SAFETY & LAB OPERATING SYSTEM

Zahra Saad Tahseen

Zahra.saad@tiu.edu.iq

Lab Safety & Operating System (PHAR 315)

Fall Semester

Week One

8/10/2023

Outline

- ✓**Introduction to Lab Safety**
- ✓**Importance of Lab Safety**
- ✓**Lab Safety Guideline**

Objectives

- Understand the concept of **Safety & Lab Operating System**.
- Learn the scope and importance of **Safety & Lab Operating System** for pharmacy student.

Lab Safety & Operating System

Name:.....

Group:.....

What I Already Know?	What I Want to Know?

Introduction to Lab Safety

- **Laboratory safety** practices include appropriate facilities and equipment, adequate training, personal protective equipment, chemical management, standard operating procedures, waste handling, signage (symbol), proper laboratory practices and safe working conditions.

- It is important that the correct procedures are used in various situations, when handling hazardous or biological materials, when preparing, executing or cleaning up an experiment.

Importance of Lab Safety

- Laboratory safety is an essential part of ensuring the health and safety of workers and researchers in laboratory settings. Laboratories can be hazardous environments with various potential risks, including chemical spills, fires, explosions, and exposure to hazardous substances.
- It is also essential that you understand how to identify and use emergency equipment and protective gear.

Lab Safety Guideline

❖**Plan your work**

- Before conducting any experiment, you should access the hazards related to the work, including; what are the worst possible things that could go wrong, how to deal with them, and what are the prudent practices, protective facilities and equipment necessary to minimize the risk of exposure to the hazards.
- Always know the hazards of the materials used (e.g., corrosivity, flammability, reactivity, and toxicity).
- Read the Material Safety Data Sheets (MSDS) for information on all chemicals you plan to use. Make sure all Personal Protective Equipment (PPE) is on hand.
- Inspect equipment and apparatus for weaknesses, cracks or damage before beginning work.

Lab Safety Guideline

❖**Follow All Safety Procedures**

- Always wear chemical splash goggles for eye protection when working with chemicals.
- When pouring large quantities of hazardous chemicals, in addition to goggles, wear a face shield large enough to protect your ears and neck as well as your face.
- Always wear gloves when handling chemicals. Select the glove material based on compatibility with the chemicals you may contact.
- Always wear appropriate clothing: chemically resistant lab coats or aprons are recommended.
- Do not wear shorts or miniskirts (anything that would leave your legs bare and unprotected). Do not wear high-heeled shoes, open-toed/heeled shoes, sandals or shoes made of woven materials. Confine long hair and loose clothing.
- Do not work with hazardous chemicals or processes when alone in the laboratory. An instructor must supervise at all times.

Continues…

- Always use chemicals with adequate ventilation or in a chemical fume hood. Do not allow the release of toxic substances in cold rooms or warm rooms, since these areas have contained, re-circulated air.
- Use chemicals only as directed and for their intended purpose.
- Never use mouth suction to fill a pipette or siphon. Use a pipette bulb or other suitable device.
- Handle needles, syringes and other sharps carefully. Use self-sheathing needles or needless systems whenever possible. Dispose of all sharps in an appropriate sharps container.
- Do not dispose of chemicals down the drain. Most chemicals must be disposed of as hazardous waste.
- Compressed gas cylinders must be secured to prevent them from being knocked over. Cylinders must be capped when the regulator is removed or not in use.

Lab Safety Guideline

❖**Know Emergency Procedures**

- Know where the nearest emergency eyewash and showers are, and how to use them.
- Know at least two exits from the laboratory area in case of an emergency.
- In the event of an emergency, pull the nearest "Pull BOX", evacuate the area, and close all doors.

Lab Safety Guideline

❖**Practice Good Housekeeping and Personal Hygiene**

- Avoid direct contact with any chemical.
- Never smell, inhale or taste laboratory chemicals.
- Always wash hands and arms with soap and water after removing gloves and before leaving the work area.
- Never eat, drink, chew gum or tobacco, smoke or apply cosmetics in the laboratory.
- Do not pick up broken glass with your hands. Use tongs or other mechanical means.
- Remove Personal Protective Equipment (PPE) such as gloves and lab coats before leaving the lab.
- Remove gloves before handling common items like phones, instruments, door knobs, etc.
- Keep all work areas clean and uncluttered. Wipe down benches with cleaners or disinfectants regularly.
- Do not block emergency showers, eye washes, exits or hallways.

Lab Safety Guideline

❖**Report Dangerous Activities or Situations**

- Report all accidents, no matter how minor.
- Never perform unauthorized work, preparations or experiments.
- Never engage in horseplay, pranks or other acts of mischief in laboratories.
- Never remove chemicals from the facility without proper authorization.

References

Sveinbjornsson, B. R., & Gizurarson, S. (2022). Handbook for Laboratory Safety. 1st. Elsevier.