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1. Biological Inventories & Abandoned Collections

If you are a faculty or staff member with collections of pathogenic agents at UNL, whether the agents are actively being used or are in long-term storage, a new Safe Operating Procedure (SOP) titled ***Pathogen Inventories*** is one you should review. In order to avoid stockpiles of unknown or abandoned pathogenic agents and as a best practice in biosafety stewardship, it is institutional policy for all faculty and staff to maintain an inventory of pathogenic agents in their possession.

Pathogenic agents are any microbiological agent or biological toxin that is capable of causing disease in humans, animals or plants. Lab-adapted strains of microbes are not included under this definition.

The inventory of all pathogenic agents must be kept current and accurate at all times. An updated copy of the inventory must be submitted to EHS biosafety staff whenever new agents are added/removed or at least annually. At a minimum the inventory must contain:

- Genus and species of microbiological agents; or name and species of origin for biological toxins
- Strain information: list all strains of the agents possessed
- Location of agent
- Status of agent, e.g. long-term storage, active use, etc.

When you are preparing to leave UNL, you must submit a final inventory approximately one month prior to your lab shutting down to allow sufficient time for the EHS Biosafety staff to review your inventory and provide advice, e.g., on transferring, shipping, disinfection, disposing of the inventory items as applicable to your situation.

Disposal must follow procedures outlined in the SOP titled ***Disposing of Biohazardous Materials Including Recombinant Nucleic Acids***. NOTE: Do not dispose pathogenic agents or recombinant materials in the regular trash. If you are aware of pathogenic agents or other biological materials that have been abandoned

in a freezer, cold room or other type of long-term storage, please contact EHS at 402-472-4925 for assistance with disposal options.

Pathogen inventories and other biosafety and biosecurity policies and procedures will be the topic of faculty and staff Q&A sessions to be hosted by representatives from the Institutional Biosafety Committee, Environmental Health and Safety and Office of Research on the following dates:

3:00-4:00pm, Tues., January 13, 2015, **East Campus Union – Arbor Suite**

3:00-4:00pm, Wed, January 14, 2015, **City Campus Union – Georgian Suite**

If you have questions, contact the UNL Biosafety Officer by phone (402-472-9554) or email ibc@unl.edu.

Resources:

- **Pathogen Inventories** SOP http://ehs.unl.edu/sop/s-bio-pathogen_inventories.pdf
- **Disposing of Biohazardous Materials Including Recombinant Nucleic Acids** SOP <http://ehs.unl.edu/sop/s-bio-dispose.pdf>

2. Promoting an Academic Safety Culture, Recommendation #4

Recently the National Research Council (NRC), the principal operating arm of the National Academy of Sciences and the National Academy of Engineering, completed work on a publication titled “**Safe Science: Promoting a Culture of Safety in Academic Chemical Research.**” The recommendations within this report apply beyond chemical laboratories/research.

The shift away from mere compliance and toward promoting a strong, positive safety culture has already yielded benefits in other industries. The hope is that the NRC recommendations help move academic institutions toward the adoption of a culture of safety that goes beyond inspections, standard operating procedures, and safety plans, all with the ultimate goal of protecting the lives and health of the campus community.

Recommendations from this report will be reviewed one-by-one in each successive issue of the EHS listserv. The fourth recommendation is:

University presidents and chancellors should establish policy and deploy resources to maximize a strong, positive safety culture.

Each institution should have a comprehensive risk management plan for safety in the laboratory and all areas of the workplace/learning environment. This plan should address prevention, mitigation, and emergency response. Deans, Directors and Chairs in turn should foster individual area/lab plans within their spheres of influence. Safety Committees are a valuable resource to help develop and cultivate

a safety culture leading to adoption of safety as the personal attitude of all workers/researchers.

Safety is a priority at UNL. Make sure it is a priority in your individual work location, laboratory or otherwise. To this end, consider adopting the following as your personal ethic:

- **Value safety:** Safety is an integral part of what one does, its automatic, and it does not change its priorities- it is never questioned and never compromised.
- **Work safely:** One continues to learn about safety, learns to recognize hazards, assesses the risks of hazards, manages the risks of hazards, and prepares to handle emergencies.
- **Prevent at-risk behavior:** One does not cut corners or bypass safety measures and shares this information with others, as needed.
- **Promote safety:** One encourages and acknowledges others for working safely.
- **Accept responsibility for safety:** One takes steps to work safely, setting a positive example for others, and being accountable for safety.

