Large spill of BSL-1 material outside a biological safety cabinet (>500 ml)

- GET HELP!
- The methods are the same as for small BSL-1 spills, only on a larger scale.

Summary of Disinfectants and Their Uses

Disinfectant	Dilution**	Effective On:	Ineffective On:	Comments
Phenolics: *e.g.* Lysol™*	1/20 (5%)	Bacteria, Most Viruses, TB, HIV	Spores, Polio, Coxsackie Viruses.	Relatively insensitive to high protein concentrations. Corrosive.
Chlorine Bleaches: *e.g.* Clorox™*	1/10 (10%)	Bacteria, Some Spores, Viruses, TB†, HIV	Some Spores	Prepare once a week. It takes ~20 minutes to disinfect. Corrosive.
Iodophors: *e.g.* Wescodyne™ *	1/100 (1%)	Bacteria, Most Viruses, TB	Spores	A surface disinfectant. Iodine is insoluble, so it's not good in solutions. Corrosive.
Alcohols (Ethanol, Isopropanol	70%	Bacteria, Most Viruses	Spores, TB	100% alcohol is a preservative!! Flammable.

* The use of brand names does not imply a recommendation.
** Concentration of named brands.
† Use 1/5 dilution

TRAINING

For additional information regarding biosafety at UNH or to request BSL-1 training, please contact EHS at 862-4041.

RESOURCES

University of New Hampshire Institutional Biosafety Committee
Perpetuity Hall, 11 Leavitt Lane
Durham, NH 03824
603.862.4041 (Telephone)
603.862.0047 (Facsimile)

http://www.unh.edu/ehs

Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30333
404.639.3534 (Telephone)
800.311.3435 (Toll-Free)

http://www.cdc.gov

National Institutes of Health Office of Biotechnology Activities
6705 Rockledge Drive, Suite 750, MSC 7985
Bethesda, MD 20892-7985
301.496.9838 (Telephone)
301.496.9839 (Facsimile)

http://www4.od.nih.gov/oba

American Biological Safety Association
1202 Allanson Road
Mundelein, IL 60060
847.949.1517 (Telephone)
847.566.4580 (Facsimile)

http://www.absa.org/

UNIVERSITY of NEW HAMPSHIRE

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Office of Environmental Health and Safety

BSL-1

Biosafety Level One

The UNH Biosafety Program is concerned with protecting laboratory personnel and the environment from biohazardous substances. This is primarily accomplished by utilizing the Department of Health and Human Service publication titled, "Biosafety in Microbiological and Biochemical Laboratories" (HHS Publication No. CDC 93-8395).

This pamphlet explains Biosafety Level One (BSL-1) protocols. It describes proper work practices, what to do in case of a biological spill, and how to properly dispose of biological waste. It also contains a listing of additional resources.

BSL-1 represents a basic level of containment that relies on standard microbiological practices with no special primary or secondary barriers recommended, other than a sink for handwashing.

BSL-1 designation is suitable for:

- Work involving well-characterized agents not known to consistently cause disease in healthy adult humans, and
- Work that is of minimal potential hazard to laboratory personnel and the environment.

Examples of agents that may be used in a BSL-1 laboratory include:

- *Bacillus subtilis;*
- *Sacchromyces cerevisiae;*
- *E. coli* (non-pathogenic); and
- Exempt organisms listed in the NIH Recombinant DNA Guidelines.

All work with recombinant organisms or select agents must be registered with the UNH Institutional Biosafety Committee (see back of pamphlet).

Vaccine strains that have undergone multiple *in vivo* passages should not be considered avirulent simply because they are vaccine strains.

Additionally, many agents not ordinarily associated with disease processes in humans are opportunistic pathogens that may cause infection in the young, the aged, and immunodeficient or immunosuppressed individuals.

LABORATORY DESIGN

- The laboratory is not necessarily separated from the general traffic patterns in the building. However, laboratories should have doors for access control.
- Access to the laboratory is limited or restricted at the discretion of the PI when experiments or work with cultures and specimens are in progress.
- Each laboratory must contain a functional sink for handwashing.
- The laboratory is designed so that it can be easily cleaned. Carpets and rugs in laboratories are not allowed.
- Bench tops are impervious to water and are resistant to moderate heat and the organic solvents, acids, alkalis, and chemicals used to decontaminate the work surface and equipment.
- Laboratory furniture is capable of supporting anticipated load and use. Spaces between benches, cabinets, and equipment must be accessible for cleaning.
- A biohazard sign may be posted at the entrance to the laboratory whenever infectious agents are present. The sign may include the name of the agent(s) in use and the name and phone number of the investigator.
- If the laboratory has windows that open to the exterior, fit them with fly screens.

WORK PRACTICES

- Laboratory coats or uniforms should be worn to prevent contamination or soiling of personal clothing.

- Protective eyewear (splash goggles) should be worn for conduct of procedures in which splashes of microorganisms or other hazardous materials is anticipated.

- Gloves should be worn if the skin on the hands is broken or if a rash is present. Alternatives to powdered latex gloves should be available.

- Work is generally conducted on open bench tops using standard microbiological practices.
- All procedures are performed carefully to minimize the creation of splashes or aerosols.
- Work surfaces are decontaminated at least once a day and after any spill of viable material.
- Persons wash their hands after they handle viable materials, after removing gloves, and before leaving the laboratory.
- Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human use are not permitted in the laboratory.

- Persons who wear contact lenses in laboratories should also wear goggles or a face shield.
- Food is stored outside the laboratory in cabinets or refrigerators designated and used for this purpose only.
- Mouth pipetting is prohibited; mechanical pipetting devices are used.

BIOLOGICAL WASTE

- All cultures, stocks, and other regulated wastes must be placed in a designated burn box (to be decontaminated before disposal by an approved decontamination method such as autoclaving.)

- Materials to be disposed outside of the immediate laboratory are packaged in accordance with applicable local, state, and federal regulations before removal from the facility.

POLICIES

- Laboratory personnel have specific training in the procedures conducted in the laboratory and are supervised by a scientist with general training in microbiology or a related science.
- Policies for the safe handling of sharps are instituted.
- An insect and rodent control program is in effect (call EHS for more information).

BIOLOGICAL SPILLS

Spill inside a biological safety cabinet

1. LEAVE THE CABINET ON.
2. While wearing gloves, spray or wipe cabinet walls, work surfaces, and equipment with disinfectant. If necessary, flood the work surface, as well as drain pans and catch basins below the work surface, with disinfectant (usually 10% bleach solution) for at least 20 minutes contact time.
3. Soak up the disinfectant and spill with paper towels. Drain the catch basin into a container. Lift front exhaust grill and tray, and wipe all surfaces. Ensure that no paper towels or solid debris are blown into the area beneath the grill.
4. Autoclave all clean-up materials and protective clothing. Wash hands and exposed skin with disinfectant.
5. EHS should be notified if the spill overflows into the interior of the cabinet. It may be necessary to do an extensive cabinet decontamination.

Small spill of BSL-1 material outside a biological safety cabinet

1. Wearing gloves and a lab coat, cover the spill with paper towels and disinfectant (usually a 1/10 dilution of bleach).
2. Allow sufficient contact time with disinfectant (usually >20 minutes).
3. Pick up towels and discard into biohazard waste container.
4. Pick up broken glass with forceps and place in sharps container.
5. Re-wipe the spill area with disinfectant and wash your hands with soap or hand-washing disinfectant.