



INDIANA UNIVERSITY

OFFICE OF THE EXECUTIVE VICE PRESIDENT
FOR UNIVERSITY ACADEMIC AFFAIRS
University Environmental Health and Safety

Occupational Health and Safety for Individuals with Animal Exposures Program

April 1, 2019

1. INTRODUCTION

This Program, operated by Indiana University Environmental Health and Safety (IUEHS), with support from the various Institutional Animal Care and Use Committees (IACUCs), the Vice President for Research, the Laboratory Animal Programs, and Designated Medical Service Providers for the respective campuses, is designed to protect University staff, students, the public, and laboratory animals. The requirements of the Occupational Health and Safety for Individuals with Animal Exposures Program are based on guidelines in the National Research Council *Guide for the Care and Use of Laboratory Animals* and the *Occupational Health and Safety in the Care and Use of Research Animals*.

1.1. Purpose

IUEHS has developed this Program to identify hazards involved with animal care and use, assess the risk(s) associated with those hazards, and eliminate or manage the associated risks. This Program is an important part of Indiana University's Institutional Laboratory Animal Care Program.

1.2. Scope

This Program applies to all persons with direct contact with animals, tissues, or animal by-products held within Indiana University facilities and all animal facility personnel.

Participants include:

- Principal Investigators,
- Research Staff,
- Animal Care Staff,
- Veterinarians,
- Students Conducting Animal Research for Academic Projects, and
- Other persons needing access into animal facilities.

Employees concerned with occupational exposure to laboratory animals who are not required to enroll in the Program can voluntarily enroll in the Program.

2. AUTHORITY AND RESPONSIBILITY

2.1. University Environmental Health and Safety (IUEHS) is responsible for:

- 2.1.1. The development, implementation, and oversight of the *Occupational Health and Safety for Individuals with Animal Exposures Program*;
- 2.1.2. Reviewing research protocols and amendments to determine occupational health risks;
- 2.1.3. Reviewing risk assessments to determine occupational health risks;
- 2.1.4. Providing fit testing for [N95 respirators](#);
- 2.1.5. Providing animal allergen training for non-research staff;
- 2.1.6. Providing recommendations for [personal protective equipment](#) (PPE);
- 2.1.7. Investigating animal allergen exposures;
- 2.1.8. Investigating injuries and/or illnesses related to animal handling;
- 2.1.9. Maintaining training records; and
- 2.1.10. Assisting in identifying exposure control measures.

2.2. Deans, Directors, Department Heads are responsible for:

- 2.2.1. Informing Principal Investigators (PI's) of their primary responsibility to ensure a safe work environment for anyone within their laboratory;
- 2.2.2. Emphasizing the importance of understanding and implementing the [Indiana University Laboratory Safety and Chemical Hygiene Plan](#) and [IU Biosafety Manual](#); and
- 2.2.3. Actively supporting this Program within individual units by ensuring employees working within areas under their control have the appropriate resources to implement the requirements of this Program.

2.3. Supervisors and/or Principal Investigators, Lab Managers, Lab Supervisors are responsible for:

- 2.3.1. Reading and understanding this Program;
- 2.3.2. Implementing procedures in accordance with this Program;
- 2.3.3. Ensuring that their eligible employees are enrolled in, and are in compliance with, the risk assessment and medical surveillance program;
- 2.3.4. Ensuring all eligible employees read and understand this Program;
- 2.3.5. Ensuring that all employees receive required training and education;
- 2.3.6. Providing [personal protective equipment](#) required for the job tasks; and
- 2.3.7. Informing employees of occupational hazards and the necessary precautions to be taken to protect against these hazards.

