

Environmental Health & Safety

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ENVIRONMENTAL HEALTH & SAFETY

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Will That Be Pick-up or Delivery?

by Michael Kennedy, Associate Manager for Radiation Safety - Research

Delivery please! Consistent with EH&S's vision of providing timely service to the University research community, the Radiation Safety program is pleased to announce that direct delivery of radioactive materials (RAM) to laboratories at Morningside, Manhattanville and Medical Center (CUMC) campuses will begin effective summer, 2017.



Historically, under a previous system, Radiation Safety would receive RAM packages, process them and call the laboratory that ordered the isotope(s) to retrieve their package from the Radiation Safety laboratory. This process required both EH&S and research personnel to step away from other activities in order to meet at a designated time for package retrieval. In spring 2017, EH&S began a pilot program to deliver RAM packages directly to laboratories at CUMC. When both the laboratories and EH&S found this to be a process improvement, the next logical step was University-wide implementation.

Radiation Safety will continue to approve RAM purchases online, and receive and process RAM packages in the Radiation Safety laboratories. Now, however, when EH&S contacts a laboratory, instead of asking for a laboratory member to retrieve a package, EH&S will simply ask the laboratory to verify that someone will be available to sign for the package. EH&S will then prepare the package for safe transport to the laboratory and arrange a direct delivery. Based on data from the spring pilot, delivery service will reduce the overall handling process by 30 minutes per package and give the Radiation Safety Team an additional opportunity to say a friendly "Hello!" to RAM users.

As an added bonus, if a laboratory needs to return radiation dosimeters they can simply be handed to the Radiation Safety Team member at the time of RAM package delivery; alternatively, laboratories are always welcome to bring them to the EH&S Office at their respective campus.

We look forward to seeing you soon!

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offers
enhanced
navigation
[http://
ehs.columbia.edu](http://ehs.columbia.edu)

When working in the
laboratory, eating,
drinking or
applying cosmetics is
prohibited.

Proper work attire
(long pants, closed toe
shoes) and PPE
(e.g., laboratory coat,
gloves and eye
protection)
must be worn when
working in the
laboratory.

Remember to
periodically flush your
laboratory cup sinks
and floor drains with
water to prevent sewer
gases from migrating
into your laboratory.

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

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

Muster Up by Jon Paul Aponte, Associate Fire Safety Officer

Recently, during the biannual fire drills, Fire Safety team members posed a simple question to the crowds gathered for these important safety reminders: “If there is an emergency in this building that required evacuation, does your group have a muster point?” A few groups responded immediately that they did, but many others did not. Something as simple as having a place to meet in the event of an emergency may seem elementary, but there are several reasons why this is an important topic to contemplate.

- ◆ Accountability- There is always the potential for an incident to occur - if and when an emergency does happen, first responders will be managing several priorities as they attempt to mitigate the situation. Among the first questions that will be asked is, “Was everyone able to get out?” The ability to confidently answer this question is critical, and may influence the expediency with which other response operations can begin. Responders will also be able to avoid unnecessary risks that might otherwise be taken if proper information is available.
- ◆ Peace of Mind- In the event of an actual emergency, chaos, confusion and conjecture rule. Thankfully, first responders are well trained and experienced in dealing with these situations and can handle incidents with speed and poise. This is not always the case for individuals who lack similar training and experience and it is important to be mindful of this. Take a moment to reflect on how it would feel if the safety of your colleagues was unknown, and likewise how they would feel if they were unsure of your own status. A large incident may render normal methods of communication unreliable, so a simple head count will offer reassurance during times of distress.
- ◆ Preparedness and Planning- While there is no way to be certain of what exactly will happen during an emergency, with a little planning, everyone can be better prepared for an event. Simply opening a discussion to establish a muster point for the laboratory or team may reveal that overall emergency preparedness is lacking. The discussion may lead to a realization that a certain exit path is not ideal, or that an out-of-the-way corner or office may need to be checked when evacuating. Planning and preparedness may make all the difference in an emergency - it only takes a few minutes to begin the discussion.

