

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