EH&S PUBLIC HEALTH OFFICE SAFETY TRAINING INTRODUCTION FOR IACUC MEMBERS

UCSF Office of Environment Health & Safety

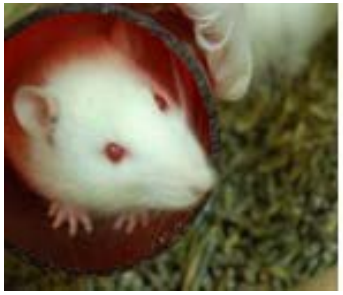
OVERVIEW

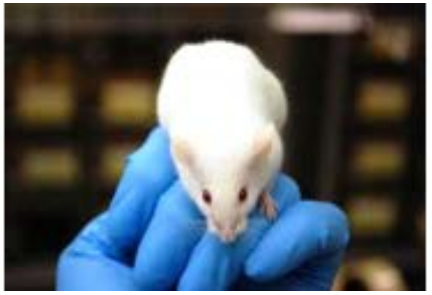
- Laboratory Animal Allergy (LAA) Training
- Animal Biosafety Level 2 (ABSL2) Training
- Herpes B Training

LABORATORY ANIMAL ALLERGIES

LABORATORY ANIMAL ALLERGY (LAA)

- An LAA is the body's immune system's reaction to animal allergens in a laboratory setting.
- All species of animals used in research have the potential to cause allergic reactions.
  - Rats and mice are the most common cause of LAA, with rabbits also recognized as a common source.
- LAA is a common health concern, affecting 10% – 44% of animal care workers.



LABORATORY ANIMAL ALLERGY SYMPTOMS

- Some allergic reactions may cause harmful allergic symptoms.

	Disorder	Symptoms
Common	Eye inflammation (allergic conjunctivitis)	Red, itchy, watery eyes, blurred vision, eye pain
	Nasal airway inflammation (allergic rhinitis)	Sneezing, itchiness, "runny" and/or "stuffy" nose
Less Common	Skin hives/rash (urticaria)	Red, itchy skin, swelling, welts
	Asthma (concerning)	Cough, wheezing, chest tightness, shortness of breath
	Anaphylaxis (rare, life threatening)	Swelling, tight throat, difficulty breathing, dizzy, stomach cramps, nausea

LABORATORY ANIMAL ALLERGY SYMPTOMS

SENSITIZATION

- Symptoms appear or worsen even after years of exposure
- With repeated exposures, the body establishes a response and is able to react more quickly to allergen exposure

ANAPHYLAXIS

- Rare, but life threatening
- Only 6 published cases of anaphylaxis cased by LAA
  - Cases were triggered by animal bites or needlesticks contaminated with animal proteins
  - Workers typically had more progressive systems (e.g. asthma prior to the anaphylactic reaction)

ALLERGIC REACTION TIMES

- **Immediate (hypersensitivity)**:
  - Occurs within 5-15 minutes of exposure
  - Example: anaphylactic reactions
- **Late phase reaction**:
  - Occur hours later, even when no allergens are present
  - Examples: asthma, eye or nose inflammation

LAA RISK

- Our risk to developing an LAA depend on:
  1) Amount of allergens present
  2) Number of animals present
  3) Task related
     - The major sources of allergens in all animals are urine, saliva, and dander
  4) Individual medical history
     - Examples: Allergies to other animals, asthma, seasonal allergies, family history

A safe level of animal allergen exposure is unknown.

WAYS TO REDUCE ALLERGEN EXPOSURE:

ENGINEERING CONTROLS

- Cages
  - Examples: ventilated racks, static filter cages
- Cage Dump Stations
  - Examples: tunnel wash, robot station
- Cage Change Stations & Biosafety Cabinets

WAYS TO REDUCE ALLERGEN EXPOSURE:

ADMINISTRATIVE CONTROLS

- Good housekeeping
  - Examples: cleaning using wet methods, cleaning thoroughly and completely
- Good hygiene
  - Examples: washing hands frequently, changing out of work clothes
- Personal Protective Equipment (PPE)
  - Example: respirators
  - Surgical masks do not provide protection against allergens.
  - Respiratory protection, such as a PAPR or N95, should be used for protection against animal allergens.