2.4. Employees/Students are responsible for:

- 2.4.1. Reading this Program and seeking clarification for any areas not understood;
- 2.4.2. Complying with the guidelines and recommendations in this Program;
- 2.4.3. Completing all required training;
- 2.4.4. Participating in the medical surveillance program;
- 2.4.5. Properly wearing, maintaining, storing, and replacing appropriate personal protective equipment as necessary;
- 2.4.6. Following safe work practices for handling animals;
- 2.4.7. Obtaining information prior to using an unfamiliar chemical or performing a new task; and
- 2.4.8. Reporting any job related injuries or illnesses, signs and symptoms of allergies, animal bites or scratches or any unsafe working condition to the Supervisor, PI, Lab Manager, or Lab Supervisor and IUEHS for their respective campus and seeking medical attention from the Designated Medical Services Provider for their respective campus.

2.5. Designated Medical Services Provider as identified by each respective campus shall be responsible for:

- 2.5.1. Reviewing Health Screening Medical Questionnaires;
- 2.5.2. Assessing employees who develop signs and symptoms of allergies related to animal use; and
- 2.5.3. Providing treatment to employees who are injured by laboratory animals.

2.6. Institutional Animal Care and Use Committee (IACUC), as related to this Program, will be responsible for:

- 2.6.1. Identifying individuals who are listed on animal protocols;
- 2.6.2. Providing information regarding required training and occupational health information to Principal Investigators;
- 2.6.3. Communicating with persons listed on animal use protocols about their obligation to update records during the protocol review;
- 2.6.4. Confirming the completion of an individual's risk assessment, the completion of the medical questionnaire process (this shall NOT include access to any personal medical information or the individual responses to the questionnaire that are provided directly to the Designated Medical Services Provider by the individual), and records of the completion of the training; and
- 2.6.5. Ensuring compliance of the enrollment and training requirements of this Program.

3. PROGRAM ELEMENTS

3.1. Program Enrollment

Participation in the *Occupational Health and Safety Program for Individuals with Animal Exposure Program* is **mandatory** for all Indiana University employees identified in [Section 1.2](#) of this Program.

All personnel listed on a research protocol who meet the requirements indicated above will be required to complete the following based on their respective campus.

For IU Bloomington:

1. Complete the online Medical Questionnaire form located at <http://www.iuhealth.net/web/eforms/cmifpwrms>;
2. The risk assessment is completed by IUEHS during the protocol review; and
3. Complete all required training as determined by the job hazard analysis/risk assessment.

For IUPUI Campus and IU School of Medicine-Northwest:

1. Complete the on-line Animal Care and Use Risk Assessment located at <http://www.ehs.iupui.edu/ohs>.
2. Complete the on-line Medical Questionnaire located at <http://www.ehs.iupui.edu/ohs>;
3. Complete all required training as determined by the job hazard analysis/risk assessment.

For IU Southeast Campus:

1. Complete the online Medical Questionnaire form located at <http://www.nortonhealthcare.com/workfiles/OccMed-AnimalHandlerQuestionnaire.pdf>;
2. The risk assessment is completed by IUEHS during the protocol review; and
3. Complete all required training as determined by the job hazard analysis/risk assessment.

Failure to enroll and/or provide updates may result in suspension of the employee's ability to work on an animal protocol or in an animal facility.

3.2. Program Updates

3.2.1. For Bloomington and Regional Campuses

Principal Investigators are required to review and update their protocol-based risk assessment if changes occur to the protocol or at least every (3) years during protocol review. IUEHS personnel are available for consultation as needed to support this review.

Medical questionnaires shall be updated as follows:

- 3.2.1.1. *Laboratory Animal Resource staff* – at least every 3 years;
- 3.2.1.2. *For all other individual participants in this Program* - whenever the employee's personal health status changes or at the Medical Evaluator's direction. Participants will receive an e-mail reminder of this requirement during protocol review.

3.2.2. For IUPUI and IU School of Medicine-Northwest

Individual participants in the Program are required to review and update their individual risk assessment:

- 3.2.2.1. On a periodic basis of at least every three (3) years.
- 3.2.2.2. If there is a change in the employee's animal exposure.

Medical questionnaires shall be updated as follows:

- 3.2.2.3. On a periodic basis of at least every three (3) years.
- 3.2.2.4. Whenever the employee's health status changes or at the Medical Evaluator's discretion.

Participants will receive an e-mail notification and instructions when it is time to complete their periodic review.

