To: Principal Investigators and Permit Holders

From: Jane Bartlett  
Associate Director, Laboratory Safety and Industrial Hygiene

Date: November 5, 2012

Subject: Annual Laboratory Safety Refresher Training, Bloodborne Pathogens Training, Chemical Inventories, Nanoparticles, Select Agents

It is time to complete annual refresher training for your staff, and update your chemical inventory. Please include discussion of safety issues pertinent to your area, e.g., building exit routes (walk the paths as a group; check for obstructions); fire extinguisher locations; emergency and accident procedures; and document the training. E-mail any questions regarding lab safety or this memo to jbartlett@caps.usc.edu. 

No Food, Drink or Gum may be brought into or consumed in a laboratory or any other room in which hazardous materials are used or stored. Label water/food (e.g., powdered milk) kept for research purposes with contents and “not for human consumption.”

What’s New in Laboratory Safety?

**Biological Research** – The National Institutes of Health Office of Biotechnology Activities (NIH OBA) will conduct a site assessment of USC’s biological research Nov. 14, 2012. Contact the biosafety staff at IBC@caps.usc.edu or (323) 442-2200 with any questions regarding your lab’s compliance with NIH Guidelines, or registration of biological research. See also the attached “Investigator Responsibilities” pamphlet. Report any rDNA incidents or spills to the Biosafety Office as soon as possible.

**Engineered Nanomaterials** – Review the ‘Nanotoolkit’ to identify appropriate safe handling practices for academic labs. You may find it useful for refresher training involving nanoparticles. NOTE: The tool kit was developed and published in April 2012 by the California Nanosafety Consortium of Higher Education, in which USC participated.

**Self-Inspection** – Periodic self-inspections are now required in some laboratory locations designated as “high hazard,” or where compliance with regulations or university policy is problematic. The procedural change will be implemented more broadly by department following EH&S initiation via deans and department heads.

A new policy requires that radiation laboratories conduct and document their own monthly contamination checks. Details will be explained during the next Radiation Safety inspection.
New PI / Laboratory Relocation – Please inform EH&S of incoming Principal Investigators and relocation of laboratory facilities at capsnet.usc.edu/EHS/email.cfm, so that EH&S may provide timely services, such as early registration for research protocols, radioactive materials permits, required safety training, and medical surveillance, to name a few. Helpful information for new PIs is available at capsnet.usc.edu/EHS/NewPIs.cfm.

Chemical Inventory – Please update your chemical inventory using our Online Chemical Inventory Database. To use “instant update”:

- access your online inventory account; makes corrections if needed;
- click the “Completed Chemical Inventory” function key (left side);
- place a check on your inventory sites and submit;
- click “Confirm Completion” to finalize the update. NOTE: The Fire Department requires that USC maintain a current chemical inventory.

If you do not have an on-line inventory account, contact Angela Wang (awang@caps.usc.edu; 213-280-9912) or Michelle Lee (mlee@caps.usc.edu; 323-864-3188) to initiate one. The Chemical Inventory Database can then be accessed at srm.usc.edu/rmcsapps, and requires your USCnet Username and Password (authorized user status required). New users may elect to upload their inventory to populate a new account by completing the linked Chemical Inventory Upload Template and forwarding it to Angela Wang or Michelle Lee.

Waste Management – Proper separation and labeling of your chemical waste containers dramatically affects the university’s disposal costs, and the safety of waste handlers. Disposal of unknown chemicals requires special treatment and expensive testing. For waste guidelines and on-line pick-up requests, see capsnet.usc.edu/EHS/HazardousWaste/HazardousWaste.cfm.

Annual Laboratory Refresher Training – All personnel who work in a laboratory must receive periodic lab safety training, as required by both the California Division of Occupational Safety and Health (Cal/OSHA) and the California Department of Public Health Radiologic Health Branch. All faculty, staff, students, and volunteers who work in labs must attend initial Laboratory Safety training, provided by Environmental Health and Safety (EH&S). You the PI, or your lab manager, are also responsible to train your personnel, before they begin work, on the hazards specific to your lab and protocols, and to conduct annual refresher training for all staff members on your protocols and hazards that exist in your laboratory.

Select training topics from the list of recommended subjects (see following pages) and/or topics pertinent to your group. The CSB video (a U.S. Chemical Safety and Hazard Investigation Board video on the fatal UCLA lab accident of 2008) and Lab Safety Fact Sheets available at capsnet.usc.edu/LabSafety are useful to incorporate into training or department meetings.

