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Environmental Health & Safety

SafetyMatters

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ENVIRONMENTAL HEALTH & SAFETY

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Safety Campaign Updates by Chris Pettinato, Executive Director

In the Summer 2014 edition of *SafetyMatters*, EH&S announced Columbia University's Research Safety Campaign. Our efforts kicked-off in June, in conjunction with the National Safety Council's National Safety Month, with a video message from Dr. Purdy (see "Spotlight on Safety" in this edition). EH&S also launched a Safety Culture webpage (http://ehs.columbia.edu/SafetyCulture.html), and held eight very successful safety tabling events, where more than 650 members from the University's research community engaged with EH&S and completed the Safety Challenge. EH&S wishes to thank everyone who was able to pay us a visit at one of the tables.

These tabling events were followed by laboratory visits from EH&S promoting the use of Personal Protective Equipment (PPE) in research laboratories (http://ehs.columbia.edu/ppe.html) in late June and early July. Subsequently, EH&S, along with an independent auditor, visited over 100 laboratories across the University to determine the research community's "inspection readiness" by assessing the availability, selection and use of PPE in laboratories, the Laboratory Assessment Tool and Chemical Hygiene Plan (LATCH) (http://ehs.columbia.edu/LabChemicalHygienePlanAndLATCH.html), storage and use of hazardous gases, and other laboratory safety program elements. Thank you to the laboratories who volunteered to be audited and to those who participated through selection.

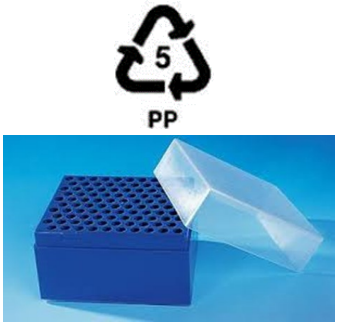
The campaign will continue into the Fall and for the foreseeable future as we endeavor to continue to build on and improve the University's safety culture. We look forward to engaging with you at future events, during a laboratory visit, or at one of your laboratory group meetings. Thank you again for your commitment and contributions to the Columbia University Research Safety Campaign.

Give Me 5 by Keith Bottum, Hazardous Materials Specialist

New York City now accepts #5 plastics for recycling, meaning that the hundreds of pipette tip boxes previously thrown away by University research laboratories as trash can be recycled. So, locate your nearest plastics recycling container(s) and begin recycling today.

For additional information or assistance locating your nearest recycling container, please visit:

Columbia University Medical Center Facilities @
http://www.cumc.columbia.edu/facilities-management/
Columbia University Morningside Facilities @
http://facilities.columbia.edu/sustainability/recycling
The Office of Environmental Stewardship @
http://environment.columbia.edu/recycling-waste



ChemTracker's Tracks Make Their Way

by Rob Velez, Research Safety Specialist

EH&S redesigned website offers new features and enhanced navigation http://ehs.columbia.edu

ChemTracker is a chemical inventory management system originally developed by Stanford University and made available by EH&S to Columbia researchers. For nearly a decade, the system has been used successfully at Morningside for management of the campus' extensive laboratory chemical inventory. The program has numerous benefits, including its ability to provide a real-time view of a laboratory's chemical collection, thus saving money by reducing redundant or excess ordering, as well as its "storage code" feature that allows a laboratory to easily track its flammable storage limits, manage chemical expiration dates and, with assistance from EH&S, use the storage codes to create a color-coded chemical segregation scheme. Each of these features help make the laboratory a safer place and maintain compliance with FDNY requirements.

Implementation of the program at Morningside was relatively simple, leveraging the campus' two central receiving portals for incoming laboratory chemicals. Although CUMC does not have central receiving facilities for laboratory chemicals, several CUMC laboratories have successfully implemented the program to take advantage of its many benefits. Additionally, Lamont Doherty Earth Observatory recently implemented the program campus-wide.

If you would like assistance in setting up ChemTracker at a CUMC lab and/or implementing a color-coded chemical segregation system, please contact EH&S. More information is available online: http://ehs.columbia.edu/cms.html

No eating, drinking or applying cosmetics when working in the Laboratory.

The Safe Use of Isoflurane by Rebecca Lonergan, Industrial Hygienist

On-line Chemical Waste Pick-up Request Form http://vesta.cumc.columbia.edu/ehs/wastepickup

In conjunction with a broader strategy to evaluate potential exposures to many regulated chemical substances during research operations, EH&S is conducting measurements of ambient concentrations of waste anesthetic gases, such as isoflurane, during research applications. Isoflurane is a halogenated hydrocarbon commonly used in animal research as an anesthetic. Overexposure to isoflurane may result in toxicity to humans. Exposure can occur in a variety of ways, but typically takes place as a result of:

- Leaking, unsealed or poorly sealed anesthetic systems, for example, using nose cone/face masks that do not form a tight seal around the subject's face
- Active induction chamber use when opening the chamber to retrieve an induced subject

For Lab Fire Safety Prevention tips, check out FDN(wh)Y Me http://www.ehs.columbia.edu/FDNYMe.html