3.3. Medical Surveillance Program

Employees requiring medical surveillance include those employees identified in [Section 1.2](#) of this Program. The medical surveillance program requirements are based on the type and frequency of exposure to animals.

The medical surveillance will include:

1. A baseline on-line medical questionnaire to be completed prior to protocol approval or renewal; and
2. Vaccinations and/or medical review will be based upon input provided by the employee.

Medical Surveillance will be provided:

1. As part of the approval process for an individual to be included on an IACUC animal use protocol (new protocol or renewal of a current protocol);
2. On a frequency as indicated by the Designated Medical Services Provider;
3. As appropriate for emergency exposure;
4. When an individual indicates a change in medical status; and
5. When a change in research is reported (i.e. species, environment, hazards, etc.).

Medical review includes:

1. Review of applicable medical history;
2. Physical examination, if indicated;
3. Discussion of risk factors associated with animal contact, including potential zoonotic agents, wound care, and potential hazards of field studies, when necessary;
4. Discussion of the health risk associated with compromised immune system (i.e., cancer, chemotherapy, radiation, steroid use, immunosuppressive drugs after organ transplant), when necessary; and
5. Updating of tetanus-diphtheria immunization, as needed.

It is the employee's responsibility to update the on-line medical questionnaire as indicated in [Section 3.2](#) of this Program.

The Designated Medical Services Provider will review the medical surveillance program annually or as necessary to ensure compliance with the regulatory body requirements and need for additional surveillance.

3.4. Work-Related Injury and/or Illness Reporting Procedures

If an individual sustains an injury while at work, that person must immediately notify you're his/her supervisor and (if applicable) Principal Investigator. First aid procedures for animal bites and scratches can be found in [Appendix C](#).

Employees who are injured and become ill on the job must seek medical treatment with the Designated Medical Services Provider for their respective campus.

Non-paid individuals or students who are injured or become ill during contact with animals shall seek medical treatment from Student Health or their primary care physician.

Specific instructions for seeking medical treatment can be found at [Indiana University Human Resources](#).

3.5. Pregnancy and Laboratory Animal Exposures

Individuals who know or suspect they are pregnant must take special precautions when working with animals. There are certain pathogens that pose a serious health risk to the fetus and can cause birth defects. Employees who know or suspect they might be pregnant, must update their medical questionnaire and, if necessary, will be contacted by Designated Medical Service Provider for their respective campus for additional information.

3.6. Animal Allergies

Employees who have direct or indirect exposure to laboratory animals have the potential to develop animal allergies. Indiana University Environmental Health and Safety (IUEHS) has developed guidelines for best practices to help reduce employee exposure to animal allergens. See [Appendix A](#) – “Laboratory Animal Allergen Exposure Guidelines” for additional information.

3.7. Infectious Disease Risk Summary

Specific procedures required by this Program are dependent upon the degree and type of exposure to laboratory animals, as well as the nature of the work being done. The table in [Appendix B](#) summarizes a preventive medicine program with suggested procedures for six risk categories. Additional risk categories may be added by the Designated Medical Services Provider for the respective campus.

4. TRAINING AND RECORDKEEPING

All employees will receive information based on the responses given in the risk assessment that will provide them with relevant information regarding the particular species and hazards to which the employee will be exposed to. All employees will receive animal allergen training initially and then every 3 years during protocol renewal.

5. REFERENCES

- [Guide for the Care and Use of Laboratory Animals – 8th Edition](#)
- [IU Anesthetic Gas Safety Program](#)
- [IU Biosafety Manual](#)
- [IU Laboratory Safety and Chemical Hygiene Plan](#)
- [IU Respiratory Protection Program](#)
- [IU Personal Protective Equipment Policy](#)
- [Occupational Health and Safety in the Care and Use of Research Animals](#)

6. REVISIONS

Revised: April 1, 2019

APPENDIX A – LABORATORY ANIMAL ALLERGEN EXPOSURE GUIDELINES

1. INTRODUCTION

1.1. Purpose

Indiana University Environmental Health and Safety (IUEHS) has developed these laboratory animal allergen exposure guidelines to educate employees about animal allergens so that exposures to animal allergens can be minimized during the care and use of laboratory animals.

