ENVIRONMENTAL HEALTH AND SAFETY

Lab Chatter

EHS Newsletter • March 2021

IN THIS ISSUE

CONTACT EHS

Ronnie Souza
EHS Director
Biological Safety Officer
Radiation Safety Officer
Phone: x2488
Email: rsouza@une.edu

Peter Nagle
EHS Specialist
Phone: x2791
Email: pnagle@une.edu

Jesse Millen-Johnson
EHS Specialist
Phone: x2046
Email: jmillenjohnson@une.edu

NOTE: Emergency contact cards must be updated

Due to a recent staffing change, EHS is updating all emergency contact cards. Please reach out to anyone in EHS as soon as possible to request the exact number of new cards needed for your lab/room. EHS will then provide you with updated cards to replace the existing ones.

SAFETY SPOTLIGHT

Lab Accident Highlights Limitations of Safety Data Sheets

By Jesse Millen-Johnson

A June 2018 needle puncture with less than two drops (100µl) of dichloromethane (DCM) was all it took to cause tissue necrosis within 2 hours and nearly require amputation of a student's finger. A surgeon was able to save the finger, which he first believed was unlikely, after removing a large portion of flesh and replacing it with skin grafted from the victim's arm. The individual regained use of their finger but has permanent nerve damage.

The student, a 22 year-old male, was emptying DCM (a common organic solvent) into a flask with a syringe in a research laboratory at the University of Lyon in France. He pricked his finger immediately after, resulting in the accidental subcutaneous injection of residual DCM.

Dr. Sebastien Vidal, whose lab was the site of the accident, has since called attention to hazards of sharp needle use in lab settings. According to a March 2020 article in Chemistry World, Vidal stated the SDS (safety data sheet) for DCM only provided hazard information on eye contact, ingestion, and inhalation, etc., but not injection. Vidal advocated that the SDS document should be updated but "I was told by our university safety officer that modifying an SDS [requires] lots of data [to be] collected." The officer said animal studies and tissue damage analysis would be needed, which takes time.

Continued on page 2

UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

One strategy Vidal mentioned is using 'flat-ended' needles to avoid punctures. "These are available now but we typically use sharp-ended needles in organic chemistry because we need to inject a solvent through a rubber stopper, preserving our reaction vessel from outside air/moisture. The 'flat-end' needles cannot go through a rubber stopper. The question is not an easy one, but maybe this accident will lead to some bright ideas."

Per *Chemistry World*, others in the safety field postulate better technique with micropipettes could reduce risk, as well as more training on proper needle use. Of note: The author examined a DCM SDS sheet revised in 2020 and no information regarding injection hazard was listed.

Below: A student's finger is shown 2 hours after accidental subcutaneous DCM injection, post-surgery, and 1 year later. American Chemical Society ©2020.

LAB TRAINING REQUIREMENTS FOR STAFF AND VOLUNTEERS

By Ronnie Souza

There are two questions Human Resources and the EHS Department address every semester and prior to summer break in regards to lab safety training: 1) What are the training requirements for employees, graduate students and volunteers working in UNE laboratories? 2) When is a laboratory worker an employee or a volunteer?

Employees and volunteers working in UNE labs are required by federal law to complete lab training modules on Blackboard in the same way you complete annual training. **If you are a PI in charge of a lab or a lab manager, you are required to report (to Human Resources) all new and returning students receiving compensation, including federal work study, temporary and part-time employees, adjunct faculty, and student and non-student volunteers working in your lab.**

If you have laboratory employees and/or volunteers in the categories on page 3, you are required to register them for Blackboard training.

Continued on page 3

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

What are the Risks of Not Maintaining Eye Washes?

By Peter Nagle

While performing our biannual lab inspections, EHS checks eyewash stations to ensure they are being inspected and run on a weekly basis. This weekly requirement is to ensure the eyewash:

- Is running properly with no missing or broken parts
- Has lines flushed to clear debris and stagnant water
- Uses tepid water (60-100 degrees Fahrenheit or 16-38 degrees Celsius)
- Does not create ideal conditions for microbial growth

During the COVID-19 pandemic, many labs have seen a significant reduction in activity while others have been closed down entirely. Because of this, many eyewashes have gone long periods of time without being run. Lack of regular use can increase the risk of:

- Sediment, sludge or nutrient buildup that supports microbial growth
- Biofilms that can support the growth of microbes
- Several types of bacteria and microbes that can cause serious illness

