

## Overview of safety issues associated with research areas University of Virginia School of Medicine

### **Food**

The consumption, use or storage of food and drink in laboratories or laboratory support rooms in which chemical, biological or radioactive materials are used is prohibited. (UVa policy: <https://policy.itc.virginia.edu/policy/policydisplay?id=VPRS-001>)

### **Personal protective equipment (PPE)**

Departments and faculty are responsible for: determining what PPE is appropriate to protect workers against the hazards present in a particular research area; providing appropriate ANSI-certified PPE and training in its use to individuals who work in that area; ensuring proper fit of the PPE provided; and encouraging its appropriate and consistent use. Environmental Health and Safety (EHS) can assist in determining needs, type of PPE, and fitting. (UVa policy: <https://policy.itc.virginia.edu/policy/policydisplay?id=SEC-022>).

### **Training**

Prior to working in a research area, personnel must receive Chemical Safety Training from EHS and, when appropriate, the research area supervisor. A record of the Chemical Safety Training and any additional training that is provided shall be kept in the individual's file by the supervisor or faculty member.

Additional training may be required, depending on the individual's exposure to and working with materials such as hazardous chemicals, radioactive substances, biospecimens or infectious agents, and animals.

Researchers are sent e-mail reminders with instructions to complete required training, with the notable exception of Hazard Communication, which is required before a person starts work in a lab.

All required training is available online

([https://vprgsecure.web.virginia.edu/oehs/training/secure\\_training\\_home.cfm](https://vprgsecure.web.virginia.edu/oehs/training/secure_training_home.cfm)).

### **Fire safety**

New employees, trainees, and volunteers working in research areas should familiarize themselves with the closest and next closest exits to their work area and the location of the nearest fire alarm. In case of fire, activate a fire alarm pull station and evacuate immediately. Judgment should be exercised in deciding whether to attempt to store/contain any hazardous materials prior to evacuation.

Laboratories are no longer allowed to purchase or store five gallon cans of flammable solvents. EHS is in the process of establishing the maximum amount of flammable liquid allowed to be stored in each laboratory room. This information will be displayed on the Hazard Communication Sign (shown below) for each room.

## Biosafety

The UVa Biosafety Manual

([http://ehs.virginia.edu/biosafety/bio.documents/biosafety\\_manual.doc](http://ehs.virginia.edu/biosafety/bio.documents/biosafety_manual.doc)) outlines procedures for using and disposing of agents and materials handled at Biosafety Level 2 (BSL-2). Biological agents and materials include the following: microorganisms; human derived materials; non-human primate specimens; biotoxins; and biological agents involved in animal research.

Any BSL-2 laboratory will have developed an approved document describing work procedures that should be made available to each person working in that area, and covering access restrictions, signage, hand washing, personal protective equipment, decontamination procedures, waste disposal, emergency procedures, and other safety procedures.

## Chemical safety

All individuals who will use or be exposed to hazardous chemicals or will be involved in their disposal must first be trained by EHS. Additional information on chemical safety and hazardous chemical waste can be accessed at <http://ehs.virginia.edu/ehs/ehs.chemicalsafety.html>. Material Safety Data Sheets (MSDS) for the hazardous chemicals and chemical products used at UVa can be accessed at <http://ehs.virginia.edu/MSDS>.

Labels. All incoming containers of hazardous chemicals must bear a label identifying the hazardous chemical or component(s), hazard warnings, and contact information for the manufacturer or importer. Those labels may not be removed. If chemicals are transferred to new containers, their labels must identify the chemicals therein and state appropriate hazard warnings.

Signage. Each door of a room containing hazardous materials must bear a Hazard Communication Sign (see below). Individuals working in that room must understand how to read such signs and how the noted cautions relate to the specific hazards present in their work area.

The sign is a rectangular poster with a black header containing the name "KEATS, JOHN" in white. Below the header is a blue bar with "Room(s): 262" in white. The main body of the sign is white and contains several elements: two "NO EATING OR DRINKING" symbols (a hand holding a glass with a red prohibition sign) on either side of the word "CAUTION!" in large, bold, black letters. Below "CAUTION!" is the text "ADMISSION TO AUTHORIZED PERSONNEL ONLY!". In the center is a diamond-shaped NFPA hazard label with "FIRE" at the top, "HEALTH" on the left, and "REACTIVITY" on the right. The diamond is divided into four colored sections: red (top) with the number 4, blue (left) with the number 3, yellow (right) with the number 2, and white (bottom) with the word "SPECIAL" and "NFPA" below it. To the left of the diamond is a yellow square with a black radiation symbol and the text "Caution" at the top and "Radioactive Materials" at the bottom. To the right is a red square with a black biohazard symbol and the text "BIOHAZARD" at the top and "BSL-2" at the bottom. At the bottom of the sign is a grey box with the heading "EMERGENCY CONTACTS" and a list of five contact numbers.

**KEATS,  
JOHN**

Room(s): 262

**NO EATING OR DRINKING**

**CAUTION!**

ADMISSION TO AUTHORIZED PERSONNEL ONLY!

