

CHAPTER VI: EMERGENCY PLANS AND REPORTING

No matter how carefully one works, laboratory accidents occur and may necessitate emergency response. Emergency plans should be tailored for a given biohazardous situation. The laboratory supervisor should prepare instructions specifying immediate steps to be taken. These instructions should be displayed prominently in the laboratory and periodically reviewed with personnel. No single plan will apply to all situations but the following general principles should be considered:

A. INFECTIOUS AGENT SPILL RESPONSE

It is the policy of the University of Chicago (UC) that spills of potentially infectious materials shall immediately be contained and cleaned up by employees **properly trained and equipped** to work with potentially infectious materials. Ultimately, the goal of cleaning up any spill of infectious agent or potentially infectious agent is to ensure the safety of the researcher/clinician and those around him/her. When cleaning up a spill, there are several important points that all researchers/clinicians should keep in mind:

- Many, but not all, pathogenic agents carry a risk of exposure by inhalation. Droplets are large and settle with gravity and can be easily cleaned. Aerosols are small and must be removed by the building's ventilation system. If the pathogen involved in the spill carries a risk of exposure via the aerosol route, *immediately* leave the area for 30 minutes to allow droplets to settle and aerosols to be removed.
- In order to ensure the safety of the researchers and anyone in the vicinity, it is important to contain the spill. If possible, paper towels should be used to cover the spill and contain the agent *prior* to leaving the room.
- A solution of 10% household bleach (1:10 dilution) is recommended for cleaning up any spill regardless of the otherwise approved chemical disinfectant.
- *The goal of any spill clean up is the safety of the researcher and those in the vicinity.* With that in mind, below is the recommended protocol for cleaning up a known or potentially infectious agent.

Any investigator working with microorganisms known to be infectious, or potentially infectious, to humans, animals or plants should be trained and equipped to deal with spills.

Examples of infectious/potentially infectious materials include:

1. Microbiological cultures derived from clinical specimens or pathogenic microorganisms and laboratory equipment that have come into contact with such cultures.
2. Tissues, bulk blood, and body fluids from humans and non-human primates.

3. Tissues, bulk blood or body fluids from an animal that is carrying an infectious agent that can be transmitted to humans.
4. Contaminated sharps.

In any emergency situation, attention to immediate personal danger overrides containment considerations. Currently, there is no known biohazard on the University of Chicago campus that would prohibit properly garbed and masked fire or security personnel from entering any biological laboratory in an emergency.

Well-prepared staff can appropriately manage the majority of spills. One exception to this general rule is a spill of a significant volume outside of a biological safety cabinet (significance varies depending on the nature of the biohazard, but for purposes of this discussion, we define this to include cultures in excess of one liter in volume). For spills of this nature, please follow the **Incident Notification** procedure described at the end of this response protocol.

<p style="text-align: center;">BIOHAZARDOUS SPILL INSIDE A BIOLOGICAL SAFETY CABINET (BSC)</p>
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1. Immediately stop all work but leave the BSC blower fan on during cleanup.
2. The operator should be wearing gloves and a lab coat throughout the cleanup procedure. Cover spill with paper towels and carefully pour appropriate disinfectant* solution on to the spill-soaked paper towels.
3. With paper towels and the disinfectant, wipe down the walls and work-surface of the BSC and any equipment within the BSC that may have been contaminated.
4. Spray down the work surface with disinfectant. Examine the drain pan (for Type II BSCs) and flood the drain pan with disinfectant solution if the spill has contaminated the drain pan. Allow the disinfectant to stand at least 10 minutes.
5. If bleach or other chlorine-based disinfectant was used, wipe up excess disinfectant and spray work surface and BSC walls with 70% alcohol to remove residual disinfectant as bleach can be corrosive.
6. Autoclave all contaminated waste.
7. Wash hands with soap and water.

*For most spills, the best disinfectant is a 1:10 solution of household bleach, made fresh weekly. Please consult the Office of Biological Safety if you have questions about the best disinfectant for your agent.