The CDC states that "The temporary shutdown or reduced operation of a building and reductions in normal water use can create hazards for returning occupants." Idle eyewash units lead to ideal conditions for organisms that thrive in stagnant water. Three organisms that OSHA uses as examples are:

- *Acanthamoeba* - Causes serious eye infections
- *Pseudomonas aeruginosa* - Causes eye, skin, muscle and lung infections
- *Legionella* - Causes a severe lung infection known as Legionnaires' Disease

These organisms can contact the eyes or skin or be inhaled while using an eyewash station. Workers who use contaminated stations may experience eye pain, redness, blurry vision, and eye inflammation for several days, according to OSHA. Furthermore, Legionella is very common in stagnant water and can build up quickly if eyewashes are not properly maintained.

As you can see, using a contaminated eyewash can cause serious infections and possibly even death. If you are returning to a lab after a prolonged absence, it is imperative to test your eyewash stations **before** resuming any laboratory activities, especially work with corrosive chemicals such as any acid or base. Running the eyewash for the usual 1 minute won't suffice. **You must run the unit for 5 minutes** to make sure any sediments or microbes have been fully flushed out. *Please contact EHS with any questions or concerns.*

Employee and volunteer categories requiring Blackboard training:

- Full and half-time salaried
- Full and half-time hourly
- 9, 10, 11, or 12-month faculty
- Adjunct faculty
- Temp salaried
- Temp hourly
- Student paid
- Student unpaid (volunteer)
- Non-student unpaid (volunteer)
- Graduate assistant

How to request training:

Please contact Tammy Louko in Human Resources at extension 4256 to request a training registration form or go to V:\UNEDocs\HUMAN RESOURCES\Training. Once you have populated the training registration form with all requested information, forward it to Tammy and she will give the individual access to the training on Blackboard.

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

Waste-Specific Sharps Disposal Procedures

By Ronnie Souza

"Sharps waste" means any device having acute rigid corners, edges, or protuberances capable of cutting or piercing, including, but not limited to, all of the following: hypodermic needles, syringes, razor blades and scalpel blades. Glass and plastic items contaminated with biohazards, such as pipettes, microscope slides and capillary tubes are also considered sharps waste. Under no circumstances should sharps waste be disposed of in the normal trash. It must be disposed of in approved sharps containers.

Sharps contaminated with hazardous chemical waste:
1. Place in a rigid, puncture-resistant, leak-proof container.
2. Deface any biohazard symbol, if present.
3. Label with hazardous waste label and include the chemical constituents.
4. Request waste collection by contacting the EHS department. Please note on the request that the material is not biologically contaminated.

Sharps contaminated with radioactive materials:
1. Place in a rigid, puncture-resistant, leak-proof container.
2. Deface any biohazard symbols, if present.
3. Label with a radioactive waste label and include the radioactive isotope.
4. Request waste collection by contacting the EHS department. Please note on the request that the material is not biologically contaminated.

Sharps contaminated with medical or biohazardous waste:
1. Place in an approved biohazardous sharps container that is red, rigid, puncture-resistant, leak- proof and cannot be opened without great difficulty.
2. Autoclave container for a minimum of 30 minutes at 121°C and 15 psi.
3. Label the container with the words "autoclaved."
4. Request waste collection by the EHS department. Please note on the request that the material has been autoclaved.

OR this option may be used:

1. Place in an approved biohazardous sharps container that is red, rigid, puncture-resistant, leak- proof and cannot be opened without great difficulty.
2. Request waste collection by the EHS department.

Unused or non-contaminated hypodermic needles
1. Place in an approved biohazardous sharps container that is red, rigid, puncture-resistant, leak- proof and cannot be opened without great difficulty.
2. Deface any biohazard symbols, if present.
3. Request a sharps (non-contaminated) waste collection by the EHS department. Please note on the request that the material is not biologically contaminated.

Never leave used sharps on bench-tops or carts.

Always store these items in appropriate, safe locations.

THE UNE CHEMICAL SHARING PROGRAM

The UNE Chemical Sharing Program is a great way to reduce hazardous waste, lower costs for your department, and have a positive environmental impact on campus. If you have any commonly used chemicals or lab equipment that you are thinking of disposing, please contact EHS so it can be made available for the program and listed in the upcoming issues of *Lab Chatter*.

UNE
UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET