospirosis: a bacterial infection caused from contact with infected animal urine that causes sudden onset of headache, chills, and other flu like symptoms.
- Ascariasis: round worm infection can cause serious problems for internal organs.
- Psitticosis: an acute chlamydial (intracellular bacteria) disease that causes fever, headache, myalgia, and pneumonia-like respiratory illness. Associated with inhaling feather dust and dried bird droppings.

Also see [Appendix A](#) for passively transmitted Zoonotic Diseases/Organisms

## 14. Animal Exposure Do's, Don'ts and Reporting

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### 14.1 Animal Exposure Do's

- Get permission to enter an animal area from the Principal Investigator or lab/farm personnel. Respect warning signs like biohazard and radiation stickers.
- Utilize the appropriate PPE. If you do not know what type of PPE to use, contact the OHSS for recommendations.
- Discard used PPE properly and wash your hands properly. Hand washing is a very simple step that is extremely important in preventing disease transmission.
- Leave everything in an animal area as you found it (lights, locks, temperature, etc.).

### 14.2 Animal Exposure Don'ts

[{top}](#)

- Do not touch vertebrate animals without permission. Some of the animals are very expensive costing thousands of dollars and are very sensitive to temperature changes and can catch disease from you.
- Do not handle animal waste or bedding without the appropriate PPE.
- Do not take animal soiled PPE or work clothes home. You don't want to expose your family to animal allergens or biohazards.
- Do not enter animal areas where you are not authorized to go. Having a master key does not authorize you to go into certain animal housing areas. Always check with appropriate staff first.

### 14.3 Reporting

[{top}](#)

Report all injuries and illnesses, including allergic reactions or zoonotic illness, to your Supervisor. A First Report of Injury (FROI) form, located on [REM's](#) website, must also be completed.

## 15. University Hazard Oversight Committee [REM.](#)

[{top}](#)

Employees have the right to know the hazards of the chemicals and products they work with. The Hazard Communication Standard (29 CFR 1910.1200) was initially promulgated to protect employees handling chemicals during chemical manufacturing or as a chemical user in the manufacturing sector (SIC Codes 20-39). The standard was expanded to cover the non-manufacturing sector including universities.

The State of Indiana, under the authority of the Indiana Occupational Safety and Health Administration (IOSHA), 402 West Washington Street, Room W-195, Indianapolis, IN 46204, has adopted the Federal Hazard Communication Standard.

*What is the purpose of a written Hazard Communication Program (HCP)?*

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The standard requires employers to develop and implement a written hazard communication program for their workplaces. The written hazard communication document provides information to employees about their rights under the law and details how the program is administered at their workplace. It specifies the methods for providing employee training so they 1) recognize and understand the hazards of the chemicals they work with, and 2) recognize and understand the labeling system for chemicals and products they use.

For more information, please contact [REM](#).  
Radiological and Environmental Management (REM)  
IOSHA Right-to-Know Law (29 CFR 1910.1200)  
550 Stadium Mall Drive  
West Lafayette, IN 47907-2051  
765-494-6371

### 15.1 Types of Hazards

[{top}](#)

#### 15.1.1 Physical Hazards

Radiological and Environmental Management (REM) act as an agent of the OSHA Compliance Officer to certify a safety program. Further information on Physical Hazards can be found on the REM website under Integrated Safety Plan (ISP). Most of the health problems occurring in an animal area involve accidents unrelated directly to animals. These problems are very common, and are prevented by knowledge of dangers, proper cautions, and appropriate signage.

- Falling on slippery floors or off weak or broken supports
- Lifting items improperly
- Falling over uneven surfaces
- Cuts from needles, knives, wires, and other sharp instruments or implements
- Injuries from operating heavy equipment
- Burns from flammable or heated materials or steam
- Exposure to toxic substances, such as anesthetic gases, pesticides, and experimental substances
- Getting particulate matter in eyes and respiratory tract
- Excessive noise

#### 15.1.2 Radioisotopes:

[{top}](#)

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

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radioisotopes, however, requires stringent precautions and safety measures.