<p style="text-align: center;">SMALL BIOHAZARDOUS SPILL OUTSIDE A BIOLOGICAL SAFETY CABINET (BSC)</p>
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1. Immediately stop all work and notify workers in the immediate area about the spill. If possible, place paper towels on the spill to contain it prior to leaving the area.
2. If necessary, remove contaminated clothing and place into a biohazard bag, wash all contaminated body parts, and flush exposed mucous membranes with water or physiological saline solution.
3. Put on gloves and appropriate personal protective equipment (PPE): protective eyewear, lab coat, mask or face shield (if splashing is likely) before starting the spill clean-up.
4. Remove any broken glass or sharp objects from the spill using mechanical means – forceps, hemostats, needle-nose pliers, broom and dust pan. **NEVER REMOVE SHARPS/BROKEN GLASS BY HAND!**
5. Contain the spill by covering with paper towels and carefully pour appropriate disinfectant solution** around and on the spill area. Take care not to splash disinfectant solution or create aerosols while pouring.
6. Remove the paper towels and repeat the process until all visible contamination is removed. Re-wet cleaned area with disinfectant and air dry or let stand for 10 minutes before wiping dry.
7. Place all contaminated paper towels into a biohazard (“red”) bag or an autoclave bag for appropriate disposal (autoclaving or off-site disposal).
8. Remove all PPE and immediately wash hands.

**For most spills, the best disinfectant is a 1:10 solution of household bleach, made fresh weekly. Please consult the Office of Biological Safety if you have questions about the best disinfectant for your agent.

**LARGE BIOHAZARDOUS SPILL (UP TO ONE LITER IN VOLUME)
OUTSIDE A BIOLOGICAL SAFETY CABINET (BSC)**

1. **Alert co-workers, cover spill with paper towels (to prevent spill from migrating) and leave the lab area immediately.**
2. If applicable, close lab door and post lab with “**DO NOT ENTER**” sign.
3. If necessary, remove contaminated clothing and place into a biohazard bag, wash all contaminated body parts, and flush exposed mucous membranes with water or physiological saline solution.
4. Notify supervisor. If necessary, contact the Office of Biological Safety (4-6756, 4-7496, 4-2707) for additional guidance or assistance.
5. **Wait at least 20 minutes prior to re-entry (to allow aerosols to dissipate).**
6. Upon re-entry, don appropriate personal protective equipment (PPE), i.e. lab coat, gloves and mucous membrane protection (safety glasses and/or face mask, gloves).
7. Carefully pour an appropriate disinfectant solution* onto the towel-soaked spill; care should be taken to minimize splashing. **LET STAND FOR AT LEAST 10 MINUTES.**
8. If broken glass or sharp objects are present, handle with tongs, forceps, brush and dustpan, or other mechanical means. Place broken glass in sharps container. Do not use your hands!
9. Wipe up spill/excess disinfectant working from the outside of the spill toward the center and place paper towels and other contaminated waste into biohazard bag. Spray contaminated surface again with disinfectant and wipe down. Finally, spray area with 70% alcohol and wipe up to remove residual disinfectant.
10. Transfer all contaminated waste into an autoclave bag.
11. Wash and mop the entire area around the spill using an appropriate disinfectant.
12. Remove and discard PPE into an autoclave bag and autoclave waste.
13. Shower or wash hands with soap and water.

*For most spills, the best disinfectant is a 1:10 solution of household bleach, made fresh weekly. Please consult the Office of Biological Safety if you have questions about the best disinfectant for your agent.

SMALL LABORATORY EQUIPMENT

Liquid spills on small laboratory equipment shall be contained as follows:

1. Don appropriate PPE (lab coat, gloves, mucous membrane protection)
2. Drain excess liquid with paper towels
3. Immerse the contaminated equipment in a 10% bleach solution (made fresh weekly) and allow 10 minutes contact time
4. Remove equipment from the decontaminant, blot off excess liquid with paper towels
5. Spray with a 70% alcohol solution, wipe clean to remove potentially corrosive bleach residue
6. Dispose of paper towels and gloves as biohazard waste; and
7. Wash hands with soap and water.

