ENVIRONMENT, HEALTH & SAFETY
UNIVERSITY OF MICHIGAN

U-M Biological Safety Designated Standards

Standard Operating Procedure

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Applicability of Standard Microbiological Practices

Standard Microbiological Practices (SMPs) are generally defined as the basic "hygiene" practices that apply to all labs, regardless of biosafety containment level, that manipulate microorganisms or any biological materials that contain microorganisms. SMPs serve to minimize the spread of contamination generated through lab processes and to protect both personnel and the environment. As such, they are often cited by regulatory and granting agencies such as NIH, CDC, OSHA, and USDA and APHIS as the minimum standards to be followed in biological research laboratories. Therefore, SMPs apply to a broad spectrum of lab activities including:

- Manipulation of any microbes including bacteria, viruses, fungi, and protozoa.
- Manipulation of materials that may contain microbes including animal and plant tissues, soil samples, and water samples.
- Receiving, processing, and testing of diagnostic samples.
- Research involving recombinant DNA molecules, transgenic animals, or genetically modified plants. Manipulation of animals or plants that are experimentally infected with microbes.
- Work with biological toxins and other bioactive molecules.

Biosafety Level 1 (BSL1) Standards

Labs designated as BSL1 follow the practices, PPE, and facility requirements outlined here:

Standard Microbiological Practices (SMP)

- Hands must be washed after working and before leaving lab
- NO food or drink in lab
- Safe sharps handling procedures
- Perform all procedures to minimize splashes and aerosols
- Decontaminate infectious material before disposal
- Signage to convey hazards within lab
- Personal protective equipment must be worn
- Labs must control access
- Nonporous surfaces/ easily cleaned

Personal Protective Equipment (PPE)

- Gloves
- Lab coat while working in lab
- Protective eyewear

Facility Requirements

- Doors for access control
- Non-fabric chairs and furniture easily cleanable
- Sink required
- Screens for windows opening to the exterior

*Biosafety Level 2 (BSL2) Standards**

Labs designated as BSL2 follow the practices, PPE, and facility requirements outlined here:

Standard Microbiological Practices (SMP), AND the following BSL2 Practices:

- Limited access
- Sharps precautions
- Laboratory specific biosafety manual defining waste decontamination and medical surveillance policies
- Lab personnel demonstrate proficiency (training must be documented)

Personal Protective Equipment (PPE)

- Gloves
- Lab coat, gown, uniform required
- Protective eyewear
- Face protection for splashes when handled outside of a biosafety cabinet or containment device

Facility Requirements

- Laboratories must have a sink, the location of which may be in an adjacent lab space even if the space is not designated as BSL2. (Biosafety Office will determine if alternatives can be implemented)
- Doors that can lock, and work must be conducted with door(s) closed.
- Non-fabric chairs and furniture that is easily cleanable
- Screens for windows opening to the exterior
- Protected vacuum lines
- Autoclave available or alternative method for decontamination as approved by OSEH.
- Eyewash available –(no more than 10 seconds to reach, one door permitted to separate users from eyewash, door cannot have a lock and must open toward eyewash)
- Laboratories should be under negative or neutral pressure, new constructions should be designed to be negative with no recirculation of air to spaces outside of the lab.

*Additional Practices

Biosafety level 2 research may require additional practices beyond those outlined above. Additional practices are assigned based on a risk assessment of the research being conducted.

Questions or Concerns: Contact U-M EHS Biological Safety: EHS-Biosafety@umich.edu (734) 647-1143.