### **15.1.3 Pathogens: [{top}](#)**

Pathogens are live infectious bacteria, viruses, fungi, or parasites that pose a threat to humans and animals. Some pathogens and their diseases are tuberculosis in monkeys, cryptosporidiosis in cattle or Q-fever in sheep. Many pathogens are blood-borne. Other pathogens are utilized as a component of some research studies. The goal of OSHA's Bloodborne Pathogens standard is to minimize or eliminate exposure to blood or potentially infectious materials. The standard covers employees with reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials. To comply with the standard, the University has developed and exposure control plan and offers covered employees the Hepatitis B vaccination. All University staff that has potential exposure to human blood, body fluids, unfixed human tissues, or animal with human tissue or tumor implants or grafts must take Bloodborne Pathogens training on an annual basis. For more information on the University Bloodborne Pathogens Programs, please contact IBC. In all cases, standard safeguards and procedures should be developed by the facility management to protect staff and investigators.

### **15.1.4 Mutagens, Teratogens, and Carcinogens: [{top}](#)**

Mutagens are substances that cause changes in chromosomes and thereby induce the occurrence of mutations. Examples of such substances are high doses of X-rays and some chemicals. Teratogens affect the embryo or fetus. Carcinogens are substances that can produce cancer directly.

### **15.1.5 Compressed Gases [{top}](#)**

Compressed gas is any material or mixture having, when in its container, an absolute pressure exceeding 40 psia (an absolute pressure of 276 KPa) at 70°F (21.1°C) or, regardless of the pressure at 70° F (21.1° C) having an absolute pressure exceeding 104 psia (an absolute pressure of 717 kPa) at 130° F (54.4° C).

All compressed gas cylinders, either in use or in storage (empty or full), shall be tightly secured by a strap, chain, non-tip base or other approved means. When securing the compressed gas cylinders, six (6) cylinders are the highest number that can be secured on a single chain/strap securement. When in use, all cylinders must be equipped with an appropriate



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regulating device. Special storage requirement is based on the total volume of compressed gas in an area. Partially full compressed gas cylinders containing residual gases shall be considered as full and are subject to the same controls and storage conditions.

### 15.1.6 Toxins and Chemicals [{top}](#)

Toxins are poisonous substances produced by bacterial, plant, or animal cells. Some bacteria for example, produce toxins (e.g. tetanus), and castor bean plants produce a toxin called ricin. The Occupational Safety and Health Administration (OSHA) requires that laboratory employees be made aware of the Chemical Hygiene Plan (CHP) at their place of employment (29 CFR 1910.1450).

The Purdue University Chemical Hygiene Plan and Hazardous Materials Safety Manual serves as the written Chemical Hygiene Plan for laboratories using chemicals at Purdue University. The CHP is a regular, continuing effort, not a standby or short-term activity. Departments, divisions, sections, or other work units engaged in laboratory work whose hazards are not sufficiently covered in this written manual must customize it by adding their own sections as appropriate (e.g., standard operating procedures, emergency procedures, identifying activities requiring prior approval).

It is the policy of Purdue University to take every reasonable precaution to provide a work environment that is free from recognized hazards for its employees in accordance with the General Duty clause of the OSHA Act (Public Law 91-596, Section 5(a)(1)). Purdue University is also required by the OSHA laboratory standard to ensure that the necessary work practices, procedures and policies are implemented to protect employees from all potentially hazardous chemicals in use in their work area.

Purdue University has established the Chemical Management Committee with the responsibility to promote safe and proper chemical management at all Purdue University Campuses and related facilities.

For more information on CHP, please refer to [REM](#) Programs.

## 16. Special Susceptibilities [{top}](#)

### 16.1 IF YOU ARE PREGNANT

Pregnant caretakers without immunity to toxoplasmosis should not be exposed to experimentally infected animals and should avoid contact with cats and places that cats

## **Animal Exposure Occupational Health Program (AEOHP)**

are known to defecate because of the risk of congenital Toxoplasma infection. Avoid cat feces. Wear gloves when working in areas potentially contaminated with cat feces or fresh necropsy specimens, which also can contain infectious Toxoplasma organisms. Wash hands thoroughly after handling any potential source of infection.