Safe work practices can reduce or eliminate potential exposure and include ensuring the proper function of the vaporizer (e.g., tight-fitting hose connections) and use of proper engineering controls (e.g., chemical fume hoods, snorkel trunks, or negative pressure laminar flow hoods with activated carbon filtered exhaust chambers), to control fugitive vapor during procedures. Read more about the Safe Use of Isoflurane @ http://ehs.columbia.edu/Isoflurane.pdf. In addition to scheduled assessments, EH&S is available to evaluate potential exposures and perform evaluations of vaporizing apparatuses upon request. Requests may be placed by completing a Hazard Assessment Form @ http://ehs.columbia.edu/LaboratoryHazardAssessmentForm.pdf

Spotlight on Safety by EH&S

In this edition of Spotlight on Safety, G. Michael Purdy, Executive Vice President for Research, shares his insights on the importance of safety in research. Several quotes from Dr. Purdy's video are highlighted below and the full video can be viewed @ http://ehs.columbia.edu/SafetyCulture.html.

Dr. Purdy: "Ultimately, we cannot practice world class science without a world class commitment to safety."
Dr. Purdy: "I ask for you lasting commitment to take a Safety Always approach in your research endeavors…"
Dr. Purdy: "We are building on and improving the safety culture here every day. Please join me in being an active champion for safety."

Hand Hygiene in Tissue Culture Rooms by Christopher Aston, Senior Biological Safety Officer

Disposable gloves should always be worn when working in a biosafety cabinet for two reasons. Firstly, to provide a protective barrier between the skin and any infectious agents that may be handled, and secondly, to prevent contamination of cultures from microorganisms present on the skin. The practice should extend beyond work with known infectious agents or clinical specimens, to any kind of tissue culture work, since even cell lines can harbor endogenous retroviruses. Gloves should always be removed and hands should be washed with soap and water before leaving the tissue culture area or touching any surfaces such as the door handle. Particular attention should be paid to washing the wrists, which are more likely to have had exposed skin.

Dedicated tissue culture rooms with a hand washing sink are ideal, but we all know that space is at a premium at Columbia and tissue culture may be practiced in repurposed space or in a location not equipped with a hand washing sink. In that case, an alcohol-based hand sanitizer provides an acceptable and effective alternative to soap and water, provided that proximal access to a sink for hand washing upon exit of the room or area is available. Repeated (>4X) application of hand sanitizer leads to an accumulated emollient residue that, although not detrimental to further application of the product, should be removed by hand washing. Tissue culture rooms without a hand washing sink should be equipped with this important sanitizer.

You may have spoken recently to members of the EH&S Biosafety team performing an outreach campaign on good tissue culture practices. If not, keep an eye out for them. EH&S is also available to provide consultation to any laboratories on disinfection products and procedures; email biosafety@columbia.edu.

Fire Doors by John LaPerche, Director of Fire Safety

Corridor doors, stairway doors and entrance doors to rooms off of a corridor serve as important containment barriers to flames, smoke and hazardous gases in the event of a fire and should be kept in the closed position at all times. Recent inspections by the New York City Fire Department (FDNY) have resulted in violations issued for doors being unsafely held in the open position or not being able to fully close and properly latch.

Remember, as stated in Fire Safety drills, Laboratory Safety Training, and Certificate of Fitness courses, the "C" in "RACE & PASS" stands for "Confine," which can be accomplished by closing doors as you leave a fire area.

Can You Hear Me Now?

by James Kaznosky, Senior Environmental & Occupational Safety Specialist

From time to time, laboratories and shops may work with equipment that has the potential to produce elevated noise levels which may cause discomfort to the equipment user and nearby personnel. It is natural to assume that the use of hearing protection devices (HPDs), such as ear plugs and ear muffs, will remedy the situation. As true of any occupational exposure hazard however, the use of the hierarchy of controls to minimize potential exposure, discussed in the Winter 2014 *SafetyMatters* newsletter, should be applied before PPE is selected. Additionally, PPE must be appropriate for the task and the user must be trained on proper use and care of the equipment.

The first consideration is to determine if the activity may be producing potentially damaging levels of noise. You can use these simple context clues to help you make a decision if action needs to be taken:

- When operating the equipment it is necessary to raise your voice to a yell to be understood by someone standing nearby;
- The noise hurts your ears;
- You develop a buzzing or ringing sound in your ears, even temporarily;
- You don't hear as well as you normally do until several hours after working in proximity to the noise.

Administrative and engineering controls should be applied first to minimize noise. These may be as simple as limiting the time spent working with noisy equipment or ensuring that equipment is properly maintained (administrative) and noise isolation equipment, such as curtains and sound absorbing panels, are installed (engineering). Where engineering and administrative controls are not successful in lowering noise exposure to acceptable levels, PPE in the form of HPDs may be applied, but EH&S must perform a noise assessment prior to the selection and use of HPDs to ensure that the HPD is adequate for reducing the noise to a safe level.

