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OEHS&S SAFETY UPDATE NEWSLETTER:
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ESTABLISHMENT OF A CAMPUS-WIDE OCCUPATIONAL HEALTH SERVICE

In November 2005, Executive Vice Chancellor and Provost Eugene Washington charged an *ad hoc* Occupational Health and Safety Oversight Committee to make recommendations on occupational health services for the UCSF community. This group recommended that clinical care services previously provided by the campus Communicable Disease Prevention Program and Medical Center's Employee Health Services be integrated into a single clinical care delivery system. This recommendation has been endorsed by the Chancellor's Executive Committee and becomes effective on July 1, 2007. Dr. Robert Kosnik will direct this clinical program. Student Health Services, directed by Dr. Henry Kahn, will continue as the care resource for UCSF students.

The initial goal of the integrated Occupational Health Service is to ensure that campus employees who received services from the Communicable Disease Program are completely transitioned to the Occupational Health Service. Thereafter, the program will address gaps in services to the UCSF community. A Chancellor's Steering Committee, with representation from each School, will oversee the activities of this service.

If you have any questions about the integrated Occupational Health Service, please contact the program coordinator, Susan Garritson at Susan.Garritson@ucsf.edu or 415-502-2871

UNIVERSITY OF WASHINGTON PROFESSOR FOUND GUILTY OF ILLEGAL HAZARDOUS WASTE DISPOSAL

A veteran professor was found in violation of the RCRA (Resource Conservation and Recovery Act) when he disposed of ether down a drain in his laboratory at the University of Washington. This is a federal offense and carries a \$250,000 fine.

The professor took this action because he was informed by UW Health and Safety that he had to dispose of the waste and he would need to pay \$15,000 in disposal fees. He then fabricated a fake waste voucher. UW Health and Safety determined the document was a forgery. He admitted that he knew what he was doing was wrong but he did not know there would be such high penalties associated with it. Always contact OEHS&S for disposal of hazardous waste. Contact your DSA for more information.

SAFETY

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

UPDATE

OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY

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RESPONDING TO HAZARDOUS MATERIALS SPILLS

Compressed gasses in addition to hazardous biological, chemical and radioactive materials are frequently used while conducting laboratory research. Occasionally, hazardous materials are accidentally spilled or compressed gasses are accidentally released. Knowledge of the hazards associated with these materials including training in proper handling, is required.

WHEN A SPILL OCCURS:

- Call 9-911 immediately anytime you are unsure as to the hazards of the spill, or feel you may be endangered
- Remember RACE: Rescue, Announce, Contain, Evacuate/Extinguish.
- Notify everyone in the area immediately by all means available.
- If any personnel are exposed, remove contaminated clothing, place in a clear bag and dispose of as "HAZARDOUS WASTE".
- The person exposed should use the emergency eyewash/shower.
- Prevent personnel from entering the spill area.
- Notify your laboratory manager/supervisor.
- Assess whether the spill is minor or major.

MINOR SPILL: the nature of the material spilled is known, there is no immediate fire hazard, or the researcher feels comfortable in cleaning the spill unassisted and safely.

MAJOR SPILL: A quantity of 1-Liter or more is considered a major spill, the material is unknown, or the material is known to be highly toxic or flammable.

CLEANING UP A MINOR CHEMICAL SPILL

1. Wear protective equipment including safety goggles, gloves and a long-sleeved lab coat.
2. Confine the spill to a small area by working from the "outside in".
3. Use appropriate materials to absorb or clean up the spill. Collect residue, place in hazardous waste bag, label the bag and dispose as chemical waste.
4. After removal of all contamination, wash area with clean water.

CLEANING UP A MINOR BIOLOGICAL MATERIAL SPILL

1. Alert people in immediate area of the spill. Leave area if necessary to allow aerosols to settle.
2. Wear appropriate PPE: disposable gloves, eye protection and a lab coat. Use respiratory protection when appropriate.
3. Remove contaminated sharps from the spill area using mechanical means. DO NOT use hands!
4. Cover the spill with paper towels or other absorbent materials.
5. Carefully spread 1:10 dilution of household bleach around the edges of the spill and onto the absorbent material. Avoid splashing. Allow a minimum of 20 minute contact period.
6. Use paper towels to wipe up the spill, working from the edges towards the center.
7. Clean spill area with fresh paper towels soaked in disinfectant.
8. Place paper towels into a red biohazard bag.
9. If necessary, notify UCSF Bio-Safety Officer.

(Continued on page 2, see "Spills")

CONTAMINATED SHARPS WASTE

Differences exist between "biological," "chemical" and "radioactive" sharps; it is important to understand these differences for disposal to occur in a compliant manner.