1.2. Scope

These Guidelines apply to all Indiana University employees with direct or indirect exposure to all research and teaching animals. Animals include, but are not limited to: rats, mice, rabbits, dogs, cats, pigs, sheep, gerbils, hamsters, and guinea pigs.

2. AUTHORITY AND RESPONSIBILITY

2.1. *University Environmental Health and Safety (IUEHS) will be responsible for:*

- 2.1.1. The development, implementation, and oversight of the Guidelines;
- 2.1.2. Providing fit testing for N95 respirators;
- 2.1.3. Providing animal allergen training;
- 2.1.4. Providing recommendations for Personal Protective Equipment (PPE);
- 2.1.5. Investigating animal allergen exposures;
- 2.1.6. Maintaining training records; and
- 2.1.7. Assisting in the identification of exposure control measures.

2.2. *Supervisors and/or Principal Investigators will be responsible for:*

- 2.2.1. Ensuring that employees, who have been identified by the Designated Medical Services Provider as being required to wear an N95 respirator, receive a medical evaluation, N95 respirator training, and [N95 respirator](#) fit testing;
- 2.2.2. Providing employees, who have been identified by Designated Medical Services Provider, with N95 respirators as needed during their work;
- 2.2.3. Enforcing the use of N95 respirators as identified in [Section 3.3](#) of these Guidelines;
- 2.2.4. Ensuring all employees receive training on animal allergy exposure control;
- 2.2.5. Implementing exposure control measures as necessary; and
- 2.2.6. Ensuring employees report to Designated Medical Services Provider when allergy-type symptoms develop.

2.3. *Employees will be responsible for:*

- 2.3.1. Properly wearing, maintaining, storing, and replacing appropriate [personal protective equipment](#) as necessary;
- 2.3.2. Completing training on Laboratory Animal Allergy Exposure Control upon employment, when conditions change, or during protocol review;
- 2.3.3. Reporting any problems with exposure control equipment to their supervisor;
- 2.3.4. Reporting signs and symptoms of allergies immediately to their supervisor; and
- 2.3.5. Reporting to the Designated Medical Services Provider for their respective campus when experiencing signs and symptoms of allergies.

2.4. *Designated Medical Services Provider will be responsible for:*

- 2.4.1. Reviewing health screening medical questionnaires; and
- 2.4.2. Assessing employees who develop signs and symptoms of allergies.

- 2.5. Institutional Animal Care and Use Committee (IACUC)** will be responsible for:
- 2.5.1. Identifying employees who are listed on animal protocols and providing the information to IUEHS; and
 - 2.5.2. Providing occupational health information to Principal Investigators.

3. PROGRAM ELEMENTS

3.1. Engineering Control Measures

3.1.1. Engineering Controls

Engineering controls are recognized as the most effective method for controlling occupational exposure to potential hazards. Engineering controls include local exhaust and general dilution ventilation. Animal rooms should have a general dilution ventilation rate of at least 10 fresh air exchanges per hour. An increase in relative humidity has been shown to reduce airborne rat-allergen concentrations substantially.

Surgery, necropsy, and other animal procedures that may generate airborne allergens **should** be performed on downdraft tables, backdraft tables, within biological safety cabinets, or under other approved local exhaust ventilation system. In areas, where local exhaust systems are not feasible, appropriate [personal protective equipment](#) (PPE) as identified in [Section 3.3](#) of these Guidelines is recommended.

3.1.1. Bench Work

Bench work activities should be limited to the Animal Housing Facility animal procedure areas as much as possible; however, they may be performed in the laboratory if the animals are properly transported. When conducted bench work, appropriate PPE as identified in [Section 3.3](#) of these Guidelines is required.

3.1.3. Cage Systems

When feasible, use individually ventilated animal racks and microisolator (filter top cage) cages to provide protection for the animals and to minimize the potential for employee exposure to animal allergens.