Resources

- NRC free download/read online: “**Safe Science: Promoting a Culture of Safety in Academic Chemical Research (2014)**”
http://www.nap.edu/catalog.php?record_id=18706&utm_expid=4418042-5.krRTDpXJQISoXLpdo-1Ynw.0&utm_referrer=http%3A%2F%2Fwww8.nationalacademies.org%2Fonlinews%2Fnewsitem.aspx%3FRecordID%3D18706
- American Chemical Society, Safety Practices and Recommendations (Publications):
<http://www.acs.org/content/acs/en/about/governance/committees/chemicalsafety/safetypractices.html>
- American Chemical Society, pages 3-6, “**Increasing Safety Awareness: An Academic Imperative**”:
<http://www.acs.org/content/dam/acsorg/about/governance/committees/training/cptnewsletter/committee-on-professional-training-summer-2014.pdf>
- American Chemical Society “**Identifying and Evaluating Hazards in Research Laboratories**”
<http://www.acs.org/content/dam/acsorg/about/governance/committees/chemicalsafety/identifying-and-evaluating-hazards-in-research-laboratories-draft.pdf>
- EHS **Job Safety Assessment** SOP <http://ehs.unl.edu/sop/s-JSA.pdf>
- EHS Virtual Manual: <https://scsapps.unl.edu/VirtualManual/>

3. Spring Safety Colloquium April 15, 2015

In keeping with the recent focus change for the biannual colloquia sponsored by EHS and the Office of Research and Economic Development, the Spring Safety Colloquium to be held on April 15, 2015 will be applicable beyond a laboratory

setting. “**Safety Culture: Perspectives and Practices**” will feature Sean Kaufman, nationally respected educator, consultant and behavioral solutions expert. Sean has worked with the United States Centers for Disease Control, Emory University, National Institutes of Health, World Health Organization, and many other organizations nationally and internationally. This colloquium will be applicable to everyone, especially to laboratory researchers, PIs, safety committee chairs, department heads and deans.

Resources

- EHS Safety Colloquium Series site <http://ehs.unl.edu/training/Colloquium>
- Office of Research and Economic Development Safety Colloquium site <http://research.unl.edu/laboratorysafetycolloquium/>

4. Holiday Safety

Statistics show that workers encounter a considerable number of hazards outside the workplace, some more so during certain seasons and times of the year. Here are some holiday safety considerations.

Motor vehicles.

- Accidents tend to increase during times of bad weather and increased traffic. For those traveling, in particular out of town, be sure to drive defensively and not engage in the four most dangerous driving behaviors: speeding, aggressive driving, inattention, and drowsiness.
- Monitor the weather and do not attempt travel during hazardous conditions. Make sure your vehicle is in good repair and your vehicle contains a cold weather emergency kit in case you inadvertently become stranded.

Hanging lights/decorations.

- Use a ladder rather other items such as chairs.
- Inspect your ladder to be sure it has non-skid feet, no visible damage, and has the proper rating to hold the weight of yourself and the decorations/tools you will be using.
- Make sure stepladders are fully unfolded. Do not stand on top rung, climb on the back side of the ladder, or lean out to the side of the ladder.

Electrical hazards.

- Carefully inspect holiday lights, discarding any with frayed cords or loose connections. Always turn off holiday lights, both indoors and out, when you leave the house unattended or retire for the night.
- When purchasing/using light strings, extension cords, spotlights, electrical decorations, gas appliances, or carbon monoxide alarms, look for the certification mark of an accredited organization such as UL (Underwriter’s

Laboratories). Before using lights outdoors make sure they have been certified for outdoor use.

- Do not use extension cords in series, rather use a cord long enough to reach the outlet without stretching, but not so long as to get easily tangled. Plug all outdoor electric decorations into circuits with ground fault circuit interrupters to avoid potential shocks.
- When hanging outdoor lights keep electrical connectors off the ground and away from metal rain gutters. Use insulated tape or plastic clips to hold them in place, not metal nails or tacks.

Fire safety:

- Test your smoke alarms and carbon monoxide detectors if you have not recently done so.
- If purchasing a live Christmas tree, try to get one as fresh as possible. Fresh trees should have needles hard to pull from branches and needles bent do not break when bent. Keep the tree watered and do not use candles in the vicinity or set up a tree near fireplaces or radiators. When purchasing an artificial tree look for the label “Fire Resistant.”
- Use noncombustible or flame-resistant materials to trim a tree.
- Make sure trees and other decorations do not block exits.
- Do not burn wrapping papers in a fireplace.

These are just a few tips to help keep safe during the holidays. Look around your home for other hazards that may be present.