**NO EATING OR DRINKING**

**Caution**

**Radioactive Materials**

**FIRE**

**HEALTH**

**REACTIVITY**

**SPECIAL**

**NFPA**

**BIOHAZARD**

**BSL-2**

**EMERGENCY CONTACTS**

1. 000-111-2222 (M-F) 8AM - 5PM
2. 333-444-5555 (After Hours)
3. 666-777-8888
4. Office of Environmental Health & Safety: 982-4911
5. Emergency Operator: 924-2012

This "Hazard Communication Sign" was printed on: 10/05/2006  
If you need a new sign or a copy of this "Hazard Communication Sign" call the Office of Environmental Health & Safety (982-4911).



Key to National Fire Protection Association hazards (central image):

- Blue (health): 1=slightly hazardous; 2=hazardous; 3=extreme danger; 4=deadly
- Red (fire):
  - 1=flash point >200°F; 2=flash point between 100° - 200°F; 3=flash point <100°F; 4=flash point <73°F; or
  - After a room has been posted with a flammable liquid storage limit, the room will be posted as A=highest hazard, B=moderate hazard, C=low hazard, or D=minimal hazard.
- Yellow (reactivity): 1=unstable if heated; 2=violent chemical change; 3=shock and heat may detonate; 4=may detonate
- White (special hazards): OX = oxidizer; W=use no water

Visitors. Visitors to any room with a Hazard Communication Sign must be escorted at all times by an occupant of that room.

Disposal of chemicals. Improper disposal of hazardous substances can result in fines and jail sentences to personnel who violate EPA regulations and supervisors who condone those violations. Containers with hazardous (chemical) waste and radioactive waste must be labeled at all times, and must be kept closed at all times, except when they are being filled. EHS provides containers, labels and chemical waste pick-up forms free of charge. (To schedule, phone 982-4911 or access <https://vprgsecure.web.virginia.edu/wpr>.)

### **Radiation safety**

Anyone working with radioactive substances and devices must first be trained by EHS. Everyone working in an area containing radioactive substances or devices is responsible for maintaining security of radioactive material, from its receipt through its disposal by EHS.

### Emergency procedures.

Fire, personnel injury and incidents that normally require police or other 911 services.

- Phone 911 for emergency assistance.
- Then, phone EHS at 2-4911 to report the nature of the emergency and request assistance.

Theft or loss of radioactive material. Notify EHS immediately (982-4911).

### Spills involving radioactive material, contamination of personnel or property.

- Warn others in the area
- Assist injured personnel first
- If the emergency requires fire, police, or medical assistance, call 911
- Then call EHS for assistance. There is a posting in your work area that lists the EHS emergency contact numbers for business hours, and for "off-hours", weekends, and holidays (Voice Communications). EHS staff are on call 24 hours a day.
- Immediately report to EHS any loss or damage to a radiation source.

Medical events. Immediately report a medical event or potential medical event involving treatment of research subjects with a radiation source or radioactive material (e.g. subject's dose differs from prescribed dose, administration of the wrong radioactive drug containing byproduct material, administration to wrong individual, etc.). Contact the Radiation Safety Officer at EHS (982-4911); if required under state regulations, they will contact the Virginia Radiological Health Program.

Temporary users of radiation. Such individuals work with radioactive material as a part of their course work or for other occasional short-term use. They have not received authorization from the Radiation Safety Committee to use radioactive material and therefore, may use material only while under the direct supervision of a PI or other qualified user (as defined by EHS).

### **In the event of exposure or injury**

The injured person must seek medical attention in one of the following places:

- Faculty/staff: UVa WorkMed (545 Ray C. Hunt Dr., Fontaine Research Park)
- Students: UVa Student Health (400 Brandon Av., corner JPA)
- For after-hours or high degree of injury: UVa Emergency Room
- Phone 911 if the injured person cannot move or be moved

### **Shipping hazardous and biological materials**

Anyone who ships hazardous or biological materials and/or dry ice must have documented training regarding DOT (US Department of Transportation) shipping regulations. Persons who violate DOT regulations, and supervisors who condone such violations, risk fines and jail sentences. If a lab does not have trained personnel, EHS will make your shipment for you.

Shipping Infectious Substances Training is available online

([https://vprgsecure.web.virginia.edu/BBPathogens\\_Annual\\_Update\\_Training/training\\_shipping/verify\\_login\\_credentials.cfm](https://vprgsecure.web.virginia.edu/BBPathogens_Annual_Update_Training/training_shipping/verify_login_credentials.cfm)) and is valid for two years. Reminders are sent to trained persons via email, to renew their training, as they approach their two-year anniversary.

### **Reporting safety concerns**

Individuals who are concerned about safety procedures in their research area first should discuss their concerns with their supervisor. If the complainant feels the supervisor's response is inadequate, s/he should contact both the Dean's Office (Office for Research; 243-7088) and EHS (982-4911). EHS staff will assess the situation, recommend changes to unsafe procedures, and monitor the area if required. In extreme emergencies, where it is determined "that a particular situation is causing clear and present serious danger to life and/or property," the Director of EHS (or designee) has the authority to issue cease and desist orders. (UVa policy "Health and Safety Program:" <https://policy.itc.virginia.edu/policy/policydisplay?id=SEC-019>.)