Animal cages that are under positive pressure should be equipped with a scavenger system to reduce allergen load within the animal room.

When conventional cages (e.g., open top) are required to meet the needs of the research program, appropriate PPE as identified in [Section 3.3](#) of these Guidelines is required.

3.2. Administrative Controls

Administrative controls include work practices, the maintenance of systems, and use of equipment. These controls can be important factors that influence exposure during the care and use of laboratory animals.

3.2.1 Animal Transportation

The movement of animals should be minimized whenever possible. When transporting animals, employees shall follow these recommended work practices:

- 3.2.1.1. Avoid moving animals into the laboratory unless it is not feasible for the procedures to be performed in the animal facility;
- 3.2.1.2. If transportation is necessary, it is recommended that the animals be in a microisolator (filter top cage), an approved filtered transport ventilated rack, or at a minimum the cage/caging system be covered; and

- 3.2.1.3. When movement of animals is necessary, it is recommended that the animals be transferred to clean cages before moving them to the laboratory.

3.2.2. *Cage Dumping and Cleaning*

Cage dumping and cleaning is performed by Animal Care Staff according to standard operating procedures. Cage dumping and cleaning may also be performed by Principal Investigators or Laboratory Personnel. The highest exposures to animal allergens typically occur during the cage dumping and cleaning. It is recommended that employees who dump and clean cages use a vented dumping station or wear appropriate PPE as identified in [Section 3.3](#) of these Guidelines.

3.2.3. *Bedding*

Where used, contact bedding should be highly absorptive, contaminant-free, and dust-free.

3.2.4. *Housekeeping*

Animal facilities or laboratories housing animals shall be cleaned on a regular schedule using wet methods. Dry sweeping is not the preferred method for cleaning animal rooms. Employees shall follow these recommended work practices:

- 3.2.4.1. Clean work surfaces routinely to reduce allergen loads;
- 3.2.4.2. Avoid dry sweeping when possible. Use a HEPA vacuum if needed;
- 3.2.4.3. Promptly bag and correctly dispose of waste materials in the appropriate receptacle(s);
- 3.2.4.4. Dispose of shipment/transfer boxes promptly. These boxes should not be left out in the open corridors or in laboratories for a period of more than 8 hours;
- 3.2.4.5. Cover dirty cages and equipment while transporting to the cage wash area;
- 3.2.4.6. Leave dirty PPE in the animal room and/or laboratory to keep from contaminating the hallways with allergens;
- 3.2.4.7. Shave animals in a fume hood or biological safety cabinet, if possible; and
- 3.2.4.8. It is recommended that animals be maintained and manipulated on or in a local exhaust system in the laboratory such as a biological safety cabinet, fume hood, or downdraft table. In areas, where local exhaust systems are not feasible, appropriate PPE as identified in [Section 3.3](#) of these Guidelines is required.

3.2.5. *Personal Hygiene*

Employees shall take responsibility for maintaining adequate personal hygiene while working with animals. Employees shall follow these practices:

- 3.2.5.1. Eating or drinking is not permitted in animal rooms or laboratories;
- 3.2.5.2. Employees are discouraged from touching their face and eyes while in animal rooms and laboratories;
- 3.2.5.3. Remove PPE and wash hands before leaving an animal facility;
- 3.2.5.4. It is recommended that Principal Investigators and Laboratory Personnel working with animals wear personal protective equipment as identified in [Section 3.3](#) of these Guidelines;
- 3.2.5.5. PPE shall not be worn outside the laboratory;
- 3.2.5.6. Animal facility employees wear uniforms or scrubs instead of street clothes. It is recommended that employees change back into street clothes before leaving the facility;
- 3.2.5.7. Wash hands with soap and water frequently. Wash hands and face before leaving the work area and before eating or drinking; and
- 3.2.5.8. Reduce skin contact with animal by-products such as dander, serum, and urine.