*Coxiella burnetii*, a rickettsial organism and the cause of Q fever in humans, can infect sheep, cattle, goats, and cats. This rickettsia has a predilection for the uterus and mammary glands of these animals and can be found in birthing products and raw milk. Q fever can cause pneumonia, fetal death, hepatitis and chronic endocarditis. Pregnant women should minimize exposure to uterine and placental discharges, especially those of sheep. Dusty situations can aerosolize this resistant organism making exposure without animal contact possible in areas of high sheep density.

Another zoonotic organism of importance to pregnant women is the bacterium *Listeria monocytogenes*. Pregnant women are more likely to contract listeriosis than other healthy adults. The organism is found in soil, water and manure. Infected animals can carry the organism without appearing ill. The bacterium can be found in a variety of raw foods such as uncooked meats and vegetables or in processed foods that are contaminated after processing such as deli cheeses and meats. Complete washing of fresh vegetables and fruits and thorough cooking of all food along with washing hands frequently will help reduce the likelihood of infection.

In rare cases, pregnant women have contracted *Chlamydia psittaci* from psittacine birds or from exposure to birth fluids or membranes of sheep or goats. This exposure can result in gestational psittacosis and subsequent pneumonia, sepsis, and placental insufficiency. Pregnant women should not be exposed to sheep, goats or psittacine birds of unknown or positive *Chlamydia psittaci* status.

Avoid working with hazardous agents or exposure to radiation or chemicals that are known to be teratogenic. Persons who are or are planning to become pregnant, are immune-compromised for any reason (AIDS, chemotherapy, steroid use, chronic disease), have neuromuscular or musculoskeletal problems, have diabetes, are missing a spleen, or have other illness that may place them at extra risk should contact their physician before being involved with the use or care of animals.

### **16.2 IF YOU WORK WITH DOGS OR CATS**

[{top}](#)

Dogs and cats used at Purdue University are vaccinated against rabies. Nevertheless, some risk of rabies exposure exists because the observation period may be too short to allow typical signs of the disease to develop in the animal. Individuals working with random source dogs and cats should be vaccinated against rabies and follow CDC recommendations for titer checks.

Parasite infections such as visceral larval migrans, some tapeworm infections, and sarcoptic mange, are a potential risk to those handling dogs and cats, as are bite wound infections and ringworm (a fungal disease of the skin).

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Cat scratch disease is a zoonotic infection characterized by inflammation of regional lymph nodes that follows the formation of a skin papule in the site of a cat scratch or bite. While the prognosis usually is excellent and the disease in most cases is self-limiting, an examination by an occupation health physician is recommended.

### **16.3 IF YOU WORK WITH FARM ANIMALS**

[{top}](#)

Q fever, a potentially serious human disease caused by the rickettsia *Coxiella burnetii*, was formerly quite common in those drinking unpasteurized milk and in slaughterhouse workers exposed to the tissues of freshly slaughtered cattle, sheep, and goats. It is now known that the organism is shed abundantly from the placental membranes of sheep. This route of exposure has caused Q fever pneumonia in humans. Personnel working with sheep used in reproductive research or other studies should take extra precautions. A history of exposure to sheep, goats, or cattle is important in establishing the diagnosis. Infected persons can be treated effectively with antibiotics. Erysipelas in pigs can be transmitted as a severe focal skin infection to man, and pigs showing characteristic lesions should be handled with care. Similarly appearing, though less severe, skin lesions also are seen, especially on the hands, after contact with sheep and goats infected with contagious ecthyma (“orf”) and vesicular stomatitis. Rabies also can be a risk in large animals such as cattle, horses, and pigs, but is rare.

### **16.4 IF YOU WORK WITH BIRDS OR REPTILES**

Birds can carry diseases such as psittacosis, avian tuberculosis, cryptococcosis, or Newcastle disease. Only inspected and properly quarantined birds should be used in research studies or teaching demonstrations. Reptiles frequently are asymptomatic carriers of *Salmonella*.

### **16.5 IF YOU WORK WITH RODENTS**

[{top}](#)

Contact with rodents (e.g., mice, rats, guinea pigs, hamsters, gerbils) requires precautions against such diseases as tapeworm infection, lymphocytic choriomeningitis, rat-bite fever, and ringworm. Additional concerns for individuals exposed to wild rodents are bubonic plague (particularly in certain geographic areas), toxoplasmosis, leptospirosis and hantavirus.

