

Title: **Occupational Health & Safety Program for MSU Personnel in Contact with Vertebrate Animals**

Effective Date: **January 19, 2010** Revision # **10**

Standard Operation Procedure Number: **IACUC-OHSP-001** Last Committee Review: **September 20, 2016**

Purpose/Scope

The Occupational Health and Safety Program (OHSP) is an important component of Mississippi State University's institutional animal care and use program. This program is designed to protect both MSU's personnel and the animals. The purpose of this program is to ensure the occupational health and safety of institutional employees, visitors, and students who in the course of their work with research animals might be exposed to hazards that could adversely affect their health and safety. Office of Environmental Health and Safety (EHS) is responsible for implementing programs and providing training to ensure a safe and healthful work place for University employees.

Definitions

Animal User: Anyone listed in the MSU IACUC Protocol Submission Form and LARAC personnel.

Program: The animal care and use Program comprises the activities conducted by and at an institution (MSU) that have a direct impact on the well-being of animals, including animal and veterinary care, policies and procedures, personnel and program management and oversight, occupational health and safety, IACUC functions, and animal facility design and management. (*Guide for the Care and Use of Laboratory Animals*, 8th ed.)

Procedure

Before beginning animal work, all animal Users at MSU are required to enroll in the OHSP program by accessing the website of the Office of Research Compliance. Failing to do so could result in suspension of privilege to work on an animal protocol or in an animal facility. If the Animal User is a new employee, the OHSP enrollment must be completed before animal related duties begin.

The OHSP program contains two sections: The Risk Inventory and the Medical Evaluation. The OHSP enrollee completes both sections. The risk inventory is assessed by the Attending Veterinarian and sent to the University Physician for assessment with the Medical Evaluation information. The University Physician then sends a completed report to the enrollee and notifies the Office of Research Compliance that the OHSP enrollment has been completed.

Directions for enrollment and completion of the Risk Inventory and Health Evaluation forms are provided at <http://www.msstate.edu/ohsp/>.

1. Animal Users should update their OHSP information when his/her:
 - a. MSU work assignment changes.
 - b. personal health status changes.
 - c. environmental risk conditions change, including using additional species.

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The IACUC administrator will send an email to each Animal User annually, reminding them that he/she may need to change their OHSP information if any of the above (a – c) conditions have occurred.

2. Any cost incurred for treatment or consultation by the Longest Student Health Center undertaken as a result of the Health Assessment will be paid by the Animal User's department or the PI listed on the IACUC Protocol Submission Form.
3. Records of OHSP participants will be maintained in a database at the Office of Research Compliance. Personal health information is considered confidential information, is seen only by a physician, and remains at the Longest Student Health Center.
4. The IACUC Compliance Administrator will verify that Animal Users listed on a protocol meet the OHSP requirement before IACUC approval is granted.

Reviewed:

IACUC Chairperson

Date

Research Compliance Director

Date

ADDENDUM to IACUC-OHSP-001
Occupational Health & Safety Program for MSU Personnel in Contact with
Vertebrate Animals

MSU Laboratory Animal Allergy Prevention Program (LAAPP)

I. Purpose

The purpose of this SOP is to outline the approach the MSU-LAAPP uses to control exposure animal allergens.

II. Background

The Mississippi State University Occupational Health and Safety Program (OHSP) was established to provide MSU employees with workplaces and working conditions where the risk of exposure to potential hazards is minimized. The development of an allergic response to animal proteins while working with laboratory animals is an occupational health concern at MSU. Employees work with a variety of animals and animal products in the process of conducting research. This type of work can potentially expose employees to animal products such as animal urine, dander, and saliva. Some proteins, also known as allergens, found in these animals can trigger an allergic reaction in some employees and may lead to the development of other conditions (e.g. asthma). Prevention of animal allergies depends on the control of animal allergens in the work environment. Controlling occupational exposure to animal allergens can involve a broad range of prevention measures. The MSU-LAAPP uses a comprehensive approach to control exposure to animal allergens through the use of education, training, engineering controls, administrative controls, and the incorporation of personal protective equipment.

III. Scope

All MSU employees who will be directly handling laboratory animals at MSU must be enrolled in the MSU OHSP as appropriate for duties and responsibilities.

IV. Definitions

A. Primary Barrier Equipment: Equipment that provides a barrier and protection for constituents and components that may include personnel, product, and the environment.

For allergy prevention, the goal is to reduce or eliminate direct contact with the allergen while minimizing the presence of the allergen in the macro environment. Equipment generally includes exhaust ventilation and/or a filtration containment system.

