Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Biosafety Guidelines

In this given context, our focus is on fundamental laboratory practices and procedures crucial for diverse subjects, ensuring optimal practices and secure laboratory operations to minimize potential hazards. All laboratories strictly adhere to biosafety guidelines, with international biohazard warning symbols indicating potential risks.

Laboratory Biosafety Objectives:

1. Prevent accidental exposure to pathogens, hazardous chemicals, and radiation during research activities.
2. Implement specific practices and preventive measures essential for the safe handling of chemicals.

Guidelines for Students and Faculty:

1. Follow procedures thoroughly, conduct risk assessments, and seek approval for using hazardous materials.
2. Must use laboratory equipment for its intended purpose, report unsafe conditions promptly, and adhere to proper waste disposal procedures.
3. Familiarize themselves with the location of emergency equipment and know how to use it.
4. Communicate with expert faculty regarding the use of hazardous materials.
5. Properly label glassware containing chemicals and avoid leaving toxic chemicals open.
6. Thoroughly clean used glassware with appropriate cleaning agents.
7. Dispose of chemicals and their wastes following standard operating procedures (SOP).
8. Clean up and organize the workspace after practical sessions.
9. Decontaminate containers after use.
10. Avoid working alone.

Strictly Prohibited in the Laboratory:

1. Activities like wearing contaminated clothing, pipetting chemicals by mouth, and leaving burning flames unattended are strictly prohibited.
2. Continuing work without completing the required cleaning.
3. Leaving equipment operating or experiments overnight without proper labeling.
4. Exceeding the allowed amounts of flammable solvents and corrosives.
5. Storing chemical bottles on the floor.
6. Riding in lifts with liquid nitrogen.
7. Running in laboratory areas.
8. Carrying hazardous materials in stairwells without appropriate containment.

Laboratory Hygiene:

Maintaining appropriate hygiene levels in the laboratory involves specific do's and don'ts:

1. Thoroughly clean hands after handling chemicals.
2. Use Personal Protective Equipment (PPE) as required.
3. Tie back hair and cover any wounds with a waterproof dressing.
4. Clean up spills immediately.
5. Avoid bringing food, drinks, or cosmetics into chemical areas.
6. Do not eat or drink in chemical areas.
7. Do not apply cosmetics in chemical areas.
8. Avoid wandering in hazardous areas.
9. Do not smell or taste any non-hazardous chemicals.
10. Do not wear laboratory coats or gloves outside hazardous areas.

Guidelines for Safe Handling of Pathogens:

Before working with pathogens, researchers and students must Study pathogenicity, assess possible outcomes, and follow standard precautions.

Standard Precautions for Handling Pathogens:

1. Highly pathogenic agents are strictly prohibited.
2. Follow national and international rules and regulations for the safe transport of pathogens.

Personal Protection in Laboratory Safety:

1. Using safety aids like gloves and eye protection devices,
2. Practicing hand hygiene
3. Avoiding eating in highly infectious areas are crucial for personal protection.
4. Open-toed footwear is not allowed in laboratories.

Safety Guidelines for Various Procedures:

1. Procedures like pipetting by mouth are strictly prohibited, and accidents or exposures must be reported promptly.
2. Minimize the creation of aerosols and droplets.
3. Use nozzle needles instead of syringes for blood sample analysis.
4. Decontaminate chemically or physically contaminated liquids before discharge.

Laboratory Working Areas:

1. Keep the laboratory neat and clean, removing irrelevant materials.
2. Decontaminate working areas after using potentially hazardous substances.
3. Dispose of impure or contaminated materials appropriately.

Management of Biosafety:

1. The laboratory in charge is responsible for implementing biosafety measures, informing workers about hazards, and providing suitable medical assessment
2. Provide laboratory workers with a copy of biosafety guidelines.

Laboratory Blueprint and Conveniences:

Laboratory planning should consider preventing aerosols, providing adequate space, and following fire safety guidelines.

Laboratory Design Features:

1. Provide ample space for safe laboratory work.
2. Use materials for walls, ceilings, and floors that are easy to sanitize and resistant to fluids and chemicals.
3. Ensure slip-resistant floors.
4. Bench tops should resist disinfectants, chemicals, and heat.
5. Provide sufficient lighting for laboratory activities.
6. Use rust-free and durable laboratory furniture.
7. Ensure proper storage space.

Laboratory Equipment:

Safe handling of equipment involves prevention of contact with infectious material, corrosion-resistant materials, and regular validation of equipment.

Important Biosafety Equipment:

Use automatic pipettes, biosafety cabinets for aerosol-producing procedures, and validate equipment regularly.

Management of Various Waste:

1. Dispose of pathogenic, chemical, and other waste following standard protocols and consider eco-friendly disposal methods.
2. Recycle glassware and laboratory safety clothing after proper cleaning and disinfection.
3. Never reuse needles; dispose of them properly.
4. Dispose of disposable syringes in sharps containers.
5. Autoclave materials for reuse; dispose of non-autoclavable materials appropriately.

In summary, strict adherence to these comprehensive laboratory practices, safety guidelines, and biosafety measures is crucial for establishing a secure and productive research environment at Rajarshi Shahu Mahavidyalaya Latur (Autonomous).