

CHAPTER 16

CLEAN-UP OF BIOHAZARDOUS SPILLS

Spills created by dropping culture flasks and Petri dishes in the open laboratory can result in a significant release of aerosols and an overt exposure of personnel to biohazardous agents. Spills confined to the interior of the biological safety cabinet may cause less of an immediate problem if the cabinet ventilation system is operating properly and splattering to the outside of the cabinet does not occur. Laboratory personnel should be thoroughly familiar with emergency and decontamination procedures so that the extent and possible effects of exposure to hazardous agents are minimized.

Biohazardous Spills in an Open Laboratory

Immediate Actions

1. Get everyone out of the affected area, closing the door and warning others not to enter the contaminated area.
2. Notify the Principal Investigator and the Health and Safety Office (962-5507).
3. Remove and containerize contaminated garments for autoclaving and thoroughly wash hands and face, or shower if available.
4. Determine the necessity for prophylactic treatment or other medical attention for persons exposed to the potentially hazardous materials.

Decontamination Procedures

1. Wait 30 minutes to allow dissipation of aerosols created by the spill.
2. A "Spill Kit" should be available and should include leakproof containers and autoclavable bags, forceps, paper towels, sponges, disinfectant, respirators, and rubber gloves. A UV lamp may be helpful in emergency situations.
3. Protective clothing should be worn when entering the laboratory to clean the spill area. Rubber gloves, autoclavable footwear, an outer garment, and a respirator should be worn. For spills on the floor, a gown that may trail the floor when bending down should not be worn.
4. Pour a germicidal solution (10% Wescodyne in 50% ethanol or 5% Hypochlorite are recommended) around the spill and allow to flow into the spill. Paper towels soaked with the germicide may be used to cover the area. To minimize reaerosolization, avoid pouring the

germicidal solution directly onto the spill.

5. Let stand 20 minutes to allow adequate disinfectant contact time.
6. Using an autoclavable dust pan and squeegee, transfer contaminated materials (paper towels, glass, liquid, gloves, etc.) into a deep autoclave pan. Cover the pan with aluminum foil or other suitable cover and autoclave according to standard directions.
7. The dust pan and squeegee should be placed in an autoclavable bag and autoclaved according to standard directions.
8. Remove protective clothing and sterilize by autoclaving.

Biohazardous Spill in a Class II Biological Safety Cabinet

1. If splash has occurred outside the cabinet resulting in personnel exposure to hazardous material, the Principal Investigator and the Health and Safety Office should be notified and the need for prophylactic treatment or other medical attention determined.
2. Contaminated clothing should be removed and containerized for autoclaving.
3. Thoroughly wash hands and face, if exposure has occurred.
4. Chemical decontamination procedures should be initiated at once while the cabinet continues to operate to prevent escape of contaminants from the cabinet.
5. Operator should wear gloves and laboratory coat during this procedure.
6. Spray or wipe walls, work surfaces, and equipment with an appropriate disinfectant detergent.
7. Flood top tray, drain pans, and catch basin below work surfaces with disinfectant and allow to stand 20 minutes.
8. Dump excess disinfectant from tray and drain pans into cabinet base.
9. Lift out tray and removable exhaust grille work. Wipe off top and bottom (underside) surfaces with disinfectant sponge or cloth. Replace in position.
10. Gloves, cloth or sponge should be discarded in an autoclave pan and autoclaved.
11. Drain disinfectant from cabinet base into an appropriate container and autoclave according to standard procedures.
12. This procedure does not decontaminate the interior parts of the cabinet such as the filters, blowers, and air ducts. If the entire cabinet is to be decontaminated with formaldehyde gas,

contact the Health and Safety Office (962-5507).

Radioactive - Biohazardous Spill

1. The immediate actions are the same as for a biohazardous spill.
2. The decontamination procedure can proceed in a manner similar to a biohazard spill depending on an evaluation of the risk assessment of relative biological and radiological hazard.
3. The Radiation Safety Officer should determine whether the contaminated material should be autoclaved or chemically disinfected.
4. The inactivated materials should then be handled as radioactive waste.
5. A final radioactive survey should be made of the spill area, clean-up tools, and contaminated clothing with a Geiger counter, or a smear should be taken and counted in a liquid scintillation counter. Twice (2X) background count indicates the need for further decontamination.