Resources

- **Ladder Safety** SOP <http://ehs.unl.edu/sop/s-ladder.pdf>
- **General Electrical Safety** SOP <http://ehs.unl.edu/sop/s-electricalsafety.pdf>
- National Fire Protection Association (NFPA) “Christmas Tree Safety Tips” <http://www.nfpa.org/safety-information/for-consumers/holidays/christmas-tree-fires/christmas-tree-safety-tips>
- NFPA “Project Holiday” downloadable safety tip sheets <http://www.nfpa.org/safety-information/for-consumers/holidays/project-holiday>
- Consumer Products Safety Commission “Holiday Decoration Safety Tips” <http://www.cpsc.gov/PageFiles/121347/611.pdf>
- Parents.com “12 Tips for Holiday Home Safety” <http://www.parents.com/holiday/christmas/safety/12-tips-for-holiday-home-safety/>
- Reader’s Digest “Holiday Hazards Checklist” <http://www.rd.com/home/christmas-safety-checklist/>

5. Laboratory Injury Incidents: Don't Let This Be You

Following is information on a few recent laboratory injury incidents:

- A worker mixing solutions in a test tube used a septum to cover the end of the tube to prevent spilling the contents while mixing. The septum came off due to gas pressure inside the test tube, spilling the acidic solution onto the worker. Septum use was not part of the protocol for this experiment and should not have been used due to the expectation of gas generation with accompanying pressure increase. Workers should not modify procedures without consulting with the PI or other authority first.
- During cell plating, a worker flamed the cell spreader they were using and then placed it into 100% ethanol resulting in a fire. When the worker attempted to extinguish the blaze with a fire blanket some of the burning liquid splashed on their hands resulting in second-degree burns. Workers should thoroughly review the experimental protocol, be aware of potential hazards and avoidance strategies, know how to properly use equipment/tools, and be aware of appropriate emergency response actions before beginning a task.
- A worker carrying hot agar tripped and splashed hot agar on their forehead. When transferring hazardous materials from one area of the work space to another workers should survey the area for potential obstacles that need to be eliminated, use footwear that reduces the likelihood slipping/tripping, avoid distractions while conducting the task, and use appropriate Personal Protective Equipment. In this case, a face shield should have been used in recognition of the hot liquid splash hazard.
- While using a razor blade to dissect a plant, a person cut their finger. This injury could have been prevented if the procedure had required the blade to be in a holder (perhaps like a box cutter) and forceps or a similar tool used to hold the material in place while cutting thereby removing the fingers from the hazard.

Review the incidents outlined above and share with those in your area to learn from the experience of others.

Resources

- **Sharps – Handling and Disposing** SOP http://ehs.unl.edu/sop/s-bio-sharps-handling_disposing.pdf
- **Slips, Trips, Falls – Reducing Risk and Avoiding Injury** SOP http://ehs.unl.edu/sop/s-slips_trips_falls.pdf
- **Chemical Hazard Assessment & Risk Minimization** SOP http://ehs.unl.edu/sop/s-chemical_haz_assessment_risk_min.pdf
- **Personal Protective Equipment (PPE) – Eyes and Face** SOP http://ehs.unl.edu/sop/s-PPE_eyes-face.pdf
- **Emergency Planning** SOP http://ehs.unl.edu/sop/s-emergency_planning.pdf
- **On-The-Job and Student Injuries** SOP <http://ehs.unl.edu/sop/s-injury.pdf>

6. ALERT: Flammable Storage Cabinet Shelving Concerns

Over the past few years chemical spills have occurred at a number of universities nationwide when shelving in flammable storage cabinets collapsed. These failures have resulted in HazMat spill response scenarios, fires, worker injuries, and other facility damage.

If you have a flammable storage cabinet:

- Make sure shelves are level.
- Make sure shelves fit well. There should be no more than 1/8" uniform gap between shelf and cabinet. Shelves that don't fit well should be replaced with shelves from the manufacturer designed for the specific cabinet you have.
- Check for secure installation/seating/mounting with shelf clips firmly inserted in the appropriate slot.
- Check for the presence of clips on all corners of the shelf.
- Check for the integrity of the clips holding shelves.
- Use only manufacturer-provided shelf clips/shelves appropriate for your particular model of flammables cabinet.
- Make sure there is adequate space between shelves so that items being removed do not inadvertently dislodge the shelf above.
- Discard and replace worn or compromised (e.g., rusted) shelves and shelf clips.

Chemical spills from shelf failure are preventable. Conduct regular inspections to check the shelves and shelf clips in all flammable materials cabinets. Use caution when checking shelf clips in case there is a loose or failed clip.

Resources

- Duke University "*HAZARD ALERT: Flammable Cabinet Spill Risk*"
<http://www.safety.duke.edu/OHS/Documents/hafc.pdf>
- University of Washington eh&s NEWS "*Hazard Alert: Check Shelf Clips in Flammable Materials Cabinets*"
<http://www.ehs.washington.edu/news/arc/2013-v11/2013-v11art3.shtm>

Remember...SAFETY IS AN ATTITUDE!

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