

Annual Lab Safety Refresher

Yale Environmental Health & Safety
October 2024

General Lab Safety Tips

- Work carefully and avoid personal contamination and spills
- Wear appropriate PPE (wear personal clothing that fully covers your legs)
- Avoid touching your face
- Never reuse gloves
- Do not mouth pipet
- Keep long hair tied up while working in the lab
- Familiarize yourself with emergency equipment (e.g., [eyewash](#), fire extinguisher, gas shutoff valve) and emergency exit routes
- Let someone know if you are [working alone](#) in a lab
- Label all containers clearly with their content and know storage and disposal requirements
- Notify your PI of any exposures or spills, near-misses, or other incidents

Safety Documents You Should Be Aware Of

Lab-specific Standard Operating Procedures:

All labs must have site-specific protocols that incorporate safety. Please read, understand, and abide by them!

Pathogen Safety Data Sheets



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of Canada

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Safety Data Sheets for Chemicals

Yale

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Emergency Response Protocols

Yale University Incident Response Information	Procedure Following Blood/Body Fluid Exposure
Yale University Incident Response Information Police & Fire EHS Emergency 911 203-785-3355	Report exposure immediately. You may need immediate therapy.
Blood/Body Fluid Exposure All Campus Areas: Yale Health Center 55 Lock Street Employee Health, 2nd Floor Mon.–Fri., 8:00am–5:00pm 203-432-7978 Acute Care, 1st Floor, 24hrs/7 days a week 203-432-6123	If you are exposed to blood or body fluids by a needle-stick, cut or bite, OR splash to a mucous membrane surface (such as eyes, nose or mouth) OR contact with non-intact skin, do the following: 1. Punctures: Wash the affected area well with soap and water for 15 minutes. Splash to eyes, nose or mouth: Flush affected area in eyewash for 15 minutes. 2. Notify your supervisor, if available. 3. Call the Yale Health Center (see reverse side for location in your area) or have someone call to alert them of the incident. 4. Seek medical evaluation immediately (within 1 hour). After medical evaluation: Supervisor must complete Yale's 'Employee First Report of Injury' form. All forms are online at: http://www.yale.edu/hronline/workers-comp .
In Medical Area ONLY may select: YNHU Occupational Health Services (OHS) East Pavilion, 1st Room 40 (behind cafeteria) Mon.–Fri., excluding holidays 203-688-2462 7:30 AM – 4:00 PM YNHU Emergency Room After Hours 203-688-2222	
YNHUR and OHS will only provide initial evaluation and treatment. All University employees should receive follow up through Yale Employee Health.	

Basic Biosafety Work Practices

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BL2 Laboratory Practices

1. Keep laboratory door closed.
2. Post universal biohazard label on equipment where infectious agents are used/stored.
3. Allow only persons informed of the research to enter BL2 areas.
4. Keep animals not used in BL2 experiment out of the laboratory.
5. Do not smoke, eat, drink, or store food in BL2 areas.
6. Wear laboratory coats or gowns, gloves and safety glasses in the lab.
7. Do not mouth pipette. Use mechanical pipetting devices.
8. Use procedures that minimize aerosol formation.
9. Avoid using hypodermic needles.
10. Use biological safety cabinets to contain aerosol-producing equipment.
11. Remove personal protective equipment before leaving the laboratory.
12. Wash hands after completing experimental procedures and before leaving laboratory.
13. Disinfect work surfaces daily and immediately after a spill.
14. Decontaminate all biological wastes before discard. Decontaminate other contaminated materials before washing, reuse, or discard.
15. For off-site decontamination, package contaminated materials in closed, durable, leakproof containers.
16. Control insect and rodent infestations.
17. Keep areas neat and clean.

Rev. 10/12

Universal Spill Precautions

UNIVERSAL PRECAUTIONS SPILL RESPONSE GUIDE

Prepare and maintain a spill response kit. Basic equipment is some concentrated disinfectant (chlorine bleach), a package of paper towels, household rubber gloves, biohazard bags, and forceps to pick up broken glass. The contents of the kit can be kept in a small sharps container or plastic container.

Biosafety Level 2 (BL2) Spill

1. Avoid inhaling airborne material, while quickly leaving the room. Notify others to leave. Close door, and post with a warning sign.
2. Remove contaminated clothing, turn exposed areas inward, and place in a biohazard bag.
3. Wash all exposed skin with disinfectant.
4. Inform Supervisor, and, if assistance is needed, consult OHS Biosafety (785-3550).

Clean-up of BL2 Spill:

1. Allow aerosols to disperse for at least 30 minutes before reentering the laboratory. Assemble clean-up materials (disinfectant, paper towels, biohazard bags, and forceps).
2. Put on protective clothing (lab coat or gown, face protection, utility gloves, and booties if necessary). Depending on the nature of the spill, it may be advisable to wear a HEPA filtered respirator instead of a surgical mask.
3. Cover the area with disinfectant-soaked towels, and then carefully pour disinfectant around the spill. Avoid enlarging the contaminated area. Use more concentrated disinfectant as it is diluted by the spill. Allow at least a 20 minute contact time.
4. Handle any sharps objects with forceps and discard in a sharps container. Wipe surrounding areas (where the spill may have splashed) with disinfectant.
5. Soak up the disinfectant and spill and place the materials into a biohazard bag.
6. Spray the area with 10% household bleach solution and allow to air-dry (or wipe down with disinfectant-soaked towels after a 10 minute contact time). Place all contaminated paper towels and any contaminated protective clothing into a biohazard bag and autoclave. Wash hands and exposed skin areas with disinfectant or antiseptic soap and water.