ABSL2 TRAINING

(ANIMAL BIOSAFETY LEVEL 2)

RISK GROUPS & ANIMAL BIOSAFETY LEVELS

- Biohazardous agents are divided into 4 general risk groups
  - Level 1 contains more low risk agents (e.g. E. Coli)
  - Level 2 contains mild risk agents (e.g. BBP)
  - Level 3 contains serious risk and aerosolized agents (e.g. TB)
  - Level 4 includes the highest risk agents (e.g. Ebola,)

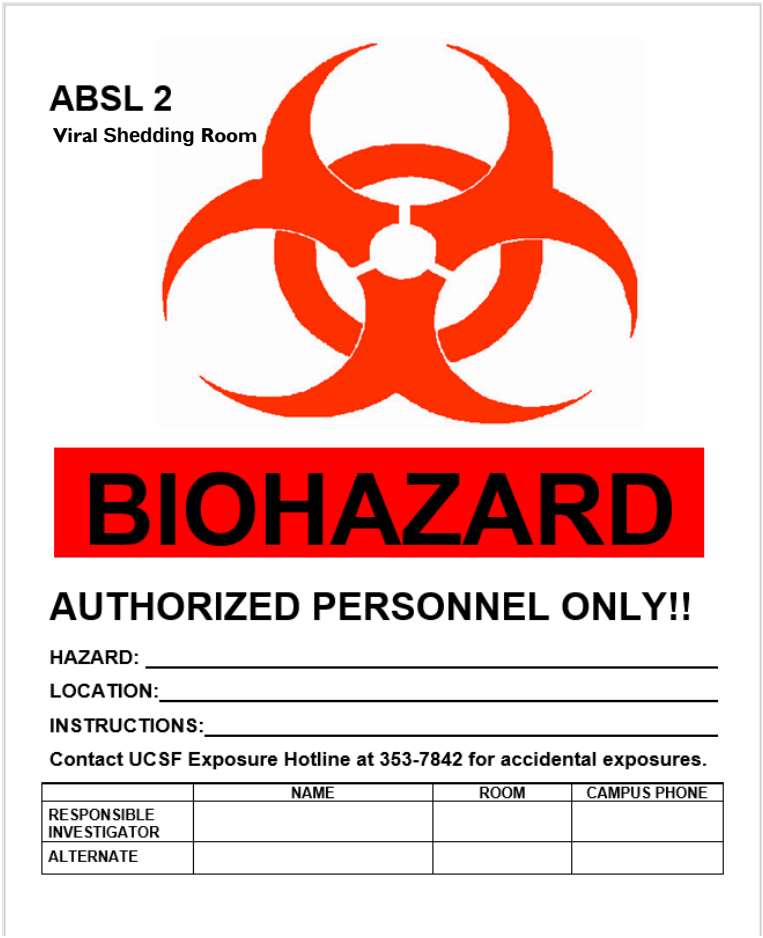
- Each risk group is given a corresponding biosafety level indicating the safety procedures required to handle the agent.