Lymphocytic choriomeningitis, a rodent neurologic virus, is transmissible to man; be careful when handling rodents as well as potentially infected materials, such as bedding, feces, or rodent derived tissues or cell cultures.

Laboratory bred and raised rodents are not normally expected to carry rabies.

### **16.6 IF YOU WORK WITH HAZARDOUS AGENTS**

[{top}](#)

There should be methods for monitoring exposure to potentially hazardous agents in the laboratory. Use personal protective equipment when required and adopt other safety

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practices consistent with current guidelines. Potentially hazardous chemicals in animal areas include disinfectants, cleaning agents, or pesticides as well as substances utilized in experiments.

Wash hands after handling chemicals, infectious materials, or animals. Use personal protective equipment when required and a biological safety cabinet when handling infectious materials and a fume hood when handling toxic materials. Decontaminate all work surfaces daily, as well as all infectious materials or equipment before disposal or re-use, either by autoclaving or chemical disinfectant.

For further information on working with hazardous agents, contact Radiological and Environmental Management (REM) at 46371.

### **17. Emergency Preparedness**

[{top}](#)

The [Campus Emergency Preparedness and Planning Office](#) is the focal point to oversee emergency preparedness and planning activities on Purdue University campuses. The office is tasked with the oversight of the University's "All Hazards" Integrated Emergency Operations Plan that will be used in the event of a natural disaster or a human-made incident strikes the campuses.

A key part to Purdue's campus preparedness is the Purdue alert, or the Emergency Warning Notification System. We have instituted a multi-layered communication approach to spread the word on emergency events.

The Emergency Preparedness Office also provides technical assistance and direction for Building Emergency Plan (BEP) development. The Building Deputy, or an individual designated by the department head, will develop the BEP and submit it to the Campus Emergency Preparedness and Planning Office for review, distribution to the Fire Department, and posting to the Emergency Operations Center building binder.

Additionally, the Emergency Preparedness Office annually revises and coordinates the Purdue Emergency Procedures Handbook. All Purdue faculty and staff should be familiar with the handbook and use the detailed procedures when responding to emergencies.

Lastly, faculty and staff should periodically review Purdue's emergency preparedness Web site ([www.purdue.edu/emergency\\_preparedness](http://www.purdue.edu/emergency_preparedness)) for any new preparedness and planning information.

#### **17.1 Evacuation Procedures:**

[{top}](#)

If an employee discovers a fire or emergency inside a building, they should activate the manual alarm pull station. Pull stations are located near emergency exits in the building. Once an employee is a safe distance away from the emergency, they should call University police at 911.

## Animal Exposure Occupational Health Program (AEOHP)

If any person is injured to the extent that he/she cannot be sent to the Student Health Center or the emergency room on their own, the supervisor should:

- a. Call 911 and advise where the injured person is located and give the person's name. Describe the extent of the injury or illness

If able, when a supervisor or other responsible person is not available to assist, an injured employee should call or go directly to the nearest emergency room. The injured person should notify a departmental office immediately or within 24 hours at the latest to complete forms. If the person leaves the work area to obtain medical treatment, supervisors and the department or dean's office should be informed.

### 18. AEOHP Forms

[{top}](#)

#### 18.1 [Risk Assessment Form](#)

#### 18.2 [First Report of Injury Form](https://www.purdue.edu/ehps/rem/froi/ai.html) <https://www.purdue.edu/ehps/rem/froi/ai.html>

### 19. Additional Information

[{top}](#)

#### 19.1 [Environmental Safety and Ergonomics](#)

#### 19.2 [Hearing Conservation](#)

#### 19.3 [Purdue University Respiratory Protection Program](#)

#### 19.4 [Biological Safety Manual](#)

For any further information, contact the Occupational Health and Safety Specialist, Heather Boudreau, 61334, [hrboudre@purdue.edu](mailto:hrboudre@purdue.edu)

### 20. References

Animal Welfare Act: <https://www.nal.usda.gov/animal-health-and-welfare/animal-welfare-act>

