

# University of Washington, General Bioengineering Biohazard Safety Summary

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The hazards posed by biological materials, plus infections resulting from exposure to these materials are important considerations when working in the laboratory. Controlling exposures and potential infections requires an understanding of factors involved in disease transmission in the laboratory. The most common routes of exposure are ingestion, inhalation, and self-inoculation. Development of an infection subsequent to an exposure depends upon individual susceptibility, size of the dose, and pathology of the organism. Only one of these three factors is within your control: The size of the dose. If all exposures are kept below the infectious dose, risk of infection is greatly minimized. This is the basis for biological safety in the laboratory.

## Universal Precautions

- 1) Do not eat, drink, apply cosmetics (non-petroleum based hand cream is OK), lip balm in the laboratory. Food, drinks, and drink containers are not to be kept in the labs. Hand washing facilities with soap and clean towels are available in each lab as well as eye wash facilities. Wash hands immediately after glove removal and any skin if there is any contact with infectious material. Magazines and newspapers are not taken home if brought into a lab. They must be disposed of with regular lab trash. Set lab notebooks only in sanitized and cleaned benches away from contamination.
- 2) Never mouth pipette under any circumstances.
- 3) Personal Protective Equipment (PPE) including lab coats and gowns, gloves, safety glasses with side shields, face shields, and particulate masks must be used when working with biohazard materials.
  - a) Wear disposable, latex or nitrile gloves when working with biohazards. Remember that latex gloves are permeable to organic solvents, including ethanol. Thin gloves offer little protection against cuts, bites, scratches, etc. Use the thickest gloves allowed by your work, but do not sacrifice the dexterity required by your work.
  - b) Wear a lab coat while working in the laboratory. The lab coat should be closed, and sleeves tucked into the gloves or otherwise restrained. Do not wear lab coats outside of the immediate laboratory area. Do not wear contaminated lab coats. If biohazard or chemical material is spilled on your coat, exchange it for a clean one and place the dirty one in the laundry bag. Do not wash lab coats at home or at public laundry facilities.
  - c) Always wear protective glasses when working with or near chemical and biological hazards. If there is a risk of spattering, use a face shield for full-face protection.
  - d) If work being performed has the potential to generate aerosols, a filter mask capable of blocking particulates and fluids must be worn.
- 4) Needles.
  - a) Contaminated needles and other sharps will not be bent, recapped, or removed from syringes unless there is no alternative and, in the case of recapping or removal, a one-handed method or mechanical device should be used.

- b) Contaminated sharps and syringes must be disposed of in containers that are puncture resistant, labeled or color-coded properly, leak proof, with a cap on top.
  - c) Do not fill sharps disposal containers to the top. Exposed needles can stick someone disposing of other sharps.
  - d) Do not insert needles into objects in a manner leaving you exposed to risk of puncture. Use one-hand techniques where possible. Bracing or steadying of hands and containers helps prevent punctures. Take time to do a procedure properly.
  - e) All punctures should be immediately washed with soap and water and reported to the lab technician and your PI. Do not hesitate to report to Hall Health, especially if working with raw sludge. An Incident/Accident Form must be submitted to EHS within 24 hours.
- 5) Procedures where splashing, spraying, spattering and droplet generation (aerosols) is possible should be restricted to operating fume hoods. Aerosol generation should minimize by using covers and other techniques designed to reduce aerosol formation.
- 6) During procedures involving open transfer of untreated (raw) sludge lab doors are kept closed, and access limited to authorized persons. Appropriate warnings are posted on all doors to the lab during this time.
- 7) Spills must be immediately contained and cleaned up. In the event of a small, contained liquid spill pour sanitizing solution on the spill, working from the perimeter inward. Sanitize using a fresh solution of chlorine bleach diluted 1:10 with water. For larger spills, close the area to traffic and contact the Lab Technician or EHS for assistance in cleanup.