Please complete refresher training before December 31, 2012. Use the sign-in sheet for your refresher training session(s), and for initial training of new personnel; check off the topics you cover on the attached sheet and retain both sheets to document the training.

So that EH&S can track training for the university, send a copy of completed sheets (sign-in and topic checklist) to EH&S–CHP 148, mc–9005; fax to (323) 442-2201; or email (as attachment) to imolina@caps.usc.edu. The Institutional Biosafety Committee will delay research protocols if
refresher training is not current for listed staff; also, radioactive material deliveries will be withheld after Dec. 31, 2012 to labs whose authorized staff has not completed training.

If you already conducted this training after July 1, 2012 and provided attendance records to EH&S, you may disregard this request.

**Annual Bloodborne Pathogens Training** – Annual Bloodborne Pathogens training is required for personnel who handle human (or non-human primate) tissue, cell lines or blood, or other potentially infectious material (OPIM*). Note: this requirement applies to instructional, research and clinical labs, phlebotomists and others who may not work in a traditional lab setting. Initial training is provided by EH&S (see [www.localendar.com/public/USCEHS](http://www.localendar.com/public/USCEHS) for class schedule, and [capsnet.usc.edu/EHS/HowtoRegisterforLaboratorySafetyTraining.cfm](http://capsnet.usc.edu/EHS/HowtoRegisterforLaboratorySafetyTraining.cfm) to register).

On-line bloodborne pathogens refresher training may be obtained from Collaborative Institutional Training Initiative (CITI) at [https://www.citiprogram.org](https://www.citiprogram.org). Each participant must affiliate with “University of Southern California – Safe Laboratory Practices” to be credited for the annual refresher. Participants already affiliated with “University of Southern California” (USC IRB) may click “Affiliate with Another Institution.”

Additionally, PIs or Lab Managers may provide the annual Bloodborne Pathogens refresher training for their staff and themselves; training must cover all elements required by the Bloodborne Pathogens Standard. Required course outline and separate sign-in sheet follow in this document. Send completed sign-in sheets to EH&S, CHP 148, mc–9005; fax to (323) 442-2201; or email to IBC@caps.usc.edu. For further information, contact a biosafety specialist at IBC@caps.usc.edu or (323) 442-2200.

*OPIM includes amniotic, cerebrospinal, pericardial, peritoneal, pleural and synovial fluids, saliva in dental procedures, semen, vaginal secretion, and any other body fluid that is visibly contaminated with blood, e.g., saliva or vomitus. When it is difficult to differentiate between body fluids, such as emergency response, OPIM includes all body fluids.

**Select Agents**

We also ask that you review the list of select agents published by the Centers for Disease Control (CDC). If you possess any listed select agent, notify EH&S immediately to register your possession of the material. Research involving a select agent requires protocol submission to the Institutional Biosafety Committee (IBC).
Laboratory Safety Annual Refresher Training Topics

(Check off topics you cover during training, and send with sign in sheet to EH&S, Mail Code 9005 or fax 323-442-2201)

- **No Food, Drink or Gum in Laboratories:** Assure that all staff members know that food for human consumption, including drinking water, is not allowed to be stored or eaten in any laboratory containing hazardous materials. Automatic suspension of a radioactive materials permit can be enforced if evidence of food is found where radioactive materials are used; other lab areas face additional penalties. Label food and water for research purposes: “Not For Human Consumption.”

- **Housekeeping:** Please stress good housekeeping practices. Trip hazards and poor housekeeping are estimated be a factor in six out of ten injuries in laboratories.

- **Identification of Hazards:** Review all potential radioactive, chemical and biological hazards used in your laboratory(s) and the tasks performed by laboratory staff that may cause exposure to these agents. Include potential hazards in shared facilities.

- **Material Safety Data Sheets:** Review the location and availability of reference materials on the hazards, safe handling, hazard classification, storage and disposal of hazardous materials in your laboratory. References must include, but are not limited to, Material Safety Data Sheets (MSDSs) from chemical suppliers. MSDS On-line, at capsnet.usc.edu/EHS (“MSDS” link at right), provides manufacturer-specific MSDSs for chemicals at USC. **Suggestion:** ask a staff member to locate emergency information on a randomly chosen chemical in your lab. Discuss that chemical’s hazards, recommended protective measures and appropriate emergency response.

- **General Epidemiology:** Explain the modes of transmission of hazardous agents in your lab.