[PHS Policy on Humane Care and Use of Laboratory Animals](#)

[Guide for the Care and Use of Laboratory Animals](#) – 8<sup>th</sup> Edition

American National Standard Institute ([ANSI](#)) standards

National Institute for Occupational Safety and Health ([NIOSH](#))

[Association for Assessment and Accreditation of Laboratory Animal Care International](#)  
(AAALAC-I)

[Institutional Animal Care and Use Committee](#) (IACUC)

# **Animal Exposure Occupational Health Program (AEOHP)**

## **APPENDIX A**

**The following pages are a list of Zoonotic Disease and their Transmission**

## Animal Exposure Occupational Health Program (AEOHP)

<b>Animals</b>	<b>Common Name</b>	<b>Organism</b>	<b>Risk/concern</b>	<b>Common mode/method of Transmission</b>	<b>Human Symptoms of Infection</b>	<b>Active/Passive Transmission</b>
Mammals	Rabies	Rabies Virus	Low/Moderate and up to High in wildlife	Primarily bite from infected animal; any salivary contamination to open skin on a human	Incubation in human varies, 10 days to months. May produce: Nausea, vomiting, headache or mild fever. Paresthesia and pain at site of bite wound or inoculation site. Neurological changes cause furious/aggressive behavior or general paralysis nearly always fatal	Active
Sheep, Cattle, Goats	Q-Fever	Coxiella burnetti	Moderate	Organism shed in urine, feces, milk and especially birth products of domestic ungulates. Organism is resistant to drying and can persist for months. Aerosol is a major means of transmission.	Sudden fever, retrobulbar or frontal headache, chills, sweating, myalgia, weakness, pneumonitis, endocarditis, hepatitis	Passive
Rodents, birds, rabbits, guinea pigs, mice, cats, NHPs, sheep, swine, goats	Yersinia (gram negative and gram positive)	Pseudotuberculosis	moderate	Direct contact, or fecal contaminated food or water	Acute watery diarrhea, mesenteric lymphadenitis which can be confused with appendicitis, fever, headache, pharyngitis, anorexia, vomiting erythema nodosum (in about 10% of adults), post-infectious arthritis, iritis, cutaneous ulceration, hepatosplenic abscesses, osteomyelitis, and septicemia.	Passive
Rabbits, dogs, cats	Ringworm	Microsporum and Trichophyton	High/Low	Direct contact	Generally, scaling, hair loss or breakage; occasional itching; less frequently, erythema, induration, crusting, suppuration	Passive
Cats, Cat feces	Toxoplasmosis	Toxoplasma gondii	Moderate	Direct contact with cat feces as well as exposure to garden soil of sandboxes where infected cats	Usually, lymphadenopathy, fever, headache, myalgia, stiff neck, anorexia; occasional arthralgia, maculopapular rash, mental confusion, if pregnant: still born,	Passive

## Animal Exposure Occupational Health Program (AEOHP)

Animals	Common Name	Organism	Risk/concern	Common mode/method of Transmission	Human Symptoms of Infection	Active/Passive Transmission
Dogs, Sheep, Cattle, Goats, Swine	Brucellosis	Brucella	Low/moderate-high	Ingestion of unpasteurized milk, contact with infected animals especially aborted fetuses, fluids or membranes or urine, possibly airborne	Gradual onset, undulating fever, chills, sweats, headache, myalgia, fatigue, backache, weakness, weight loss, can be chronic with recurrent fevers. And associated symptoms	Passive
Dogs, wild rodents, rabbits	Rocky Mountain Spotted Fever	Rickettsia rickettsii	Low/moderate	Infection through broken skin of crushed mites and ticks and their feces	Sudden onset fever with chills, headaches, severe muscle pains, photophobia and meningism for four weeks. A red, morbilliform rash develops within 3-5 days of onset of fever and with hemorrhages spreading on limbs.	Passive
Dogs, rabbits, ruminants, cats, birds	Pasteurellosis	Pasteurella	Low/moderate	Wound infection from bites or scratches.	Manifest in one or more of the following Syndromes: wound infections, upper/lower respiratory tract infection, abdominal/pelvic infections, fatal sepsis	Active
Mostly Herbivores	Tetanus (Lockjaw)	Clostridium tetani	Low/very high	Puncture wound, bite or scratch transmission via contact with contaminated soil, GI flora of Herbivores	Intermittent to continuous tonic muscular spasms; terminal asphyxia due to inability to move the diaphragm muscle	Active
Dogs, cats	Septicemia	Capnocytophaga, Canimorsus and C. Cynodegmi	High in Immunocompromised or splenectomized individuals	Bite, even minor bite	1-8 days (5 on average) from time of bite to onset of symptoms which may include: Fever, chills, myalgia, vomiting, diarrhea, abdominal pain, mental confusion, seizures, gangrene. Greater than 30% fatality rate.	Active



