

BSL-2 Emergency Plan

Spills

General Spill Cleanup Guidelines:

- Know how to get the HVAC unit servicing the lab space shut down in order to limit the spread of contamination.
- Wear gloves and lab coat.
- Use forceps to pick up broken glass and discard into sharps container.
- Cover spilled material with paper towels.
- Add diluted disinfectant in sufficient quantity to ensure effective microbial inactivation.
- Allow a 30-minute contact for disinfection.
- Dispose of towels in biohazard waste container.
- Wipe spill area with diluted disinfectant.
- Wash hands with soap and water when finished.

Spill of BSL2 material:

- Keep other workers out of the area to prevent spreading spilled material.
- Post warning sign, if needed.
- Remove contaminated clothing and put into a biohazard bag for decontamination later.
- Wash hands and exposed skin and inform the PI of the spill. Call the Biological Safety Officer at 742-3876 for assistance, if necessary.
- Put on protective clothing (lab coat, gloves and if needed, face protection and shoe covers) and assemble clean-up materials (disinfectant, autoclavable container or bag, forceps, sharps container, and paper towels).
- Pick up broken glass with forceps and dispose into sharps container.
- Cover the spill with paper towels and add appropriately diluted disinfectant.
- After at least 30 minutes contact time, pick up the paper towels and re-wipe the spill area with diluted disinfectant.
- Collect all contaminated materials into biohazard waste container and autoclave.
- Wash hands with soap and water.

Spill in a Biological Safety Cabinet:

- Leave the cabinet turned on.
- Wearing gloves and lab coat, spray or wipe cabinet walls, work surfaces, and equipment with disinfectant such as 70% ethanol. If necessary, flood work surfaces, as well as drain pans and catch basins below the work surface, with disinfectant. Allow 30 minutes contact time.
- Soak up the disinfectant and spill with paper towels, and drain catch basin into a container. Lift front exhaust grille and tray, and wipe all surfaces.
- Ensure that no paper towels or solid debris are blown into area below the grille.

- Surface disinfect all items that may have been spattered before removing them from the cabinet.
- Discard all clean-up materials into biohazard waste container. Wash hands and exposed skin areas with soap and water.
- The Biosafety Officer should be notified if the spill overflows into the interior of the cabinet. It may be necessary to do a more extensive decontamination of the cabinet.

Fire

Fire in Building or BSL-2 room

- Without placing yourself in danger, put biological materials or hazardous material you may be working with in a secure location, such as an incubator or freezer.
- Activate the building fire alarm.
- Leave the building at once.
- Call the fire department from a safe location.
- Meet the fire department outside and direct them to the fire.

Decontamination and Disposal

Decontamination

Sterilization, disinfection, and antisepsis are all forms of decontamination. Sterilization implies the killing of all living organisms. Disinfection refers to the use of antimicrobial agents on inanimate objects; its purpose is to destroy all non-spore-forming organisms. Antisepsis is the application of a liquid antimicrobial chemical to living tissue. Sterilize and/or disinfect all surfaces and tools before and after working in a Biosafety environment.

Biological Waste Disposal

All biological waste from BSL1, BSL2, BSL3, and BSL4 laboratories must be decontaminated prior to disposal. Decontamination and disposal are the responsibility of the person/laboratory generating the waste. Collect disposable, solid materials contaminated by an infectious agent, excluding sharps, into an autoclave bag within a sturdy container. When full, these bags are autoclaved, cooled, and then placed in the building's dumpster by laboratory staff. Decontaminate liquids containing a biological agent by the addition of a chemical disinfectant such as sodium hypochlorite (household bleach) or an iodophor, or by autoclaving, then dispose of by pouring down the sink. It is not necessary to autoclave liquids that have been chemically disinfected. However, if bleach has been used in the tray used to collect labware that will later be autoclaved, sodium thiosulfate must be added to the bleach to prevent the release of chlorine gas during autoclaving.

Use and Disposal of Sharps

- Avoid using needles whenever possible.
- Do not bend, break, or otherwise manipulate needles by hand.
- Do not recap needles by hand. Do not remove needles from syringes by hand.
- Discard needle and syringe as an intact unit immediately after use into puncture resistant sharps containers.
- Use care and caution when cleaning up after procedures that require the use of syringes and needles.
- Do not overfill sharps containers. Remove from service when 3/4 full, autoclave, and dispose of in accordance with University policy (University Operating Policy 60.10).
- Locate sharps containers in areas in which needles are commonly used. Make containers easily accessible.

In the event of a needle stick injury: Notify the PI and seek treatment, if needed.

Illness Or Injury Involving Biological Materials

For Severe Injuries:

Call 9911 or 911, as appropriate, for assistance and transportation to the nearest emergency room. Accompany the injured person to the medical facility and provide information to personnel about the accident/exposure. Report the accident to the PI and Environmental Health and Safety.

For Splash to the Eye:

Use an emergency eyewash to immediately flush the eye with a gentle stream of clean, temperate water for 15 minutes. Hold the eyelid open. Be careful not to wash the contaminant into the other eye.