If your laboratory or shop is working with equipment that produces potentially elevated noise levels, you can reach out to EH&S to schedule a noise risk assessment to assist in helping you make the right choices and to ensure that the process is documented for all users in your space.

EH&S is available to perform noise assessments by completing and submitting a request @ http://ehs.columbia.edu/LaboratoryHazardAssessmentForm.pdf

Corridor Clearance and Storage by Harry Oster, Senior Fire Safety Specialist

The New York City Building Code requires that minimum corridor widths shall not be less than 44 inches to allow for safe passage and egress. Within rooms, such as laboratories, with an occupant capacity of 50 persons or less, aisle space of 36 inches must be maintained. Egress is further addressed by the New York City Fire Code which emphasizes in several sections that storage of combustible material, such as cardboard boxes, books, paper, lab coats etc., is not allowed in corridors, unless specifically approved by the FDNY.

Fire Safety asks that you take a fresh look at the operational requirements for your laboratory and remove any combustible material that is stored in the corridor. For added assistance in discarding combustible items, contact Facilities at 305-HELP (@ CUMC) or 854-222 (@ Morningside).

Please contact fire-life@columbia.edu for additional guidance, as needed.

Falling Asleep at the Lab Bench

by Kathy Heinemann, Research Safety Specialist and Greg Kwolek, Senior Research Safety Specialist

The Occupational Health and Safety Administration recognizes the link between worker fatigue and work-related accidents and injuries. As reported in the University's *Santayana Report*, "Safety Never Sleeps, but You Should!" (https://www1.columbia.edu/sec/cu/ehrs/LabLessonsLearnedNews.html) , there were two recent incidents of laboratory fires that started when containers of ethanol, a flammable liquid, were spilled in close proximity to lit Bunsen burners. Both incidents occurred outside of typical working hours, and the research personnel cited fatigue as a possible contributing factor. In each case, the burners were left on after completing a previous task. Thankfully, in both circumstances the researchers were unharmed and were able to extinguish the flames with a fire extinguisher.

These incidents offer us an important reminder to sleep enough each night. The body needs sleep to carry out basic functions such as tissue repair and growth, muscle development, and memory consolidation. These restorative processes at night can make or break our attention and performance during the day. If you are in the middle of a week with mounting fatigue, think about ways that you can stay safe in your laboratory. Try to avoid working in the laboratory outside of normal working hours to avoid shift work disorder.

Hydrating and moving around are the most important tools to use when combatting fatigue. Caffeinated beverages can only go so far, and the resulting dehydration can lead to further drowsiness. Make sure you drink enough water, and keep your blood circulating. Exercise, even something as simple as going for a short walk, can rejuvenate the body. Can you get to bed earlier that night? Can you take a 20-minute power nap during your day? If you are feeling too tired to function optimally, it is important that you postpone your work with hazardous materials until you feel alert enough to safely execute it.

Making adequate sleep a priority will not just cure fatigue, it may also alleviate related symptoms such as stress and anxiety. So, if you need an excuse to go to sleep earlier, remember that there are a host of benefits to your safety, the safety of those around you, as well as your research and mental health.

Recent Additions to the EH&S Team

EH&S is very pleased to have Research Safety Specialists Augustine Ogbonnaya, Kathryn Heinemann, Jessica Phippard, and Associate Health Physicists Samuel Dindayal and Ian Broderick join the EH&S team. Please join us in welcoming our newest additions.

Dosimeter Badge Reference Guide by Daniela Nicoletti, Dosimetry Coordinator

-Chest Badges are identified by the **BLACK** character with a white circle shown at the chest level.

-Chest badges are to be worn underneath your lead apron (if you wear a lead apron).

-Collar badges are identified by the **RED** character with a white circle shown at the collar level.

-Collar badges are to be worn outside of a lead apron on the collar of your lab coat.

Who can I contact with questions regarding dosimetry/badges?

Dosimetry Coordinator:
(212) 305-5359 or
badges@columbia.edu

Where do I return badges?

Send via inter-office mail to:

Radiation Safety Office

630 W 168th Street, MC: 70

Att: Dosimetry Coordinator

Radioactive waste *mis*-management by Lauren Kelly – Hazardous Materials Program

Recently, while completing regular waste pick-up rounds, an EH&S team member was splashed with an unknown liquid that was inappropriately discarded in a 1 gallon "sharps" container. It was later determined the liquid contained 0.04 microcuries of ^{35}S, a radioactive isotope. Thankfully, the safety professional was wearing appropriate personal protective equipment (including a coat, gloves and safety glasses) so that exposed skin covered preventing bodily contamination.

To prevent future occurrences and avoid unnecessary injuries to you, your colleagues and EH&S personnel who handle your waste, always wear appropriate personal protective equipment when working with or around hazardous materials … http://www.ehs.columbia.edu/ppe.html and always manage laboratory waste in accordance with University policies for radioactive, chemical and regulated medical wastes … http://www.ehs.columbia.edu/WasteMgt.html. Proper waste management includes using only an appropriate collection container for your laboratory's wastes, and labeling all waste collection containers appropriately with the contents (including the chemical name).

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