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<b>Animals</b>	<b>Common Name</b>	<b>Organism</b>	<b>Risk/concern</b>	<b>Common mode/method of Transmission</b>	<b>Human Symptoms of Infection</b>	<b>Active/Passive Transmission</b>
Rodents	Lymphocytic choriomeningitis	LCM virus	Low/high	Direct exposure to fresh urine, droppings, saliva or nesting materials or bite of infected rodent.	Fever, myalgia, malaise, occasional stiff neck, headache, sleepiness, unusual skin sensations (paresthesia), paralysis; usually self-limiting. Some fatalities.	Passive
Most Species (animals and birds)	Salmonellosis	Salmonella	Low/moderate	Contaminated food and water and by direct contact. Common contaminant of sewage. Animal feed containing animal by products (raw meal that has not undergone the pelleting process)	Diarrhea, vomiting, low-grade fever; may progress to dehydration, prostration, death; very high fever, to septicemia, splenomegaly, headache in humans	Passive
Rodents, guinea pigs, Rabbits, dogs, cats, cattle, sheep, swine, monkeys	Pneumocystis Pneumonia	Pneumocystis Carinii	High for Immunocompromised individuals	Host specific parasite	Generally seen only in those with serious underlying disease, or suppressed immune system; pneumonia, dyspnea, nonproductive cough, moderate fever, tachypnea	Passive
Ground squirrels, wild caught rodents	Plague (Bubonic and Pneumonic)	Yersinia pestis	Low/high	Bite of an infected flea or working with animals infected with plague and breathing in tiny droplets of water contaminated with Y.pestis.	Bubonic-fever, chills, nausea, diarrhea or constipation, headache, meningitis, tachycardia, coma, regional, lymphadenopathy. 60% fatality rate if untreated Pneumonic-cough and dyspnea with mucoid to bright red sputum; may progress to septicemic form, with vascular collapse, hemorrhagic rash. 95% fatality rate in these two forms if untreated.	Passive

## Animal Exposure Occupational Health Program (AEOHP)

<b>Animals</b>	<b>Common Name</b>	<b>Organism</b>	<b>Risk/concern</b>	<b>Common mode/method of Transmission</b>	<b>Human Symptoms of Infection</b>	<b>Active/Passive Transmission</b>
Rats, mice, field moles, guinea pigs, gerbils, squirrels, rabbits, hamsters, reptiles, NHPs, livestock, and dogs	Leptospirosis	Weil's diseases, Hemorrhagic jaundice	Low/moderate	Direct contact with abrasions or with urine or aerosol exposure during cage cleaning are most common.	Biphasic illness, weakness, headache, myalgia, malaise, chills and fever. Leukocytosis, painful orchitis, conjunctival effusion, and rash.	Passive
Pigs	Streptococcosis	Streptococcus suis and S. zooepidemicus	Low	Handling infected mean. Direct contact with domestic animals and drinking raw milk.	Fever and occasionally meningitis. May cause upper respiratory tract symptoms, cervical adenitis, pneumonia, endocarditis and nephritis	Passive
Vertebrates	Coli bacillosis	Escherichia coli	Low/moderate	Direct contact with infected vertebrates or to contaminated, poorly heat treated meat or milk originating from infected animals.	Pneumonia, urinary tract disease, watery diarrhea, abdominal pain, +/- short period of fever	Passive
Wild or unscreened rodents	Hantaan virus (Korean Hemorrhagic Fever)	Hantaan virus	Low/high	Direct contact with urine, droppings, or stirred up in dust and breathed in from places where infected animals have nested.	Incubation from 5-35 days post exposure. Subtle onset; malaise, fever with neurological disturbances, common renal shutdown, headache, tremors of tongue and extremities, shock. 30-40% fatality rate	Passive
Cats	Cat Scratch Fever	Bartonella spp	Low/Moderate	Cat scratch or bite	Erythematous papule at inoculation site followed by 1 regional lymphadenopathy; malaise, anorexia, myalgia, nausea	Active
Rats	Rat Bite Fever (Haverhill)	Strep. Moniliformis	Moderate/moderate	Rat bite	May cause high fever, chills, vomiting, sore throat myalgia, headache, backache and/or possible disturbances of consciousness	Active