Contact the most convenient local emergency room to obtain care. Report the accident to the PI and Environmental Health and Safety, and seek additional medical assistance if necessary.

For Contamination to the Body:

Immediately remove contaminated clothing and drench skin with water. Wash with soap and water, and flush the area for 15 minutes. Contact the most convenient local emergency room to obtain care.

Report the injury to the PI and to the Environmental Health and Safety, and seek additional medical assistance if necessary.

Following standard and special practices, safety equipment, and facilities apply to agents assigned to Biosafety Level 2:

A. Standard Microbiological Practices

1. Access to the laboratory is limited or restricted at the discretion of the laboratory director when experiments are in progress.
2. Persons wash their hands after they handle viable materials, after removing gloves, and before leaving the laboratory.
3. Eating, drinking, smoking, handling contact lenses, and applying cosmetics are not permitted in the work areas. Food is stored outside the work area in cabinets or refrigerators designated for this purpose only.
4. Mouth pipetting is prohibited; mechanical pipetting devices are used.
5. Policies for the safe handling of sharps are instituted.
6. All procedures are performed carefully to minimize the creation of splashes or aerosols.
7. Work surfaces are decontaminated on completion of work or at the end of the day and after any spill or splash of viable material with disinfectants that are effective against the agents of concern.
8. All cultures, stocks, and other regulated wastes are decontaminated before disposal by an approved decontamination method such as autoclaving. Materials to be decontaminated outside of the immediate laboratory are placed in a durable, leak-proof container and closed for transport from the laboratory. Materials to be decontaminated off-site from the facility are packaged in accordance with applicable local, state, and federal regulations, before removal from the facility.
9. An insect and rodent control program is in effect.

B. Special Practices

1. Access to the laboratory is limited or restricted by the laboratory director when work with infectious agents is in progress. In general, persons who are at increased risk of acquiring infection, or for whom infection may have serious consequences, are not allowed in the laboratory or animal rooms. For example, persons who are immunocompromised or immunosuppressed may be at increased risk of acquiring infections. The laboratory director has the final responsibility for assessing each circumstance and determining who may enter or work in the laboratory or animal room.

2. The laboratory director establishes policies and procedures whereby only persons who have been advised of the potential hazards and meet specific entry requirements (e.g., immunization) may enter the laboratory.
3. A biohazard sign must be posted on the entrance to the laboratory when etiologic agents are in use. Appropriate information to be posted includes the agent(s) in use, the biosafety level, the required immunizations, the investigator's name and telephone number, any personal protective equipment that must be worn in the laboratory, and any procedures required for exiting the laboratory.
4. Laboratory personnel receive appropriate immunizations or tests for the agents handled or potentially present in the laboratory (e.g., hepatitis B vaccine or TB skin testing).
5. When appropriate, considering the agent(s) handled, baseline serum samples for laboratory and other at-risk personnel are collected and stored. Additional serum specimens may be collected periodically, depending on the agents handled or the function of the facility.
6. Biosafety procedures are incorporated into standard operating procedures or in a biosafety manual adopted or prepared specifically for the laboratory by the laboratory director. Personnel are advised of special hazards and are required to read and follow instructions on practices and procedures.
7. The laboratory director ensures that laboratory and support personnel receive appropriate training on the potential hazards associated with the work involved, the necessary precautions to prevent exposures, and the exposure evaluation procedures. Personnel receive annual updates or additional training as necessary for procedural or policy changes.
8. A high degree of precaution must always be taken with any contaminated sharp items, including needles and syringes, slides, pipettes, capillary tubes, and scalpels.
 - a. Needles and syringes or other sharp instruments should be restricted in the laboratory for use only when there is no alternative, such as parenteral injection, phlebotomy, or aspiration of fluids from laboratory animals and diaphragm bottles. Plasticware should be substituted for glassware whenever possible.
 - b. Used disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal; rather, they must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal. Non-disposable sharps must be placed in a hard-walled container for transport to a processing area for decontamination, preferably by autoclaving.
 - c. Syringes which re-sheath the needle, needleless systems, and other safety devices are used when appropriate.

d. Broken glassware must not be handled directly by hand, but must be removed by mechanical means such as a brush and dustpan, tongs, or forceps. Containers of contaminated needles, sharp equipment, and broken glass are decontaminated before disposal, according to any local, state, or federal regulations.

9. Cultures, tissues, specimens of body fluids, or potentially infectious wastes are placed in a container with a cover that prevents leakage during collection, handling, processing, storage, transport, or shipping.

10. Laboratory equipment and work surfaces should be decontaminated with an effective disinfectant on a routine basis, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination by infectious materials. Contaminated equipment must be decontaminated according to any local, state, or federal regulations before it is sent for repair or maintenance or packaged for transport in accordance with applicable local, state, or federal regulations, before removal from the facility.

11. Spills and accidents that result in overt exposures to infectious materials are immediately reported to the laboratory director. Medical evaluation, surveillance, and treatment are provided as appropriate and written records are maintained.

12. Animals not involved in the work being performed are not permitted in the lab.