University of California, San Francisco (UCSF) Environment, Health, and Safety Policy: Minors in Laboratories
May 2015

I. Statement

The University of California is committed to providing a healthy and safe work environment for all members of the campus community and visitors. This policy governs minors in any university laboratory where hazardous chemicals, biohazardous or infectious materials, radioactive materials or radiation producing equipment, or physical hazards exist including (but not limited to) compressed gases, high voltage, extreme temperatures, excessive noise, lasers and mechanical motion.

This policy is meant to protect the safety of minors in the laboratory. Special consideration must be given to the topic of minors in laboratories for various reasons, including:

- Minors may be more susceptible to certain toxic agents and chemicals
- Minors may be less aware of the potential risks and hazards in laboratories
- Minors may require a greater level of supervision and oversight.

This policy applies to all minors. The policy does **not** apply to students enrolled in courses listed in a campus course catalog having a laboratory component.

This policy is also intended as a minimum requirement; each campus may develop more stringent policies and procedures as deemed necessary.

Definitions

A. For biosafety risk groups and biosafety levels ABSA Risk Group and Biosafety Levels
B. For definitions of controlled substances. see Controlled Substances Manual
C. For definition of "Minor"- California Family Code Section 6500
D. PPE – personal protective equipment
E. Vivaria - Laboratory where live animals and/or plants are raised and kept in natural conditions for research.

II. Principal Investigator (PI) Responsibilities

Principal Investigators (PIs) are responsible for the safety of personnel in their laboratories. PIs may choose to restrict or prohibit minors from entering their laboratories. If PIs allow minors to perform research in their laboratories, they must obtain written authorization described in this policy and observe all specific restrictions and procedures required by UCSF.

PIs must read this policy before allowing any minor to perform research in their laboratories and must follow all requirements.

The PI or lab supervisor must evaluate all potential hazards in the laboratory, including but not limited to biohazardous materials, radioactive materials, chemicals, compressed gasses, high voltage equipment, extreme temperatures, excessive noise, lasers or mechanical motion. The PI or lab supervisor must make a determination which hazards the minor may be exposed to review the following with the minor;

1. Nature of potential hazards
2. Safe operating procedures and emergency procedures for equipment
3. Explicit and specific instructions regarding the laboratory work which the minor will undertake.

III. Restrictions by Age Group

The following restrictions apply to minors in University of California laboratories:

- Minors under the age of 14 are not allowed in University of California laboratories or shops, other than as part of an approved and supervised tour. This includes the children and family members of laboratory personnel. Exceptions may be granted on a case-by-case basis pending review and approval by the Dean of the Graduate Division responsible for the activity or by delegation to the Department Chair, campus Environment, Health, and Safety Director or other designee.
- Minors between the ages of 14 and 18 are allowed in University of California laboratories under the following conditions:
  - As part of an approved and supervised tour
  - They have written consent from their parent(s) or guardian(s)
  - They have received the appropriate and required safety training and have appropriate documentation
  - They strictly adhere to the campus specific policy concerning Personal Protective Equipment (PPE)
  - They are at all times under the direct supervision of a qualified adult designated for this responsibility.

IV. Requirements for Minors Performing Research

PIs must follow these steps to obtain advance authorization and parental permission for a minor to participate in research activities, and to meet supervision, training, and hazardous materials requirements and restrictions**.**

1. Obtain authorization before the minor enters the lab in accordance with campus-specific policies, procedures and forms. Complete and file all forms, including authorization, approval and consent, Waiver of Liability, Assumption of Risk and Indemnity Agreement.

2. Ensure supervision requirements are followed:

Never allow the minor to work alone and provide direct supervision of the minor in the laboratory or shop by a qualified adult supervisor at all times. "Direct supervision" means while entering, leaving or in the laboratory, the minor is physically accompanied at **all** times by a trained and knowledgeable individual: the PI, the laboratory supervisor or other qualified member of the laboratory. .

3. Instruct the minor on laboratory and campus emergency procedures. New Employee Lab Safety Guide

Review emergency procedures with the minor. Show the minor the following emergency equipment and locations:

- Telephone and emergency phone numbers
- First-aid kit
- Eye wash and emergency shower
- Fire alarm pull stations and fire extinguishers
- Building exits
- Where to assemble outside in case of building evacuation

4. Provide general and laboratory specific safety training and machine safety training if applicable, depending upon the nature of the work the minor will perform.

- Confirm that the minor receives appropriate laboratory safety training: What Safety Training is Needed
- Complete a campus specific new worker checklist before the minor begins work,
- Maintain all safety training documentation in the lab's files,
- Explain hazards specific to assigned laboratory, equipment, and the materials with which the minor will work. Show the minor how to access and understand Material Safety Data Sheets (MSDSs) for the chemicals with which they will work. Explain possible routes of exposure, as appropriate: skin absorption, ingestion, inhalation,
- Provide appropriate PPE and engineering controls, and train the minor in their proper use.

5. Observe hazardous materials restrictions and safety training requirements for physical hazards as outlined in campus specific policies.

6. Regulations prohibit minors from working with certain chemical, biological, or radiological materials.

Chemical Safety Restrictions

Minors are **not** allowed to work with:

- High hazard chemicals, including air and water reactive chemicals, potential explosives, 4 liters or more of flammable materials, acids with pH 3 or less, bases with pH 10 or greater (i.e., and highly toxic compounds, e.g., hydrofluoric acid, acrylonitrile, osmium tetroxide, etc.)
- International Agency for Research on Cancer (IARC) Group 1 or 2A carcinogens, Cal/OSHA Title 8 Article 110 - Regulated Carcinogens and National Toxicology Program Known Human Carcinogens.
- Controlled substance schedules I– V and chemical precursors

Biological Safety Restrictions

Restrictions for working with potentially biohazardous substances depend on age group:

Minors between the ages of 14 and 16:

- Are prohibited from working with biohazardous materials above biosafety level 1 (BSL-1),
- May enter and work at BSL-1 in a large open bay laboratory where BSL-2 work may be taking place, providing they have no contact with the RG2 material.

Minors between the ages of 16 and 18:

- Are prohibited from working with biohazardous materials above BSL-2

- May enter and work at BSL-2 with appropriate training and medical surveillance (if applicable)

Radiation Safety Restrictions

Minors generally are not allowed to work with or handle radioactive materials or radiation-producing machines. PIs may apply for an exception to allow a minor to work under direct supervision with up to 1 mCi per experiment. PIs must apply to their campus EH&S Radiation Safety Officer ("RSO") for exceptions.

Minors are not allowed under any circumstances to work with the following materials:

- Inorganic P-32 orthophosphate
- Volatile forms of radioactive iodine
- Irradiators, other radiation producing machines