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<b>Animals</b>	<b>Common Name</b>	<b>Organism</b>	<b>Risk/concern</b>	<b>Common mode/method of Transmission</b>	<b>Human Symptoms of Infection</b>	<b>Active/Passive Transmission</b>
Rats	Rat Bite Fever (Sodoku)	Spirillum minus	Moderate	Rat bite, contamination during oral surgery	Bite wound may heal initially then develop pain, edema to firm swelling, turn purple or ulcerate up to several weeks post original bite. Other symptoms: headache, diarrhea, something, myalgia, myocarditis, hepatitis, meningitis are possible	Active
Fish, birds, swine, horses, ruminants, guinea pigs, ferrets, gerbils, rabbits, and chinchillas	Listeriosis	Circling disease	Low	Ingestion of unpasteurized milk and cheese and contaminated vegetables; direct contact with infectious material or soil contaminated with infected animal feces	Fever, headache, nausea, vomiting, endocarditis, granulomatous lesions in multiple organs, cutaneous involvement, coryza, conjunctivitis, metritis with abortion, sepsis and meningitis. Granulomatous lesions and abscesses occur in the liver and other organs and beneath the skin.	Passive
Armadillo	Leprosy	Mycobacterium leprae	Low	Not well known, but direct contact with infected skin through wounds or abrasions and by aerosols	Range from single, localized lesions to diffuse, generalized infiltration of skin	Passive
NHPs, cattle, birds	Tuberculosis	Mycobacterium spp	Moderate/High	Infected animals or infected tissue primarily via the aerosol route. Also via ingestion or cutaneous inoculation of the bacilli.	Pulmonary-productive cough, fever, weight loss, fatigue, night sweats, chest pain, hemoptysis Extrapulmonary-cervical lymphadenitis, meningitis, osteomyelitis, pericarditis, infections of most other organs	Passive
Non-human primates (NHPs)	Simian Hemorrhagic Fevers (Ebola, marburg)	Rhabdovirus	Low/very high	No carrier state has been determined	Fever, malaise, headache, sore throat myalgia, vomiting, diarrhea, conjunctivitis, hemorrhages. High % fatalities even with therapy	Passive

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<b>Animals</b>	<b>Common Name</b>	<b>Organism</b>	<b>Risk/concern</b>	<b>Common mode/method of Transmission</b>	<b>Human Symptoms of Infection</b>	<b>Active/Passive Transmission</b>
NHPs	Shigellosis	Bacillary dysentery	Low	feces and contaminated objects and direct contact	Incubation less than 4 days. Fever and abdominal pains, followed by diarrhea and dehydration for 1 to 3 days. Main symptom is tenesmus; in serious cases, stool containing blood, mucus and pus	Passive
NHPS	Yaba Virus (Uaba Monkey tumor virus)	Pox virus	Moderate	Direct contact with infected animal blood or through a bite	Papulae develop to subcutaneous tumors on limbs, pox lesions hands, feet, face, ears; regional lymphadenopathy	Passive
NHPs	Herpes B, B-virus	Cercopithecine herpesvirus 1	Moderate/High	Contact with infected NHP saliva, tissues, needle sticks	Vesicle/blister at site of entry, regional lymphadenopathy, possible paresthesias, pruritus, fever, headache, flu like symptoms, meningoencephalitis. Nearly 100% FATAL, without early treatment	Active