- **Protective Measures:** Discuss the measures your staff can take to protect themselves from laboratory hazards, including appropriate work practices, personal protective equipment, and emergency procedures. **Suggestion:** have staff find the nearest safety shower/eye wash while blindfolded, with or without help from coworkers. Review PPE required in your lab (clean lab coat, gloves, safety glasses or goggles, closed-toe shoes, long pants [no bare legs / no shorts or skirts]).

- **Waste Disposal:** Review hazardous waste disposal procedures, including segregation of waste, labeling, appropriate use and placement of containers, placing lids on bio-cans and table top container when not in use, and record keeping. Only appropriate, properly labeled containers can be picked up. Containers must be labeled “Hazardous Waste,” and the accumulation start date clearly marked. Labels must also include a) composition; b) solid / liquid; c) hazardous properties (e.g. flammable); d) PI name; e) lab location. EH&S references: appropriate containers; guidelines; written program; request pickup online (incl. electronic waste & batteries).

- **Written Protocols:** Review the location of your written protocols, and the need to follow those procedures, particularly for protocols submitted to research oversight committees.

- **Carcinogen Use:** Discuss the properties and hazards of all carcinogens used in your laboratory. Review any tasks that may expose workers to carcinogenic materials. Discuss control measures, including the requirement to post usage and storage areas, and employee responsibility to follow safety practices. To request chemical exposure monitoring, contact EH&S at 323-442-2200.

- **Record Keeping Procedures:** Review record-keeping procedures, such as Select Agent Access Logs, Radioactive Material Usage Records, Disposal Record forms, Transfer of Radioactive Material forms, and Wipe Test results (if required).
Contamination Control: Review the defined work areas in your lab for radioactive materials, carcinogens, toxins and select agents, selection of appropriate instrumentation and survey methods, and the need for frequent monitoring, visual indication of area boundaries, and prompt decontamination and documentation of spills.

Transfer of Radioactive Material: Discuss that transfers of radioactive material, to another campus location or to another institution, requires prior written approval by Radiation Protection.

Ordering Radioactive Material: Review how to order radioactive materials. Include use of the USC Radiation Paperless Requisition Entry Process (WEBBA Budget Administration System) and information necessary to complete an order, e.g., permit holder, permit number, chemical form, and amount of activity ordered. All deliveries must be made to the HSC Environmental Health & Safety Office, 1540 Alcazar St, CHP 148, Los Angeles, CA 90033-9005.

Radioactive Material Inventory Control: Review your specified locations and procedures for radioactive material use / storage. Stress the requirement for accurate and timely entries in the online Radioactive Protection system and placing the RMC number on all stock vials, tubes, etc.

Changes on the Radioactive Material Use Permit: Discuss any changes or amendments to your Use Permit in the last 12 months (e.g., new research protocols; new authorized users; addition of new radionuclides; changes in possession or procedure limits, or authorized locations).

Personal Dosimeters (if applicable): Emphasize the proper use and care of personal dosimeters (Whole Body & Ring badges). Review how to return badges to Radiation Protection, how to report lost/damaged badges, personnel changes, and any exposure concerns.

Security of Radioactive Material, Select Agents, Controlled Substances, and DOJ Chemical Precursors: Discuss your procedures for assuring that these materials are secure when stored and in use. Lock laboratory doors or storage areas whenever materials are unattended.

Proper Use of Portable Survey Instruments: Review the proper use of portable survey instruments to detect possible contamination, and the need to monitor hands with disposable gloves before, during and after handling radioactive material.

Emergency Response and Notification: Discuss how to report accidents and incidents that involve hazardous materials (including biologicals and rDNA), and what to do following an exposure incident, including how and where to obtain medical attention, and what documentation is required.

Exposure Control Plan: Discuss your laboratory’s Exposure Control Plan. Report all biohazardous spills and incidents to the Biosafety Office (323-442-2200, IBC@caps.usc.edu).

Post-Exposure Follow Up: Explain what to do if someone is exposed a hazardous material, and the post-exposure evaluation and follow-up that will occur following an exposure incident.

Engineered Sharps: Use safety engineered sharps whenever possible. Stress to never recap a needle, leave needle or other sharp unattended, or place any needles in trash or biohazard bag!

Conduct Safety Meetings: Review and discuss any hazards that were cited in safety audits of your laboratory. Set periodic meeting times throughout the year to discuss operating procedures and provide opportunity for your staff to discuss and resolve any safety concerns. See the CSB video and Safety Fact Sheets at capsnet.usc.edu/LabSafety to provide topics for discussion during safety meetings. Document meeting attendance with a sign-in sheet that is retained in department files.
# Laboratory Safety Annual Refresher Training for Lab Staff

**Principal Investigator:**

**Topics Covered:** (attach checked-off topics list or a description)

**Date:**

**Location:**

**Start Time:**

**End Time:**

**Instructor (PI/Permit Holder/ Lab Mgr):**

**Instructor’s Signature:**

**Permit #:**

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**Please do not use nicknames.** Include instructor name (above) and also as an attendee (below).

