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**Geneseo Biosafety Spill Response Guide**

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Note: this guide has been modified from the guide at Yale University

This guide outlines the basic procedures for dealing with some of the biological spills that may be encountered in a research laboratory. All lab personnel should refer to the relevant spill response procedures before initiating their experiments.

**Composition of a Basic Spill Kit**

Microbiological and biomedical research laboratories should prepare and maintain a biological spill kit. A spill kit is an essential safety item for labs working with microbiological agents classified at Biosafety Level 2 or higher and for groups working with large volumes (> 1 liter) of Biosafety Level 1 material. The spill kit is contained in a 5 gallon bucket. In an emergency the buket can be used to make up the working solution of microbioside. There must be a source of concentrated bleach and/or Virex available. The following items should be included in the spill kit:

* Forceps, autoclavable or disposible broom and dust pan, or other mechanical device for handling sharps
* Paper towels or other suitable absorbent
* Biohazard bags for the collection of contaminated spill clean-up items
* Utility gloves and medical examination gloves
* Face protection (eye wear and mask, or full face shield)

Household bleach and Virex microbioside are recommended as a standard disinfectants. Other disinfectants may be used provided the disinfectant is effective against the agents in use at the appropriate dilutions and contact time. Both Virex and bleach are registered with the Environmental Protection Agency as tuberculocidal for compliance with the Occupational Health and Safety Administration Bloodborne Pathogens Standard.

Both virex and bleach are effective for decontamination. If possible the Virex is preferred for contact with the biosafety cabinent, centrifuge buckets and rotors or other equipment because it is less damaging to the equipment. However, bleach can be used if it is extensively washed with water after the a 10-30 minute decontamination time.

Please contact your lab head, Chair or Vice-chair of Geneseo’s Institutinal Biosafety Committee, Environmental Health and Safety or the Student Health center for more information. Contact information is supplied below.

**Exposure Incident**

Report exposure immediately; you may need immediate therapy.

* Needlesticks/puncture wounds:

Wash the affected area with antiseptic soap and warm water for 15 minutes

* Mucous membrane exposure:

Flush the affected area for 15 minutes using an eyewash.

For all exposure incidents:

* Notify Principal Investigator, manager or supervisor (if available) to initiate accident or exposure incident report.
* Seek medical assistance immediately (within 1-2 hours).

All employees should receive follow up care.

**Biosafety Level 1 (BL1) Spill**

* Notify others in the area, to prevent contamination of additional personnel and environment.
* Remove any contaminated clothing and wash exposed skin with soap and water.
* Wearing gloves, lab coat, and face protection, cover spill with paper towels, pour concentrated disinfectant around the spill allowing it to mix with spilled material. Allow suitable contact time, at least 15 min.
* Pick up any pieces of broken glass with forceps and place in a sharps container.
* Discard all disposable materials used to clean up the spill into a biohazard bag.
* Wash hands with soap and water.

**Biosafety Level 2 (BL2) Spill**

* Avoid inhaling airborne material, while quickly leaving the room. Notify others to leave. Close door, and post with a warning sign.
* Remove contaminated clothing, turning exposed areas inward, and place in a biohazard bag.
* Wash all exposed skin with soap and water.
* Inform Supervisor.

**Clean-up of BL2 Spill**

* Allow aerosols to disperse for at least 30 minutes before reentering the laboratory. Assemble clean-up materials (disinfectant, paper towels, biohazard bags, and forceps).
* Put on protective clothing (lab coat, face protection, utility gloves, and booties if necessary).
* 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.
* Pick up any sharp objects with forceps and discard in a sharps container. Soak up the disinfectant and spill using mechanical means, such as an disposible or autoclavable broom and dustpan, since there may be sharps under the paper towels, and place the materials into a sharps container. Smaller pieces of glass may be collected with cotton or paper towels held with forceps. If no sharps were involved in the spill discard the materials into an autoclave bag.
* Wipe surrounding areas (where the spill may have splashed) with disinfectant.
* Spray the area with the diluted disinfectant and allow to air-dry (or wipe down with disinfectant-soaked towels after a 15-minute contact time). Place all contaminated paper towels and any contaminated protective clothing into a biohazard bag.
* Wash hands and exposed skin areas with soap and water before leaving the lab.

**Blood or BSL-2 Tissue Culture Spills**

For blood or other material with a high organic content and low concentration of infectious microorganisms:

* Wear gloves, eye protection, and a lab coat.
* Absorb blood with paper towels and place in a biohazard bag. Collect any sharp objects with forceps or other mechanical device and place in a sharps container.
* Using a detergent solution, clean the spill site of all visible blood.
* Spray the spill site with diluted disinfectant and allow to air-dry for 15 minutes.
* 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.
* Wash your hands with soap and water.

**Spill in a Biological Safety Cabinet**

* Leave the biological safety cabinet blower on and begin cleanup immediately.
* While wearing PPE (gloves and gown) cover the spill area with paper towels or disinfectant soaked paper towels. Do not place your head in the cabinet to clean the spill, keep your face behind the viewscreen.
* If necessary, flood the work surface as well as the drain pans and catch basins below the work surface, with disinfectant. Be sure the drain valve is closed before flooding the area under the work surface.
* Wipe cabinet walls, work surfaces, and inside the viewscreen with disinfectant.
* Lift the front exhaust grill and work surface; wipe all surfaces with disinfectant. Be sure no paper towels or soiled debris are blown into the area under the spill tray
* If the work surface, as well as drain pans and catch basins under the work surface, have been flooded with disinfectant soak up the disinfectant in the work surface. Place a container under the drain valve and drain the disinfectant under the work surface into the container. Wipe the areas under the work surface to remove residual disinfectant.
* Wash hands and exposed skin with soap and water.
* Autoclave all cleanup materials and protective clothing.

Notify your PI or supervisor.

If the spill overflows the drain pan/catch basin under the work surface into the interior of the biological safety cabinet notify your supervisor immediately, and put a sign on the cabinet warning other potential investigators not to use the cabinet. A more extensive decontamination of the biological safety cabinet may be required.

**Centrifuge Spill**

* Always use sealed safety buckets or sealed rotors with 0-rings. Examine 0-ring and replace if worn, cracking or missing. Check tubes and bottles for cracks and deformities before each use.
* Wait five minutes before opening the centrifuge following the end of a run with potentially hazardous biological material. If a spill is identified after the centrifuge lid is opened, carefully close the lid and evacuate the laboratory and close the laboratory door. Remain out of the laboratory for at least 30 minutes. Post a sign on the laboratory door indicating there is a biohazard spill and do not enter.
* Remove any contaminated protective clothing and place into a biohazard bag. Wash hands and any exposed skin surfaces with soap and water.
* Notify your supervisor.

After 30 minutes

* Enter the lab with personal protective equipment and spill cleanup materials. Full-face protection, lab coat and utility gloves should be worn.
* Transfer rotors and buckets to a biological safety cabinet. Immerse rotor/buckets in diluted virex solution. Allow at least a one hour contact time. Intact tubes may be wiped down and placed into a new container. Handle any broken glass with forceps and discard into a sharps container.
* Carefully retrieve any broken glass from inside the centrifuge using forceps and discard into a sharps container. Smaller pieces of glass may be collected with cotton or paper towels held with forceps. Carefully wipe the inside of the centrifuge with disinfectant. Spray the inside of the centrifuge with disinfectant and allow to air dry.
* Place contaminated items and disposable personal protective equipment in an autoclave bag and autoclave.
* Wash hands with soap and water.

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