Standard Operating Procedure (SOP)
Biological Hazard Containment and Management

This SOP details the protocols for **biological hazard containment and management**, including identification and classification of biological hazards, containment methods and facility requirements, personal protective equipment usage, waste disposal procedures, decontamination processes, incident response and exposure control, training and competency standards, and regulatory compliance. The objective is to ensure the safety of personnel, prevent contamination, and minimize environmental impact by implementing effective containment and management practices for biological hazards.

1. Purpose

To establish clear procedures for biological hazard containment and management to ensure personnel safety, laboratory integrity, and environmental protection.

2. Scope

This SOP applies to all personnel, contractors, and visitors who handle, manage, or may be exposed to biological hazards within the facility.

3. Responsibilities

- **Laboratory Manager:** Ensure SOP implementation and training.
- **Personnel:** Adhere to containment and safety guidelines.
- **Biosafety Officer:** Monitor compliance and address incidents.

4. Definitions

- **Biological Hazard (Biohazard):** Biological substances that pose a threat to health.
- **Containment:** Methods to confine biological agents and prevent exposure.
- **PPE:** Personal Protective Equipment for protection against hazards.

5. Procedures

5.1 Identification and Classification of Biological Hazards

- Conduct risk assessment to identify biological agents and associated risks.
- Classify agents according to recognized biosafety levels (BSL 1â€“4).

5.2 Containment Methods & Facility Requirements

- Utilize facility controls appropriate to risk level (e.g., BSL laboratories).
- Implement primary (biosafety cabinets) and secondary barriers (controlled access, ventilation).
- Maintain facility according to regulatory requirements.

5.3 Personal Protective Equipment (PPE) Usage

- Provide appropriate PPE (lab coats, gloves, face shields, etc.).
- Ensure correct donning, doffing, and disposal of PPE.

5.4 Waste Disposal Procedures

- Segregate biological waste in marked, leak-proof containers.
- Sterilize waste (autoclaving or chemical treatment) before disposal.
- Follow local, state, and federal regulations for disposal.

5.5 Decontamination Processes

- Disinfect work surfaces before and after procedures.

- Regularly decontaminate equipment and facilities.
- Use approved disinfectants suitable for specific biological agents.

5.6 Incident Response and Exposure Control

- Report biological spills and exposure incidents immediately.
- Follow spill response protocol: evacuate area, contain spill, decontaminate, seek medical evaluation if exposed.
- Document incidents and corrective actions taken.

5.7 Training and Competency Standards

- Provide initial and ongoing biosafety training to personnel.
- Maintain training records and assess competency regularly.

5.8 Regulatory Compliance

- Comply with OSHA, CDC, WHO, and other applicable regulations and guidelines.
- Regularly review SOPs to meet changing statutory requirements.

6. Documentation & Records

- Maintain logs of risk assessments, training, waste disposal, and incident reports.
- Retain records as per institutional and legal policy requirements.

7. Review and Revision

- This SOP should be reviewed annually or upon significant changes to regulations, procedures, or facility modifications.
- Document all revisions with dates and personnel involved.

8. References

- CDC Biosafety in Microbiological and Biomedical Laboratories (BMBL)
- OSHA - Biological Agents
- WHO Laboratory Biosafety Manual