ABSL2 SIGNAGE

ABSL2 Sign

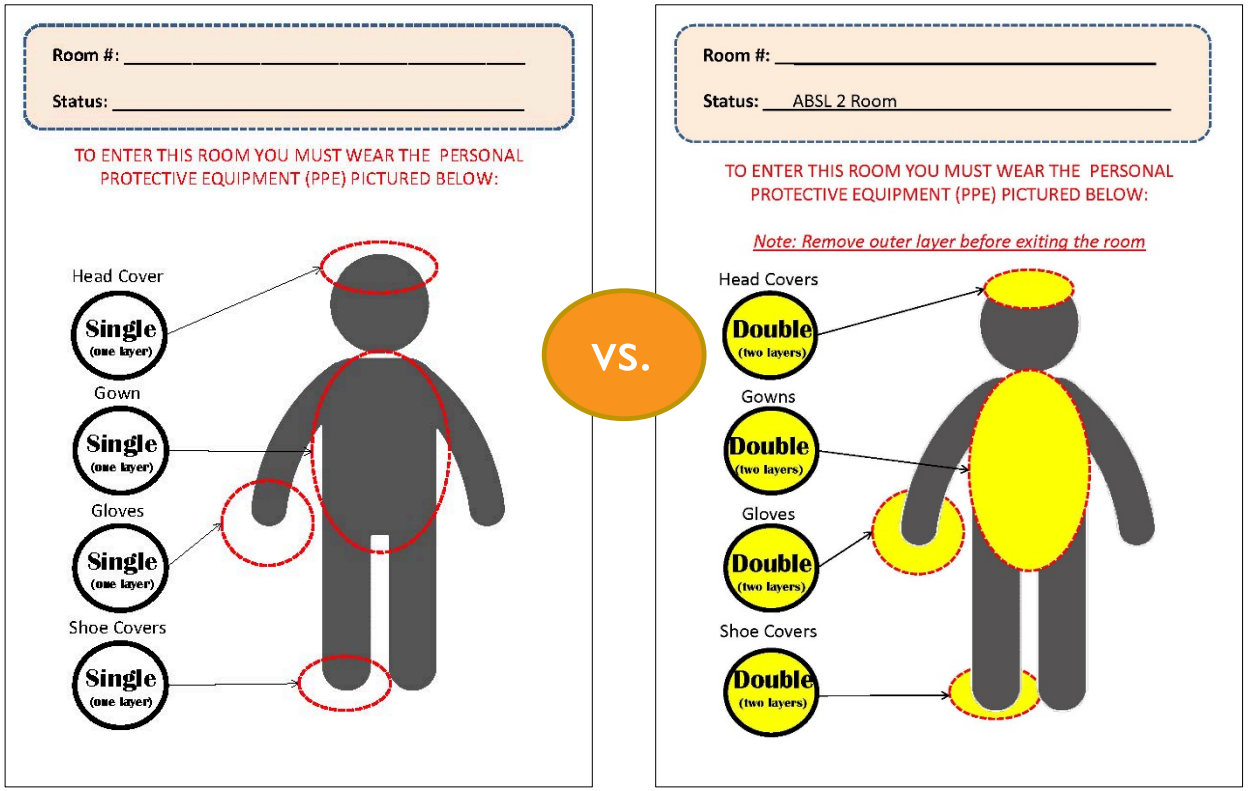
- ABSL 2 signs must contain the following information:
  - Biohazard symbol and header
  - Hazardous agent(s)
  - Special PPE, procedures, etc.
  - Emergency contact information

- Viral shedding rooms will be labeled



ABSL2 SIGNAGE

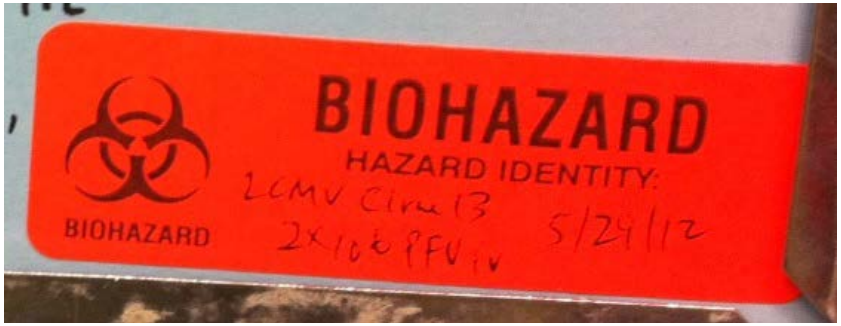
Personal Protective Equipment (PPE)



ABSL2 SIGNAGE

Cage Labels

- Cage labels must contain the following information
  - Biohazard sign and header
  - Hazardous agent
  - Date administered