1. Biological Safety Cabinet (BSC) – containment devices that are designed for work involving biological procedures and microorganisms, and includes a high efficiency particulate air (HEPA) filtration system. BSCs provide excellent containment of animal allergens when used in accordance with the manufacturer’s instructions. For additional information on the different types and classes, see the CDC/NIH publication, “Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th ed., Appendix A”.
2. Local Exhaust Ventilation (LEV) System – a ventilation system that is designed to capture contaminants at their source and exhaust directly out of the work area and into the outdoor atmosphere. LEV systems may help to reduce contact with animal allergens by decreasing the level of allergens in the macro environment.
 - a. Chemical Fume Hood (CFH) – most common LEV system primary intention is to provide personnel protection for work involving chemicals (e.g. gases, vapors, etc.).
 - b. Downdraft Table – table designed with ventilation slots on the table work surface with air exhausted from below the work surface.
 - c. Downdraft Sink – sink designed with ventilation slots around the sink surface and/or internal components.
 - d. Snorkel – flexible duct or hose designed to capture contaminants directly at the source.
3. Micro isolator Cage – An animal cage composed of both a cage bottom and ventilated lid. When closed, animal allergens are contained within the microenvironment of the cage. When opened in a BSC using appropriate technique, environmental allergens can be eliminated or reduced if using a ventilated cage change station.
4. Individual Ventilated Cages (IVC) – a mechanical ventilated rack and micro-isolator caging system that provides and maintains a stable environment for the animals while producing a safe and comfortable working environment for staff and researchers. The supply and exhaust air are commonly high efficiency particulate absorption (HEPA) filtered and maintain a single pass air stream through the individual cages. Ventilation of the cage may be either positive or negative to the macro environment of the animal holding room. In both situations, allergens leaving the cage are prevented from entering the macro-environment of the animal holding room by exhausting the air into the outdoor atmosphere or HEPA-filtering the air leaving the cage into the animal holding room.
5. Ventilated Cage Change Station – a stand-alone product protection workstation which commonly contains a blower and filtration system to help in the capture and containment of particulates from spreading outside of the unit. Unlike a BSC, change stations are less efficient in the containment of animal allergens and can increase the level of animal allergens in the macro environment of the animal holding

room. Some stations commonly have a small opening inside the work area to permit the dumping of dirty bedding material into a waste disposal vessel.

6. Dust mist masks – are a flexible pad held over the nose and mouth by elastic or rubber straps to protect against airborne particulates and including some allergens.
7. Respirators – are devices designed to protect the wearer from inhaling harmful dusts, allergens, fumes, vapors, or gases depending on the respirator and required protection, and meet the criteria established by National Institute for Occupational Safety and Health (NIOSH). MSU employees required to wear a respirator must be trained and enrolled in the MSU Respiratory Protection Program (RPP): This includes both powered air-purifying respirators (PAPRs) and N-95 respirators.

VI. Responsibilities

A. Supervisor shall

1. Be fully aware of their role and responsibilities.
2. Ensure all visitors and support services personnel entering their work area are appropriately informed of the presence of animal allergens in their area of responsibility.
3. Ensure that the use of effective control measure(s) and other procedures are implemented to minimize human exposure to these hazards.
4. Develop and implement standard operating procedures that reduce the potential for allergen exposure, injury, or illness to the lowest practical level.
5. Ensure that employees performing official duties and who become ill or are injured on the job have access to appropriate first aid and/or medical attention.
6. Ensure all employees and contact personnel under their direct responsibility are instructed and/or trained on the effective practices and procedures that safely minimize the impact of animal allergen contamination within the work environment. Supervisors:
 - a. Shall review the contents of this policy with their employees and implement appropriate practices, procedures, and personal protective equipment (PPE) to minimize allergen exposure.
 - b. Shall specifically instruct their employees on the proper use of PPE for the proposed assigned tasks working with animals.
 - c. Shall specifically instruct their employees on the proper disposal of products and material directly related to the assigned tasks working with animals.
 - d. Shall ensure that all personal requiring a respirator or voluntarily using a respirator comply with the MSU Respiratory Protection Program.

B. Employee shall –

1. Be fully aware of their role and responsibilities.
2. Receive the appropriate training related to this document from their immediate supervisor and or MSU Safety Officer and understand their role.
3. Adhere to the instructions provided by their supervisor and/or MSU health and safety officers, complete all required training prior to commencement of their duties, and report any potential unhealthful conditions, actions or infractions to the appropriate official.
4. Perform their work in a safe manner by utilizing appropriate control measures and procedures to ensure they do not place themselves, coworkers, visitors or support personnel at risk.
5. Wear the appropriate PPE described by their immediate supervisor, or when in an animal facility, follow the facility's standard operating procedures while performing any task working with animals to prevent allergen exposure.
6. Adhere to the instructions given by their immediate supervisor and/or MSU health and safety officers regarding the proper disposal of products and material directly related to the assigned tasks working with animals.

VII. Procedures

Laboratory Environment: When animals are brought into the general laboratory setting, precautions are necessary to prevent sensitization of laboratory workers to laboratory animal allergens and to protect workers who may already have laboratory animal allergies or asthma. This policy provides further guidance to investigators who must remove animals from the animal facility and work with them in a laboratory setting. This policy is designed to be adapted to each laboratory setting with the intent of containing laboratory animal allergens and preventing sensitization. The following program elements shall be implemented outside of an animal facility to ensure full compliance with this program.