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Annual Bloodborne Pathogens Training Required Outline
(Cover all topics below. Send sign-in sheet to EHS, mc-9005; or IBC@caps.usc.edu; or fax to 323.442.2201)

Principal Investigators may conduct this training in lieu of sending employees to training classes provided by Environmental Health and Safety (send new employees to an EH&S class).

The below listed training topics constitute the **minimum** required elements, and are taken directly from the Bloodborne Pathogens standard. View [www.osha.gov/SLTC/bloodbornepathogens](http://www.osha.gov/SLTC/bloodbornepathogens) and [capsnet.usc.edu/LabSafety/BioSafety/BloodBornePathogensProgram](http://capsnet.usc.edu/LabSafety/BioSafety/BloodBornePathogensProgram) for more information. An EH&S PowerPoint at [capsnet.usc.edu/LabSafety/BioSafety/training.cfm](http://capsnet.usc.edu/LabSafety/BioSafety/training.cfm) can be used during training if desired.

1. **An Accessible Copy of the Standard:** Inform personnel of where to find the Cal/OSHA Bloodborne Pathogens Standard and an explanation of its contents ([www.dir.ca.gov/title8/5193.html](http://www.dir.ca.gov/title8/5193.html)).

2. **Epidemiology and Symptoms:** Explain the general epidemiology and symptoms of bloodborne pathogens.

3. **Modes of Transmission:** Explain the modes of transmission of bloodborne pathogens.

4. **Risk Identification:** Explain the appropriate methods to recognize tasks and other activities that may involve exposure to blood and other potentially infectious materials (OPIM).

5. **Employer’s Exposure Control Plan:** Explain your lab’s Exposure Control Plan and how employee(s) can obtain a copy of the written plan. **Review what to do in case of exposure.**

6. **Methods of Compliance:** Explain the use and limitations of methods to prevent or reduce exposure, including appropriate engineering (engineered sharps, biosafety cabinets), administrative or work practice controls, and personal protective equipment (gloves, safety glasses).

7. **Decontamination and Disposal:** Review proper decontamination and disposal procedures.

8. **Personal Protective Equipment:** Discuss selection, proper use, location, removal, handling, decontamination and disposal of personal protective equipment for work in your lab.

9. **Hepatitis B Vaccination:** Remind personnel about the Hepatitis B vaccine, its efficacy, safety, benefits of being vaccinated, and that it is provided free of charge to employees through the USC Medical Surveillance Program at (323) 442-2200 or IBC@caps.usc.edu.

10. **Emergencies:** Provide information on appropriate actions and persons to contact in an emergency involving blood or OPIM.

11. **Exposure Incident, Post-Exposure Evaluation and Follow-Up:** Explain exposure incident procedures, including how to report an incident, location of medical facilities, and that medical follow-up that will be available. Note: If a Sharp is involved, the Sharps questions on the Supervisor’s Report of Injury must be completed for OSHA recordkeeping.

12. **Signs and Labels:** Explain all signs, labels and/or color coding required in the lab.

13. **Interactive Questions and Answers:** Provide an opportunity for interactive questions and answers.

**NOTE:** Additional training is required for employees of HIV, HBV and HCV Research Laboratories. Contact EH&S at IBC@caps.usc.edu for additional information.

USC Laboratory Safety • 1540 Alcazar St, CHP 148, 90033-9005 • Tel: 323.442.2200 • Fax: 323.442.2201 • capsnet.usc.edu/EHS
### Annual Bloodborne Pathogens Training

**Return to EH&S, Mail Code 9005, or fax to 323-442-2201**

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#### Required Topics:

1. Location & Explanation of Standard  
2. Epidemiology and Symptoms  
3. Modes of Transmission  
4. Exposure Control Plan  
5. Risk Identification  
6. Methods of Compliance  
7. Decontamination and Disposal  
8. Personal Protective Equipment  
9. Hepatitis B Vaccination info  
10. Emergency info  
11. Exposure incident info  
12. Post-exposure evaluation, followup  
13. Signs, labels  
14. Q & A

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**Do not use nicknames. Include instructor name (above), and also as an attendee (below).**

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