



Lab Safety!

September/October 2022

Emergency Response

September is National Preparedness Month! Let's review some emergency response procedures for chemical spills and exposures.



Major & Minor Spills

You **SHOULD NOT** clean up spills if you don't know what the spilled material is; if you lack the protective gear, equipment, or knowledge to do the job safely; or if you experience any symptoms of exposure.

Minor spills (<1 L of a low-hazard chemical): Notify people in the immediate area, isolate the area (so people don't walk through the spill), and then use the chemical's SDS to determine the appropriate PPE & cleanup material.

Using proper PPE & cleanup materials, clean from the outside edge, working your way inward. If applicable, neutralize the spilled material. After neutralization, absorb liquids with absorbent pads or clay kitty litter. If the spill is a solid material, cover the spill with a slightly damp paper towel to avoid generating dust and push the material into a dustpan.

Once you have collected your material, place it and all absorbents/neutralizing agents into an appropriate container (such as a polyethylene bucket or bag), label it as hazardous waste & arrange for a waste pickup from EH&S.

Major spills (>1 L or a high-hazard chemical): Evacuate the lab; some spills may require the evacuation of the entire building. Shut off equipment if it is safe to do so; the #1 priority is getting to safety. Call TWU DPS at 940-898-2911 and report the location of the spill, the chemical and quantity, if there are any injuries, and if there is a risk of other hazards (e.g. bunsen burner on near a large quantity of spilled flammable liquid).



Chemical Exposures



Eyes: Flush with copious amounts of water for *at least* 15 minutes. Make sure there is no chemical on your hands, hold your eyelids apart, and remove contact lenses if you have them. ALWAYS seek medical attention after chemical eye exposure! Do not use pain as an indicator of whether or not to address splashes to the eye; for example, alkali chemicals usually don't cause significant symptoms, but can seriously damage the eye.

Intact skin: Rinse with copious amounts of water. Use the safety shower, if needed, and remove saturated clothing (modesty goes out the window!). If you have sustained an injury (such as a chemical burn), seek medical attention.

Inhalation: Move to an area of fresh air (such as outside). Seek medical attention.

Ingestion: Do NOT induce vomiting (unless indicated on SDS); contact poison control and seek medical attention immediately.

Percutaneous exposure (skin puncture): Wash the wound with soap and water immediately; do NOT squeeze. Seek medical attention.

Biosafety

October is National Biosafety Month! Let's review differences between Risk Groups (RG) and Biosafety Levels (BSL).

Risk Groups vs Biosafety Levels

Biological agents are classified into **Risk Groups** based on their relative risk. This takes into account the pathogenicity of the organism, mode of transmission, host range, and availability of treatment or preventative measures (i.e. vaccines).

- RG1 – Not associated with disease in healthy adult humans or animals
- RG2 – Associated with disease which is rarely serious and for which preventative or therapeutics are often available
- RG3 – Associated with serious or lethal human disease for which preventative or therapeutics may be available
- RG4 – Associated with lethal human disease for which preventative or therapeutics are not readily available

Biosafety Levels, on the other hand, prescribe procedures & containment levels for the particular microorganism/ material (including Recombinant or Synthetic Nucleic Acid Molecules). These build on one another. There is no work above BSL-2 at TWU!



- **BSL-1** – Standard Microbiological Practices; requires easily cleaned surfaces, handwashing sink, and doors to separate working space from rest of facility
- **BSL-2** – In addition to BSL1 requirements, this restricted lab requires proper PPE, eyewash stations, self-closing/locking door & access to decontamination equipment (e.g. autoclave); all procedures that could cause infection from aerosols/ splashes performed in a biological safety cabinet (BSC)
- **BSL-3** – In addition to BSL2 requirements, this restricted lab requires a hands-free sink & eyewash near the exit, 2 sets of self-closing/locking doors, exhaust air cannot be recirculated, and all work must be done in a BSC; respirators may be required as part of appropriate PPE & lab staff may receive immunizations
- **BSL-4** – In addition to BSL3 requirements, this restricted lab must be in a separate building or in an isolated and restricted zone of the building; it must have a dedicated supply and exhaust air, as well as vacuum lines and decontamination systems. Personnel are required to change clothes before entering, and shower & decontaminate all materials before exiting. All work with microbes must be performed in an appropriate Class III BSC, or by wearing a full body, air-supplied, positive pressure suit.



Peek Inside A BSL-4 Lab!

Have you ever wondered what kind of crazy stuff goes on in a BSL-4 lab? Take a peek inside a BSL-4 lab at the National Emerging Infectious Diseases Laboratories and learn more about what it is like [here](#).

Pioneers Recognized For Safety Excellence!

Dr. Helen Everts, a professor in the Nutrition & Food Sciences Dept. on TWU's Denton campus, is a lab safety super star! Dr. Everts received her BS in Pre-Med from Penn State in 1990 and her MS and PhD in Nutrition Science from the University of Georgia in 1995 and 2000, respectively. Dr. Everts then went on to do a Postdoc Fellowship with Vanderbilt University Medical Center. Since coming to TWU, Dr. Everts has strived to create a safe lab environment. Some examples include her utilization of BioRAFT's "self-inspection" feature and excellent Standard Operating Procedures. Additionally, Dr. Everts serves as the Shared Labs Safety Liaison for Nutrition shared labs. In her spare time, she enjoys landscape photography, swimming, and relaxing with her family. Thank you, Dr. Everts!



Is there someone at TWU you feel should be recognized for their commitment to safety? Complete [this form](#)!

Pioneer Prepared!



If a fire were to break out, do you know how to respond?

If you hear the fire alarm, the first thing you need to do is evacuate. **NEVER** assume it's a false alarm! Also, **DO NOT** go back for anything. Fires can be very unpredictable and move quickly.

It's important to know where to go. Do you know where your closest enclosed stairwells and exits are? Where is your designated assembly place once you are safely outside? In an emergency, every second counts!

If you don't know the answer to these questions, talk to your instructor, supervisor, etc. Building maps can be found [here](#). If you still have questions, contact EH&S!!



Safety Story

In 2012, a 25-year-old microbiologist developed fatal serogroup B meningococcal disease after working with *N. meningitidis* in a research lab.

He developed symptoms on the evening of April 27 and lost consciousness as he was transported to the hospital on the morning of April 28, where he died 3 hours later. An investigation by CalOSHA, OSHA, and CDPH revealed multiple breaches in lab safety practices, including manipulation of *N. meningitidis* on an open laboratory bench. Also, lab members had not been offered a quadrivalent meningococcal vaccine, as recommended by ACIP.

[Read more about this incident.](#)

Event Reminders

• EH&S Snacks & Conversation:

Come by to chat about your safety questions!



- SRC 204M
- UPDATE!: Thurs, Sept 22
 - 1:30 - 2:30 pm

Whooo's that from EH&S?



Hope Zavalin is a Senior EH&S Specialist and TWU alumna. She interned in 2016 with EH&S & was hired full-time in 2018. Like other EH&S personnel, Hope does a little bit of everything but really loves lab safety. You'll probably see her doing lab inspections, testing autoclaves, doing wipe tests, or providing training. Her approach to safety is "try to tailor and fit people's needs". In her free time, she loves strength training, reading, & spending time with her cute son!