EH&S recognizes that preparing for an emergency is not always an easy topic to think about. Here are a few points to consider when putting a plan in place.

- ◆ Write it down- Write the plan down, including maps of exit routes, and even consider posting them near the exits of the workplace for quick reference.
- ◆ Make sure everyone is on the same page- Everyone from the PI or boss, to the newest undergrad or intern, should be made aware of this information and know exactly where to go.
- ◆ Have more than one muster point- There may be instances where one location is unavailable, so have a backup or two.
- ◆ Know exit routes- Be aware of means of egress; walk down the stairs every so often to become more familiar with the route. You may need to lead people down them at some point so don't let your first time be during an emergency.
- ◆ Remember that the process of implementing a plan is not as daunting as it may seem - anyone can easily come up with a plan and either cover, or solidify it during a future meeting.
- ◆ Always be safe- EH&S wants nothing more than for everyone to leave their laboratory on a daily basis the same as they entered.

The overall safety of our research community here at Columbia is paramount. Feel free to contact fire-life@columbia.edu for more advice in implementing a plan.

Safety When Working With New Chemicals

by Andrew Chin-Sang, Hazardous Materials Specialist

Many accidents result from inexperience, distraction, and improper use of equipment. The best way to prevent accidents in the laboratory is to understand the hazards of the materials and equipment to be used and to properly prepare for their use. One recommendation that can help researchers prepare is to perform a trial run of an experiment to establish the proper sequence of tasks and technique. When feasible, the trial run should be done without actually using the hazardous materials that will ultimately be part of the experiment.

Before incorporating a hazardous chemical into an experiment it is important to review the Safety Data Sheet (SDS), even if it is a familiar chemical. An SDS contains valuable information about a chemical, including: hazardous constituents, chemical properties, incompatible materials, proper storage methods, exposure control methods, and emergency response information, which can be the difference between a small incident and a significant accident. Columbia University provides ready-access to SDSs through an online subscription service, ChemWatch, which anyone can access from any computer on the University network through the EH&S website: <http://ehs.columbia.edu/sds.html>.

If an SDS identifies a chemical to be particularly hazardous, consider a less hazardous substitution, if one is available, to minimize the risk posed by the more hazardous option. If the hazardous chemical must be used, be sure to become fully familiar with its use, review literature references, discuss its use with colleagues and EH&S, attend any training(s) that may be needed, and make sure all safety controls are available and in proper working condition, such as chemical fume hoods and personal protective equipment. Also, verify the proper means for storage is available before ordering any new chemical.

A recent incident involving a container of waste “piranha” solution (sulfuric acid and hydrogen peroxide) highlights the importance of proper storage. Recognizing that the reaction between sulfuric acid and hydrogen peroxide generates heat and can cause pressure build-up in a tightly sealed container, a laboratory placed the cap loosely on a piranha waste container, but stored the container on the floor and without secondary containment. The 1-gallon container was accidentally knocked over, spilling the contents. This incident and subsequent spill response by EH&S could have easily been avoided. The use of piranha solution was new to this laboratory, and although they showed good awareness of the material’s unique hazard properties, had they reached out to EH&S in advance, a vented waste container cap could have been provided, along with guidance and tools to enhance safety of the containers when in storage. So, plan accordingly before beginning use of any new hazardous materials, equipment or experiments and consult with EH&S’s Hazardous Materials Specialists (hazmat@columbia.edu) or Research Safety Specialists (labsafety@columbia.edu) to address any questions you may have.

Compressed Gas Safety

by Janice Clarke, Research Safety Specialist

In light of recent incidents related to mismanagement or malfunction of compressed gases in research laboratories at academic institutions across the country, EH&S is endeavoring to strengthen and promote cylinder safety at Columbia in several ways, ultimately leading to the development of a comprehensive compressed gas safety program for the University.

EH&S is currently researching best practices, surveying laboratory personnel and collaborating with other universities in order to provide expert guidance in the management of compressed gas cylinders, especially gases that exhibit flammable, toxic, corrosive, oxidizing or reactive characteristics. The compressed gas program will focus on employing the hierarchy of controls to mitigate potential hazards (i.e., engineering controls, administrative controls and personal protective equipment) and address important topics such as cylinder storage and handling, ventilation requirements, regulator use and selection, gas monitoring/detection and training.

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In addition to these ongoing activities toward the development of the comprehensive gas safety program, the EH&S Research Safety Team selected compressed gas cylinder safety as a focus topic during the first trimester laboratory survey of 2017, which ended in April. Along with the standard survey criteria to assess laboratory adherence to the University's policy for [Personal Protective Equipment in Research Laboratories](#) and verifying that food and beverages are not present in laboratories, Research Safety Specialists surveyed compressed gas cylinders to ensure that they were strapped or chained to a fixed point, valve protection caps were securely fastened when cylinders were not in use, and cylinders were clearly labeled with content information. Survey results revealed a tendency for cylinders not actively being used to remain connected to gas regulators as opposed to being stored with the valve protection cap securely fastened. When cylinders are not in active use, cylinder valves must be shut off, the regulator detached and the valve protection cap installed.

EH&S would like to incorporate feedback from the University research community regarding implementation of a compressed gas safety program; researchers who use compressed gases are invited to take a brief survey: <https://goo.gl/forms/kLnEx5qR1VgZHgno1>. These results and other information from the laboratory survey will form the basis for future guidance materials and programming.

If your laboratory has questions or comments about compressed gas safety, please contact: labsafety@columbia.edu.

What Does the Institutional Biosafety Committee Do, And Why Do I Need to Know?

by Christopher Aston, Manager of Biological Safety Programs

Institutions that receive NIH funding are required by Federal law to have an Institutional Biosafety Committee (IBC) in order to be compliant with the NIH guidelines for recombinant DNA research (http://osp.od.nih.gov/sites/default/files/resources/NIH_Guidelines.pdf). At Columbia, the IBC is composed of a diverse panel of subject matter experts in infection control, microbiology, laboratory safety, biosafety, human research, animal models, and facility design, as well as representatives from the local community. The Committee reviews research using rDNA, regardless of funding source. Such research includes: *in vitro* manipulations such as expression systems, viral vector delivery of genetic material, gene editing, or synthesis of synthetic nucleic acids, as well as *in vivo* administration of rDNA to animals as part of an IACUC protocol, or to humans as part of a gene therapy clinical trial.

The review process begins when rDNA work is submitted to the IBC via completion of an Appendix A in [RASCAL](#). In some instances, the IBC must review the work before any experiments are started, in other cases at the time the work is initiated. More information about these processes is available at <http://ehs.columbia.edu/recombdna.html> and can also be found in the rDNA training course (TC0508) in [RASCAL](#).

Review of rDNA work is the primary function of the IBC, however Columbia University policy also requires the IBC to review **all *in vitro* and *in vivo* work using infectious materials**, which includes human or animal pathogens, **regardless of whether or not they contain rDNA**. Infectious agent work is submitted to the IBC by completing an Appendix B in [RASCAL](#). While the initial risk assessment and determination of biosafety level at which the work will be performed is the responsibility of the PI, the IBC determines whether experiments that have been submitted for review have been planned with the appropriate biosafety level for the agents and procedures to be used. Biosafety Officers are available to provide guidance to PIs. More information is available at <http://ehs.columbia.edu/BiosafetyLevelsAndRiskAssessmentPolicy.pdf>.

The IBC (and NIH) must be notified of all accidental exposures to rDNA. Notable recent examples include a percutaneous stick from a pulled glass pipette used to deliver a viral vector in a stereotaxic procedure, and a mucous membrane exposure through a splash to the eye with a plasmid preparation. Notification of the incident is initiated by contacting a Biosafety Officer at biosafety@columbia.edu.

IBC meetings are open to the University community and general public. If you are interested in attending a meeting please contact a Biosafety Officer at biosafety@columbia.edu.

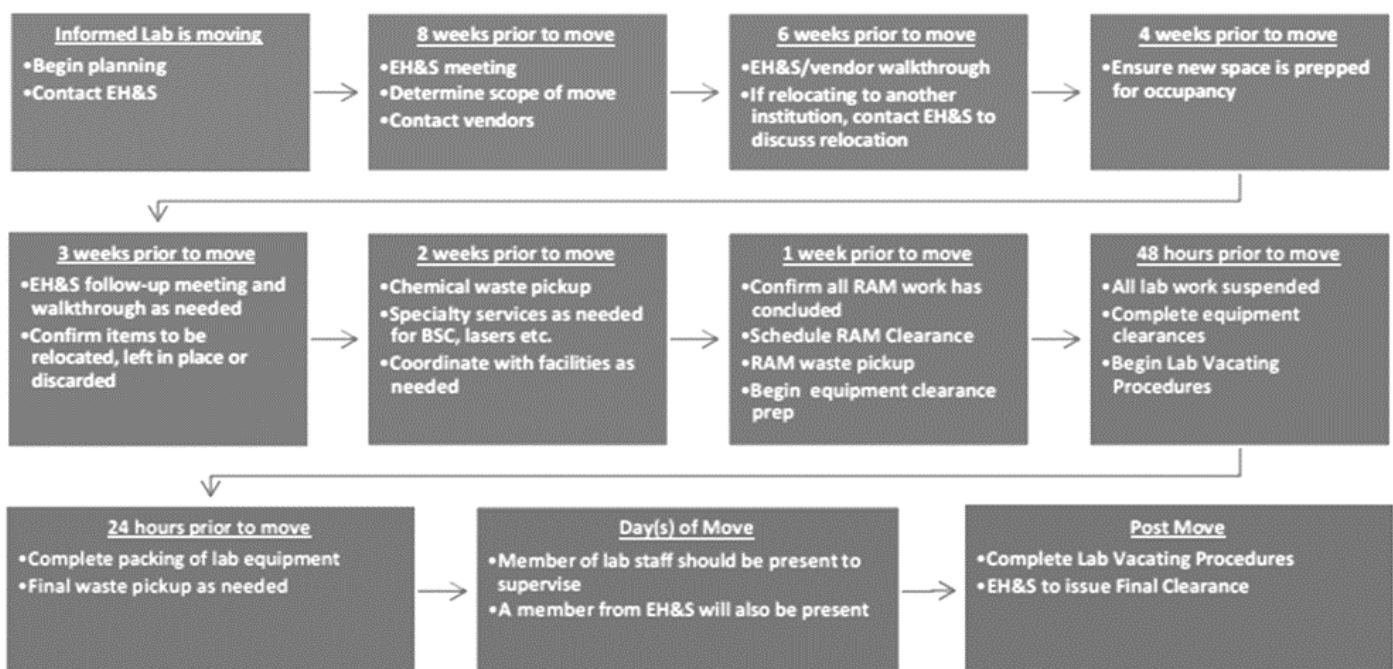
Heading Out? by Ahmed Fathalla, Research Safety Specialist

Parting can be such sweet sorrow, but if you must go, EH&S is here to make laboratory moves as smooth as possible. When planning a relocation or vacating a Columbia University laboratory, significant coordination is often required. Research scientists vacating University facilities or relocating within the University are responsible for leaving their laboratory in a state suitable for re-occupancy or renovation by following the [Procedures for Vacating a Laboratory](#). [EH&S Research Safety Specialists](#) will assist laboratories in completing the vacating process. Laboratory space must not be re-occupied and no renovation work started until the space has been issued final Clearance by EH&S.

With the occupancy of Manhattanville underway, the coming months will be a busy time for the many moving parts involved in populating the University's newest campus. Laboratories can avoid delays for both departing and arriving personnel by working closely with their project team and EH&S. When a laboratory learns that it is moving, potentially relocating or closing, it is important to notify EH&S as soon as possible. Early notification is key, as EH&S strives to deliver timely service and assistance. The scope of the move and the materials being relocated will determine the types of services that will be required.

The PI and laboratory staff must decide what items will remain, be moved or discarded. Laboratory equipment is to be decontaminated by a 70% ethanol or 10% bleach solution prior to being handled by Facilities or any moving company. Furthermore, laboratories are responsible for the coordination of services by outside vendors for specialty items, including but not limited to compressed gas cylinders and biological safety cabinets. EH&S will ensure the move is completed safely and that the vacated laboratory is left free of hazards and ready for new occupants.

The below diagram is a representation of an ideal relocation timeline. In the event that your laboratory undergoes a move or relocation, please work with your project team and EH&S to develop a similar template geared toward your laboratory's specific needs.



Spotlight on Safety – Big Bytes on Computer Recycling

by Keith Bottum, Sr. Hazardous Materials Specialist and Laboratory Sustainability Coordinator

In the article entitled [Small Bytes on Computer Recycling](#) featured in the winter, 2010 edition of *SafetyMatters*, EH&S highlighted the importance of recycling and reuse of lead, mercury and cadmium that are often present in electronics. Now, more than 15 years since its inception, a CUMC-based computer and electronics reuse program has served many charitable entities in the New York City area, nationally and even internationally. In this edition of Spotlight on Safety, EH&S recognizes the efforts of Dr. Norman Kleiman, whose work has advanced the program immensely.



Photo: Drs. Norman Kleiman and Andrea Baccarelli, Chair of Environmental Health Sciences, helping with the latest computer donation to Per Scholas, a nationally recognized charity that provides IT training and skills to individuals from often overlooked

The idea took shape almost two decades ago when Dr. Kleiman (seen on the far right in the photo above), a faculty member in the Mailman School of Public Health Environmental Health Sciences, identified an opportunity for the University to both give back to the community and to improve its efforts towards environmental responsibility through repurposing end-of-life computer equipment. At the time, Dr. Kleiman noticed a growing number of used computers being discarded and thus destined for recycling, however many were still operational. The opportunity to rescue these computers from being dismantled and refurbishing them for a second life appealed to Dr. Kleiman, so he took it upon himself to establish an informal campus network where electronics and some bulk equipment could be refurbished and ultimately repurposed and re-used.

During the life of the program, Dr. Kleiman has found that the average computer that is donated is 4 -7 years old, but older machines can sometimes find a second life, depending on their processor and ability to run basic operating software. CPUs, monitors and laptops, including both PC and Apple computers, are welcome. Before donation, the hard drive must be “wiped” by IT to remove any and all data and software to comply with HIPAA regulations and University data security protocols. While semester end tends to be the time of year when most donations occur, the program is ongoing and donations can be received year round. For more information, please contact Dr. Kleiman at [nj3@cumc.columbia.edu](mailto:njk3@cumc.columbia.edu).

Partners in the program have ranged from non-profit charities that assist individuals with special needs, the Harlem Children’s Center, rural farm communities in Guatemala and local underfunded schools. The program has also received support from the Columbia community including the Mailman School of Public Health Students for Environmental Action, Mailman IT, the Chairs of the Department of Environmental Health Sciences, and EH&S.

A sincere “Thank You” on behalf of EH&S to Dr. Norman Kleiman, for his vision, initiative, and efforts to keep this program alive and well!

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Please share questions or comments with us at newsfeedback@columbia.edu