Radioactive Sharps Waste Container

By definition, "biological sharps" are contaminated with biological materials. Items such as hypodermic needles, syringes, lancets, scalpel blades, glass Pasteur pipettes, and razor blades are some examples. These items must be disposed of in an authorized sharps container that is leak proof, rigid, puncture resistant and made of durable plastic. The lid must



Chemical Sharps Waste Container be closed when the container is not in active use. Sharps may also become contaminated with hazardous chemicals or radioactive

(Continued on page 2, see "Sharps Waste")

(“Spills” continued)

CLEANING UP A MINOR RADIOACTIVE MATERIAL SPILL

1. Monitor personnel before they leave spill area and then change clothes or lab coat as necessary.
2. Put on appropriate disposable gloves to prevent contamination of your hands. Wash your hands first if they are contaminated -- following the UCSF Radiation Safety Manual procedures for decontamination of the hands and skin.
3. Survey, mark, or block off the contaminated area with warning signs or labels.
4. Use absorbent paper or absorbent material on the spill to limit the spread of contamination.
5. Notify the Radiation Safety Office of the accident as soon as possible. Call 9-911 or 476-1300 (OEHS).
6. Start decontamination procedures as soon as possible. Use of normal cleaning agents, or commercial decontamination agents should be adequate. Put on shoe covers and begin procedures by using paper towels with the decontamination agent. Scrub from the outermost edges of the contaminated areas and work inward, reducing the area that is contaminated.
7. Put all contaminated objects and cleaning materials into containers to prevent the spread of contamination.
8. Block off the area. Assign a person equipped with a survey meter and wipe test the materials to help prevent the accidental spread of contamination.
9. Decontaminate the area to background count rates. There should be no removable contamination on the surface after decontamination.
10. Report the accident to the Principal Investigator, Laboratory Supervisor, and the Radiation Safety Officer.

PROCEDURE TO FOLLOW IF COMPRESSED GAS CYLINDER LEAK OCCURS

1. If a slow leak of gas is NOT toxic or corrosive, manually shut off cylinder valve.
2. If gas is TOXIC or CORROSIVE evacuate area and CALL 9-911 to have 24-hr emergency responder notified to assist you.

If you have any questions or concerns or want more information regarding hazardous materials spill response contact your Department Safety Advisor.

(“Sharps Waste” continued)

materials. These sharps need to go into a sharps container labeled with a hazardous chemical waste tag and/or as radioactive sharps waste. The tag must list the chemicals or radioactive materials present on the sharps. If there is biohazard label or symbol on the container, either remove or deface it.

GENERAL RULES FOR HANDLING AND DISPOSING OF SHARPS

Maintain a separate container for each class of sharps waste: biological, radioactive, or chemical. Never dispose of any sharp item in the regular trash.

Remember the following sharps safety rules:

- Do not recap, shear, clip, or bend syringe needles
- Do not overfill sharps containers- Prepare for disposal when ¾ full
- Do not remove the sharps container lid or remove the sharps from the container
- Do not put your hand into a sharps container that is in use

Safe handling of sharps protects not only yourself, but your co-workers and waste handlers from blood borne pathogens, chemical and radiation exposures, and sharps related injuries.

CHANGES IN REGULATIONS FOR SHIPPING OF BIOLOGICAL SUBSTANCES - REMINDER

As of January 1, 2007 the U.S. Department of Transportation (DOT) and the International Air Transport Association (IATA) implemented significant changes to the rules and regulations covering the shipment of biological materials. The changes include but are not limited to modifications of the categorizing and labeling requirements, and a new category was added for “exempt animal” and “exempt human” specimens.

The OEHS online training course *Safe Shipping* has been updated to reflect the changes. The course is available through Research Online <https://www.researchonline.ucsf.edu>.

Remember, those who ship biological materials and/or use dry ice are required to take this course by regulation. Contact OEHS for more information.

MICROWAVE SAFETY IN THE LABORATORY

Microwave ovens are used for a variety of purposes in laboratories. A recent incident involving a microwave oven demonstrates hazards that may occur during use. After heating a chemical liquid, a researcher placed a glass slide in the heated liquid which erupted and splashed onto his face and neck. The researcher was wearing a laboratory coat, but no eye protection. Fortunately, none of the hot liquid splashed into the researcher’s eyes but had it done so, it could have cost the researcher his eyesight.