Blood Spills (For blood or other material with a high organic content and low concentration of infectious microorganisms)

1. Wear gloves, eye protection, and a lab coat (or gown).
2. Absorb blood with paper towels or disinfectant-soaked paper towels and place in a biohazard bag. Collect any sharp objects with forceps or other mechanical device and place in a sharps container.
3. Using a detergent solution, clean the spill site of all visible blood.
4. Spray the spill site with 10% household bleach and allow to air-dry for 15 minutes.
5. After the 15-minute contact time, wipe the area down with disinfectant-soaked paper towels. Discard all disposable materials used to decontaminate the spill and any contaminated personal protective equipment into a biohazard bag. Decontaminate any reusable items with disinfectant.
6. Wash your hands.

Yale Environmental Health & Safety

133 College Street, Suite 100 New Haven, CT 06510

T 203-785-8350 / F 203-785-7388 / www.yale.edu

Safety Documents You Should Be Aware Of

- [Researcher Verification Form](#)

Ensure every lab member has completed the Researcher Experience Form

Researcher Competence Verification Form

Researcher/Employee Name:	
Principal Investigator:	
Required Competency	Date Verified
Understands the potential hazards associated with the known and potential biohazardous materials handled in the laboratory	
Is knowledgeable of the routes of exposure for biohazards	
Is aware of the health conditions that increase susceptibility and increase biohazard risk to the individual	

- [Ordering Information for Safety Products](#)

Document includes plastic alternatives for glass Pasteur pipets and transport containers



- [Ordering Information for Safe Sharps Handling](#)

Document includes scalpel removal tools, retractable scalpel and cut resistant gloves



Number One Cause of Accidents in the Labs: Mishandling of Sharps

Never deviate from your lab-specific Standard Operating Procedures

In the lab (cell culture work):

- Avoid the use of sharps – replace any glass, such as glass Pasteur pipettes, with plastic alternatives

If sharps must be used with animals or with patients:

- Never recap, bend, break or otherwise manipulate a needle by hand
- Dispose of the intact needle and syringe immediately after use into sharps container located within arm's reach
- Use an engineering control or other device to remove scalpel blades (never do so by hand)
- Never allow sharps containers to overflow – seal and replace when 2/3 full
- Store any reusable sharps in plastic containers – never leave open sharps on the bench or other work surfaces
- If injured by a sharp, wash the wound with soap and water for 15 minutes, and contact your PI, EHS, and Employee Health

Review EHS [Sharps Injuries](#) for more information

SHARPS INJURY PREVENTION

- Never recap a needle
- Dispose of sharps immediately after use
- Use safe alternatives, if possible

Work Practices



Safe Alternatives



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General Animal Handling Tips

Before working with animals, staff must be:

- [Added](#) to an IACUC protocol
- Have completed medical surveillance requirements
- Receive appropriate training from OARS or senior staff member

Reminders:

- Never recap needles, ensure sharps containers are not overfilled, use proper restraint
- Ensure cage lids are properly secured when not in use
- Ensure animals have access to food and water
- Ensure that records are maintained when required (e.g., surgery, lab housing)

Helpful Links:

[IACUC policies](#)

[Guide for the care and use of animals](#)

Contact IACUC: IACUC@yale.edu

Other Common Accidents in Labs: Spills

- Always keep chemical containers closed when not in use
- Never store hazardous liquid chemicals above eye level (5 feet)
- Store materials away from areas where they can fall or be knocked over
- Check the integrity of the container/centrifuge bucket etc. prior to use
- Utilize transport containers as secondary containment for biohazards and chemical transport carriers
- Call EHS if you are not sure about the spill cleanup protocols for your hazards
- If contaminated during a spill, remove any contaminated clothing and PPE and discard appropriately
- In the event of a biohazard spill, evacuate the lab for 30 minutes, then follow [EHS Spill Response](#) procedures

Non-Compliance and Consequences

Examples of non-compliance issues found during inspections:

- *Propped open fire-rated lab doors*
- *Inappropriate attire (shorts, open-toed shoes, missing safety glasses or other PPE)*
- *Food, drinks, or plants in lab spaces*
- *Not properly securing gas cylinders*
- *PPE worn outside of lab (e.g., gloves on door handles)*
- *Research conducted in non-lab areas*
- *Work without proper secondary containment*

Consequences can include:

- Exposure, infections, medical follow up, medical leave, hospitalizations, etc.
- Secondary infections to those outside the laboratory (Risk Group 2 pathogens have caused fatal infections in family members)
- Loss of work, home quarantine, and/or isolation
- Low morale, bad press, and/or regulatory scrutiny
- Forced changes in lab SOPs
- Lab penalties may include regulatory reports, research cessation, fines, negative press, and/or impact to funding to the University

Reporting Requirements

Reportable to OSHA:

- All work-related fatalities, and any severe injuries that result in in-patient hospitalization, amputation, heart attack, or the loss of an eye. The reporting window time frames are 8-hours for fatalities, and 24-hours for severe injuries.
- See [Yale's accident reporting instructions](#)

Reportable to NIH OSP:

- Any spills, accidents, or other incidents that result in breach of containment, environmental release or exposures to viruses, cells or organisms ***containing recombinant or synthetic nucleic acid molecules***
- Violation of NIH Guidelines (e.g., working without approved registration from Yale's committees)

Reportable to CDC:

- Violation of Select Agent Toxins regulations (e.g., exceeds quantity on hand)
- Theft, loss, or release including any spills, accidents, or exposures of Select Agent Pathogens

OF NOTE:

In all these cases, EHS is the designated reporter on behalf of the PI.

Questions?



Please contact your Safety Advisor for any questions or call EHS at (203) 785-3550

More information can be found at:

[EHS Website](#)

[Past EHS Newsletters](#)