LARGE LABORATORY EQUIPMENT

Liquid spills on large laboratory equipment (e.g., centrifuge, incubator, autoclave) shall be contained as follows:

1. Drain excess liquid with paper towels
2. Spray the contaminated equipment in a 10% bleach solution (made fresh weekly) including area surrounding the spill
3. Allow to 10 minutes contact time
4. Wipe with paper towels
5. Spray with a 70% ethanol/isopropyl alcohol solution, wipe clean
6. Dispose of paper towels and gloves as biohazard waste; and
7. Wash hands with soap and water.

Do NOT attempt to clean up a spill if any of the following conditions apply:

- If the spill is an unknown agent;
- The quantity spilled is greater than one liter (1L).

If you are UNABLE to deal with the spill, adhere to the following steps.

Incident Notification

1. Immediately upon discovery of an emergency incident related to the release of an infectious agent, notify the University of Chicago Police Department at extension **123** from a campus phone or **773-702-8181** to report the incident in campus buildings or Public Safety at **773-702-6262** for the Medical Center.
2. Evacuate the area and post lab with “**DO NOT ENTER**” sign.
3. The University Police shall immediately notify the “On-Call” Safety Officer.

Site Control

1. The site shall be controlled and maintained by the University of Chicago Police Department and/or Chicago Police Department personnel.
2. If the Police are not on site, the first arriving Safety Officer shall control access or appoint someone to control access until their arrival.
3. No one will be allowed to enter the area unless authorized.

For detailed information, refer to the [Emergency Response Plan for Hazardous Materials](#) or [Potentially Infectious Waste](#) policy.

B. EXPOSURE PROTOCOLS

Determine the necessity and extent of medical treatment for persons exposed to infectious microorganisms. Personnel accidentally exposed via ingestion, skin puncture, or obvious inhalation of an infectious agent should be given appropriate first aid and, if necessary, transported to the University Hospital emergency room. For exposures to the eyes or mucous membranes, the exposed area should be flushed with running water for a minimum of 15 minutes. UC Occupational Medicine (UCOM) should be notified.

If after hours, the Infectious Diseases/BBP Hotline should be contacted (**773-753-1880, enter pager number 9990, followed by #**). **From a campus phone, 1) dial 188#; 2) at tone, dial 9990#; 3) at the tone, enter your callback number followed by the pound sign and hang up.** After contacting UCOM or the Hotline, your supervisor or principal investigator should be notified. Finally, someone from your group should notify the Office of Biological Safety.

C. REPORTING

The importance of reporting accidental spills or exposure events is obvious. Not only is this important in terms of personal health, but it is also important for the health of our coworkers, the research community, and the general public.

The secure and responsible conduct of life sciences research depends, in part, on observation and reporting by peers, supervisors, and subordinates. Individuals working with potentially infectious material and/or molecular recombinant or synthetic DNA constructs with either direct or indirect, acute or latent disease potential (e.g., insertional mutagenesis due to exposure to a viral vector) must understand and acknowledge their responsibility to report activities that are inconsistent with a culture of responsibility or are otherwise troubling. Likewise, institutional and laboratory leadership must acknowledge their responsibility to respond to reports of concerning behavior and undertake actions to prevent retaliation stemming from such reports.

The University of Chicago Office of Risk Management has established a program to enable the anonymous reporting of troubling behavior. Information about this program can be found at: <http://humanresources.uchicago.edu/fpg/policies/100/p103.shtml>
In addition, reports can be provided to UC at the Whistleblower hotline: 1-800-971-4317.

Reports of concerning behavior within the lab can also be reported to the Office of Biological Safety, the Department of Environmental Health and Safety, and the Institutional Biosafety Committee. Please see Chapter II and Appendix 2 of this manual for additional information on reporting concerning behavior in the laboratory.