

# Laboratory Animal Allergen Exposure Reduction Training

Wayne State University, Office of Environmental Health & Safety

Animal Contact Occupational Health & Safety Program (AniCon)

www.oehs.wayne.edu

313-577-1200



## Animal Allergen Exposure Reduction Program Goals

- 1) Prevent WSU Animal Research Personnel From;
  - a) Developing animal allergy symptoms
  - b) Exacerbating animal allergy symptoms
  - c) Developing or exacerbating asthma or other medical conditions

## How Exposures Occur

- 1) Exposure to Animal Proteins By Way Of;
  - a) Inhalation of air borne animal allergens
  - b) Animal bites and scratches
  - c) Injuries from sharps used on animals
  - d) Skin contact with animals, animals' excretions, or animals' waste
  - e) Animal waste or excretions splashed into eyes, nose, or mouth
- 2) Human Immune System Response;
  - a) Exposure to animal proteins can trigger the human immune system to release histamines and Immunoglobulin E (IgE) into blood the system.
  - b) The release of histamines and IgE antibodies into blood system results in an inflammatory responses in various organ tissues, such as, lungs, eyes, or skin.

## Individual Risk Factors

- 1) Exposure to Animal Allergens;
  - a) Frequency of exposure (e.g., number of hours/day)
  - b) Intensity of exposure (e.g., change animals' bedding, etc..)
  - c) Conditions (e.g., using an N95 mask, gloves, etc...)
  - d) Environmental Conditions (e.g., animal room ventilation, etc...)
  - e) Lifestyle (e.g., smoking, etc...)

2) Medical History & Genetic Component;

- a) Pre-existing personal history of allergies or respiratory disease
- b) Family history of allergic conditions

**Animal Allergens Common Sources**

- Mice (most common in research)
- Rats (most common in research)
- Rabbits
- Gerbils
- Guinea pigs
- Cats
- Dogs
- Birds



**Animal Allergy Symptoms (symptoms listed are not exhaustive)**

- Skin rash
- Eye Irritation
- Throat Irritation
- Nasal Drainage
- Sneezing
- Coughing
- Chest Tightness
- Wheezing
- Difficulty Breathing
- Facial Swelling

## Allergic Reactions Range: Mild → Severe

- 1) Early Symptoms: red irritated eyes, watery eyes, hives, rash, sneezing, “runny” nose, throat irritation, facial swelling.
- 2) Later Symptoms: coughing, wheezing, chest tightness, difficulty breathing, and shortness of breath. Shortness of breath can result in chronic disease, e.g., Asthma.
- 3) Asthma Triggered by Allergic Reactions: can lead to asthmatic symptoms that can result in a medical condition known as Status Asthmaticus: an acute exacerbation of asthma. Status Asthmaticus can deteriorate into anaphylactic shock. Anaphylaxis requires emergency treatment.
- 4) Onset of Allergy Symptoms: can occur after a few minutes of exposure or be delayed up to 8 hours after exposure and can result in a severe systemic allergic reaction that will require emergency treatment.
- 5) Generally Allergies to Animals: develop within 3 years of exposure; however allergy symptoms can develop much later than 3 years of exposure.

## The Most Important Element of Protection Are Engineering Controls



- 1) Heating, Ventilation, & Air Conditioning Systems;
  - a) Ventilation: proper air exchange & air flow
  - b) Temperature & Humidity: proper levels
  - c) Animal Room Air Flow: Negative pressure to corridors
- 2) Employ Safety Equipment and Materials;
  - a) Filter Top Cages & Ventilated Cage Racks, Corncob Bedding
  - b) HEPA Filtered Dumping Stations, Bio-safety Cabinets
  - c) Hand-washing Sinks and Shower Facilities
  - d) Eye-wash Stations and Emergency Showers
  - e) Laundry Machines, cleaning equipment, and housekeeping supply

## Administrative Controls - Follow Safe Practice Guidelines



- 1) Adhere to Safety Standards
  - Bio-safety Level
  - Standard Operating Procedures (SOP)
  - Personal Hygiene
  - PPE Use & Disposal
  - Animal Allergy Surveillance Program
- 2) Avoid Work Hazards
  - Use Proper Technique when; restraining, transporting, or caring for animals.
  - Timely service micro-isolators, Bio-bubbles, cages, and feeding systems.
  - Adhere to work assignments and avoid working alone when possible.

## Personal Protective Equipment (PPE) Significantly Reduces Allergen Exposure



- N95 Mask\*. \*N95 Mask: A properly fitted N95 respirator (mask) filters out at least 95% of airborne particles, including sub-micrometer particles.
- Gloves (nitrile)
- Lab Coat, Scrubs (long sleeves)
- Eye protection
- Hair Bonnets
- Protective Sleeves
- Shoe covers

## Medical Evaluation & Treatment

- 1) One may visit OHS-4K clinic for any medical concern, e.g. ,
  - New onset allergy symptoms
  - Worsening allergy symptoms
  - Worsening asthmatic symptoms
  - An initial N95 Mask fit test or an annual N95 Mask Fit Test
  - Medical evaluation of animal allergy symptoms
  - Bites, scratches, or any injury resulting from handling animals
- 2) Notify WSU Occupational Health Specialist
  - 313-577-5917 re: medical referrals, questions, or concerns

## How to Manage Acute Exposures

- 1) Animal Bite, Scratch, or Sharp Injury
  - Apply pressure to bleed out the wound, wash with soap and water for 5 minutes, then cover with a bandage.
- 2) Splash to Eyes
  - Irrigate the eye(s) for 15 minutes at an eyewash station or sink.
- 3) After Initial First Aid Treatment of Acute Injury
  - Promptly proceed to UHC- Occupational Health Services-4K clinic,
  - Monday - Friday, 6:30 am to 5:00 pm. After hours, proceed to Detroit Receiving Hospital Emergency Department, 4201 St. Antoine. Inform your Supervisor or PI, and the Occupational Health Specialist of injuries.
- 4) Emergency Transportation
  - Call WSU Public Safety: 313-577-2222



To document this training, complete and submit the quiz at this link:

[Animal Allergy Exposure Reduction Quiz](#)