MICROWAVES POSES A NUMBER OF POTENTIAL HAZARDS IN THE LABORATORY INCLUDING:

- ignition of flammable vapors and materials
- electric shock from ungrounded units
- internal pressure build-up in sealed containers
- the sudden boiling of liquid in an open container following removal from the microwave
- contamination of food products with chemical residues

TO PREVENT THESE HAZARDS AND TO ENSURE SAFE USE OF MICROWAVES, OEHS RECOMMENDS:

1. Do not heat hazardous chemicals or radioactive materials in a microwave.
2. Always wear personal protective equipment (PPE) when removing heated items from a microwave, i.e., heat resistant gloves, full face shield and laboratory coat.
3. Do not operate the oven if it is damaged. Be sure that the oven door closes properly and that there is no damage to the door seals, hinges and latches.
4. Never use the laboratory microwave oven to heat food or drinks.
5. Do not heat metal or anything containing metal.
6. Avoid heating materials in cylindrical-shaped containers. This can result in overheating and splashing.
7. When heating liquids in screw-cap bottles, completely remove the screw-caps to prevent pressure build-up within the container. This pressure build-up can cause the bottle to explode. Insert a Kimwipe or sterile gauze into the mouth of the container instead.
8. If steam accumulates inside or outside

of the oven door, wipe with a soft cloth. This steam build-up may occur when the microwave oven is operated under high humidity conditions and does not indicate a malfunction of the unit.

9. Always use protective gloves and appropriate eye/face protection.
10. If materials inside the oven should ignite, keep oven door closed, turn oven off, and disconnect the power cord.
11. Do not attempt to tamper with or make any adjustments or repairs to the door control panel, safety interlock switches or any other part of the oven. Call for repairs.

If you have any questions or concerns regarding microwave use in your laboratory, please contact your [Department Safety Advisor](#).

PREVENTING ISOFLURANE EXPOSURES

Isoflurane machines are commonly used to anesthetize small rodents during research studies. Many types of anesthetics can be used, but isoflurane is the most commonly used anesthetic at UCSF. The use of isoflurane machines may present inhalation exposure risks if precautions are not followed. Researchers must be aware of these exposure risks and must implement safety precautions to prevent exposure. Those exposed to isoflurane may experience dizziness even when exposed to a small amount of this gas.

Regulatory Guidelines and Anesthetic Gas Use:

REGULATORY GUIDELINES AND ANESTHETIC GAS USE:

Based on Cal/OSHA’s recommended 2.0 parts per million (ppm) Permissible Exposure Limits (PEL) of Isoflurane, OEHS recommends that laboratory personnel attempt to reduce their exposure to halogenated gases as much as possible.

For more information on the use of anesthetic gases, visit the U.S. Department of Labor’s Occupational Safety and Health Administration at <http://www.osha.gov/dts/osta/anestheticgases/index.html>.

HIGH EXPOSURE ACTIVITIES AND ASSOCIATED MITIGATION MEASURES:

Below is a list of common activities where an exposure may occur. In order to mitigate potential exposure associated with these activities, OEHS recommends the following:

1. FILLING THE VAPORIZER: Isoflurane spills may occur when pouring the liquid into the vaporizer tray.

MITIGATION MEASURE: Use a funnel while transferring liquid isoflurane. Use personal protective equipment (PPE), such as chemical resistant gloves, laboratory coats, and safety goggles.

2. OPENING AN INDUCTION CHAMBER Even after the isoflurane machine has been turned off, excess isoflurane gas still fills the inside of the induction chamber and can escape into the room.

MITIGATION MEASURES:

Use the isoflurane machine inside of a fume hood or on a downdraft table. If a fume hood is not available, or you are anesthetizing an animal outside of a fume hood, you must use an induction chamber that has a rubber or silicone seal around the top edge of the lid in order to prevent leakage. Flushing an induction chamber temporarily lowers the concentration of isoflurane in the chamber but does not remove it completely.

Use charcoal canisters: If you are not using the machine within a fume hood, attach charcoal canisters between the tubing to the induction chamber and the exhalation tubing (i.e., the animal’s face mask). The charcoal canisters will absorb excess isoflurane. Regularly weigh the charcoal canisters before and after isoflurane machine use. If the canister weighs 50 grams, it is time to attach a fresh canister. Treat saturated charcoal canisters as hazardous waste. Label and dispose of properly.

3. IMPROPERLY FITTED OR DAMAGED FACE MASKS ON ANIMAL SUBJECTS: Gas may escape from improperly fitted or damaged animal face masks. The mask may deteriorate over time or may not have an appropriate diaphragm to ensure a good seal with the animal’s face.

MITIGATION MEASURE: Use an animal face mask diaphragm. Please see the Rodent Isoflurane Machine tutorial found at Research Online for additional information on proper diaphragm preparation and technique.

GENERAL PREVENTIVE PRACTICES

For operational procedures visit Research Online at <https://www.researchonline.ucsf.edu> and access online courses. The isoflurane tutorial is accessible via the Rodent Isoflurane Machine link. Contact the IACUC office for more information at 476-2197.

REPORTING A SAFETY CONCERN OR ASKING A SAFETY QUESTION

OEHS encourages all employees to voice their health and safety concerns. You may report a safety issue to your supervisor or to your DSA. You may also use this form anonymously <http://www.ehs.ucsf.edu/P&S/IIPP/oeHSIIPPAppendixA.asp>.