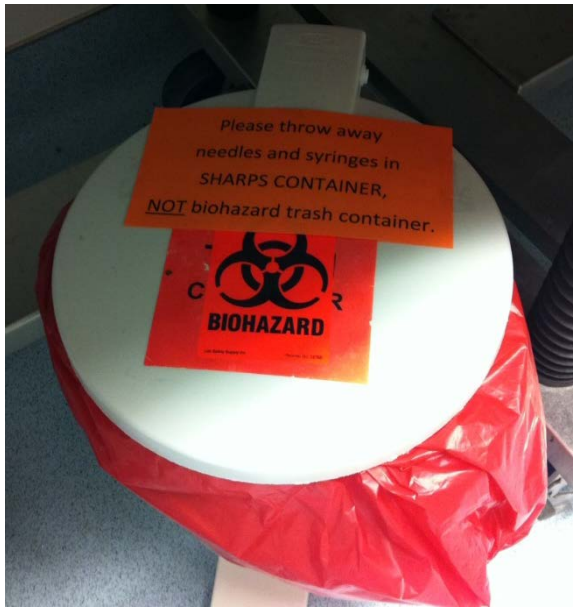


- New labels were created for 2015 AAALAC visit to reduce incomplete labels

ABSL2 SIGNAGE

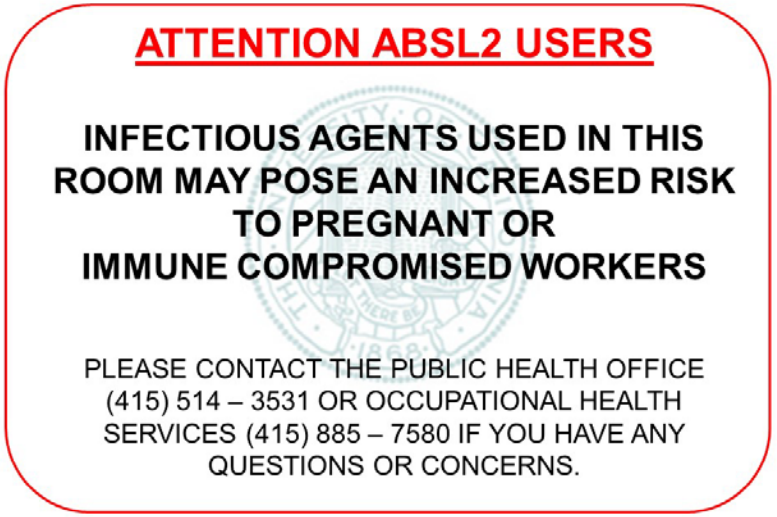
Biohazardous Waste Bins

- Biohazardous waste bins are colored red, with a red bag
- Sharps should only be disposed of in the sharps containers



ABSL2 SIGNAGE

Notice for Pregnant & Immune Compromised Workers



- Pregnant and immune compromised workers are at a greater risk of illness to the agents in ABSL2 rooms.
- The Public Health Office and Occupational Health offer confidential risk assessments and prevention consultations at no cost.

HERPES B

HERPES B VIRUS

Herpes B in Macaques

- Naturally occurring disease in macaque primates
- Most infected primates are asymptomatic
  - Even when asymptomatic, the primate may transmit the virus to humans
- Virus is shed in a bodily fluids
  - e.g.: saliva, urine, blood, CSF
- Virus can remain present for several hours on untreated surfaces and unfixed tissues

HERPES B VIRUS

Herpes B in Humans

- Transmission in humans is rare, but can be fatal
  - 70% fatality rate in untreated exposures
- Symptoms range from:
  - Flu-like illnesses (i.e. fever, nausea, myalgia)
  - Vesicles, conjunctivitis
  - Neurological symptoms (dizziness, disorientation, neuralgia)

EXPOSURE TO HERPES B VIRUS

- Exposure is constituted as mucosal contact with any macaque bodily fluids or contaminated equipment.

- Exposures include:
  - Splashes to eyes, nose, or mouth
  - Contact with breaks in skin
  - Punctures or lacerations
  - Bites or scratches from infected primates
  - Scratches from dirty equipment

HERPES B PREVENTION

- Wash hands frequently
- Decontaminate all surfaces thoroughly
- Personal Protective Equipment (PPE)
- Annual Herpes B safety training
  - Live primate workers receive annual in-person training
  - Shared space workers complete annual online training
- Treat exposures immediately

POST EXPOSURE PROCEDURES

1. Immediately Apply First Aid (within 2-3min)
   - Wash and rinse the exposure site with water (and soap for skin lacerations) for 15-20min.
   - Chlorohexidine scrub brushes, a timer, post-exposure protocol, and other materials are stored in a Herpes B Exposure Kit to assist

2. Contact the Ex
   - 24/7 hotline f

3. Contact the LA

QUESTIONS?

THANK YOU!