A. Signage

1. All laboratories located outside of an animal facility in which animal procedures are conducted shall be posted with a sign on the door warning employees that animals may be present in the workplace.
2. When there is more than one entrance into the laboratory, all entrances must be adequately posted.
3. The appropriate signage is obtained through the LARAC.

B. Use of Primary Barrier Equipment

1. When animals are brought into a laboratory, primary barrier equipment shall be used wherever possible to minimize the spread of allergens throughout the laboratory.
2. Ideally, animal work should not be conducted on an open bench.

3. Additional PPE may be required based on the identified chemical, biological, and physical hazards from the comprehensive safety risk assessment conducted in consultation with the MSU health and safety officers.

C. Laboratory Clothing

1. To afford maximal protection, personnel working with animals in the general laboratory setting should ideally wear disposable laboratory coats or other disposable coverings to prevent contamination of clothing with animal dander and other animal associated allergens.
2. Non-disposable laboratory coats or other coverings must be laundered frequently to minimize the accumulation of particulates and allergens. Laboratory clothing should never be laundered at home.
3. Disposable garments should be removed, carefully turned inside out, rolled and placed in a medical pathological waste (MPW) container upon completion of work. Alternatively, garments can be placed in a plastic bag and sealed for disposal via routine garbage.
4. Gloves should be worn. Upon completion of work they should be removed and be disposed of properly in a MPW receptacle.

D. Decontamination of Work Areas

1. Hands and forearms should be washed with soap and water.
2. MPW containing animal carcasses, discarded personal protective equipment and wastes must be appropriately closed and removed from the laboratory as soon as practical.
3. Surfaces should be cleaned with a suitable disinfectant to remove residual dander, hair or other animal related allergens such as urine proteins.
4. When it is impossible to use containment equipment, every effort should be made to localize the work to prevent widespread dispersal of laboratory animal allergens within the work area. When LEV or filtered exhaust systems are not available, all potentially contaminated surfaces must be washed with soap and water to remove dander and other allergens.
5. Only LARAC approved rodent transport boxes, designed to contain particulates and allergens during transport, shall be used for transport at MSU.
6. Used animal transport containers must be kept closed and removed from the laboratory as soon as practical. They shall not be placed in corridors or other public areas for storage or removal unless placed into a plastic bag and sealed.

VIII. Animal Facility Environment

This policy provides guidance to the animal facility's program management to minimize occupational exposures to animal allergens. It is designed to be

adaptable to each circumstance with the intent of containing and/or minimizing animal allergens in the macro-environment.

A. Use of Primary Barrier Equipment

1. MSU animal facilities utilize different primary barrier equipment to help minimize the level of allergens and dander within the macro-environment of the animal facility. These devices are specific to the animal facility's husbandry and veterinary procedures with emphasis on the animal caging.
2. Animal facility standard operating procedures are created for the tasks of cage changing and animal waste management. When dumping cages, procedures are incorporated to minimize exposure to animal allergens. Ideally, cages should be either wetted down before they are dumped or a cage dumping system should be used.
3. Employees shall also use the recommended PPE.
4. Work on an open bench with an animal is discouraged.

B. Disposable Laboratory Clothing.

1. To afford maximal protection, personnel working with animals should ideally wear disposable PPE to prevent contamination of clothing with animal dander and other animal associated allergens.
2. Used disposable garments should be carefully removed, and handled as outlined in each animal facility's standard operating procedures. Care must be taken to minimize the spread of attached particulates and allergens.
3. Gloves should be worn and removed upon completion of work and be disposed of properly in accordance with established animal facility guidelines.

C. Decontamination of Work Area

1. Hands and forearms should be washed with soap and water.
2. Medical pathological waste receptacles containing animal carcasses, discarded personal protective equipment and wastes shall be appropriately closed and removed from the area as soon as practical.
3. Once their use is complete, approved animal transport containers must be kept closed and removed from the area as soon as practical.
4. Surfaces shall be cleaned, using a wet method, to remove residual dander, hair or other animal-related allergens such as urine proteins.
5. When it is impossible to use primary barrier containment equipment, every effort should be made to localize the work to prevent widespread dispersal of laboratory animal allergens within the work area. When LEV or filtered exhaust systems are not available, all potentially contaminated surfaces must be washed with soap and water to remove dander and other allergens.
6. HEPA equipped vacuum systems shall not be used unless they exhaust outside the building.

IX. Medical Evaluation and Management

All employees working with animals or animal tissues must be appropriately enrolled into the MSU OHSP. An MSU clinician will review all medical history provided as part of the OHSP, including existing allergies. If the employee has an existing allergy to animals, the employee may be referred to the MSU Respiratory Protection Program (RPP). Employees are requested to report signs and symptoms of animal allergy to their supervisor promptly, so that appropriate interventions may be implemented. If clinically indicated, the worker may be referred to a specialist for further medical management.