3.3. Personal Protective Equipment (PPE)

Personal protective equipment shall be used in conjunction with engineering and administrative controls to reduce skin contact and inhalation of animal allergens to reduce employee exposures. IUEHS may recommend that certain, high-risk employees use specific personal protective equipment whenever direct or indirect contact with animals is imminent.

It is recommended for employees working with animals and/or soiled bedding at a minimum wear the following:

- Disposable latex or nitrile gloves; and
- Disposable or facility maintained cloth isolation gowns or lab coats.

Additional PPE such as hair bonnets are also recommended to limit the spread of animal allergens beyond the animal facility and further limit personal exposure.

In circumstances where local exhaust ventilation is not available, [N95 respirators](#) are also recommended.

All PPE shall be removed before leaving the animal facility or laboratory.

3.3.1. Respiratory Protection

The use of N95 respirator, or other respiratory protection as deemed necessary by the Designated Medical Services Provider, is required for employees handling animals outside of the Animal Facilities where local exhaust ventilation is not available. N95 respirators are recommended for individuals handling soiled bedding and are required for employees who have been identified by the Designated Medical Services Provider as having known allergies to animals.

Before wearing an N95 respirator, employees must complete a medical questionnaire located https://protect.iu.edu/sites/default/files/IU_Respiratory_Protection_Program_2014_0.pdf at https://protect.iu.edu/sites/default/files/IU_Respiratory_Protection_Program_2014_0.pdf and be medically cleared, trained, and fit-tested by IUEHS for the respective campus.

4. TRAINING & RECORDKEEPING

Training shall be provided for all employees who have contact with laboratory animals. Training topics include:

- Symptoms of exposure;
- Awareness of allergy symptoms;
- Work practices and proper use of equipment;
- Importance of early detection;
- Importance of good personal hygiene;
- Proper use of PPE; and
- Reporting if allergy symptoms develop.

Training shall be provided upon employment, when conditions change, or during protocol review. Training will be provided by IUEHS through E Training or through the Office of Research Administration [CITI](#) site.

5. REFERENCES

- Guide for the Care and Use of Laboratory Animals – 8th Edition
- IU Respiratory Protection Program
- IU Personal Protective Equipment Policy
- Occupational Health and Safety in the Care and Use of Research Animals

6. REVISIONS

Revised: April 4, 2017

APPENDIX B: Infectious Disease Risk Summary

INFECTIOUS DISEASE RISK SUMMARY

Risk Category	Definition	Pre-Placement Physical	Medical Questionnaire	TB Skin Test or Chest X-Ray	Rabies Vaccine or Serology	Tetanus Toxoid	Toxoplasma Serology	Q-Fever Serology
1	Exposure to rodents or rabbits	+	+++	+	0	+++	0	0
2	Exposure to carnivores (dog, cat, ferret, etc.)	+	+++	+	+	+++	female - + male - 0	0
3	Exposure to livestock	+	+++	+	+	+++	0	+
4	Exposure to sheep or goats	+	+++	+	+	+++	0	++
5	Exposure to chickens or other birds	+	+++	+	0	+++	0	0
6	Necropsy or field studies with animal contact	+	+++	+	+	+++	0	+

0 Not ordinarily required.

+ May be advisable in some circumstances.

++ Recommended practice.

+++ Essential component of an effective program; highly recommended.

Key:

The occupational health program outlined in Table 5 of NIH Publication No.92-3415 entitled Institutional Animal Care and Use Committee Guidebook may be a useful reference.

APPENDIX C – FIRST AID FOR ANIMAL BITES AND SCRATCHES

For Life Threatening or Immobilizing Injuries, call 911

The following steps shall be taken for an injury that breaks the skin while working with any animal used in research (including mammal, amphibian, reptile, and bird):

1. **Massage** the wound immediately to expose the possible contamination.
2. **Wash** and **irrigate** the wound and surrounding area thoroughly with an antibacterial soap. It is recommended to scrub vigorously for 3-5 minutes, rinse, and repeat two more times;
3. **Inform** your supervisor or PI of the incident; and
4. **Seek** medical attention from the [Designated Medical Services Provider](#) for the respective campus.