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Lab. Management and Teaching Research Methods

The role of the laboratory in diagnosing and controlling infection

Laboratory workers face the risk of exposure to microbes that cause diseases transmitted through the blood or as a result of exposure to the eyes or mouth of the spray or from exposure of the infected skin to blood and other body fluids. Performing secondary bacterial blood cultures, centrifugation, etc.

Types of risks in laboratories

1. Chemical hazards
2. Physical hazards
3. Engineering risks
4. Health risks
5. Personal risk
6. Fire hazards
7. Mechanical hazards

Steps in the risk assessment process

A. Risk assessment
B. Define the target group
C. Determine the severity
D. Take the necessary measures and procedures
E. Revision
F. Implement the plan

Determine the scope of the project or experiment. Define the purpose of the project, where, when, and how will the work be done, and who will do the work. Ascertain the level of their knowledge, skills, and expertise

Dangerous biological materials

Are dangerous biological materials and microbes and include the following:

- ❖ Microbes that cause infection (bacteria, fungi, parasites, viruses, etc.) can cause diseases for healthy individuals or affect the environment and agriculture.
- ❖ Cultures of cells, fluids, human tissues, or major mammalian tissues.
- ❖ DNA recombinant DNA
- ❖ Animals from which diseases may be transmitted to humans.

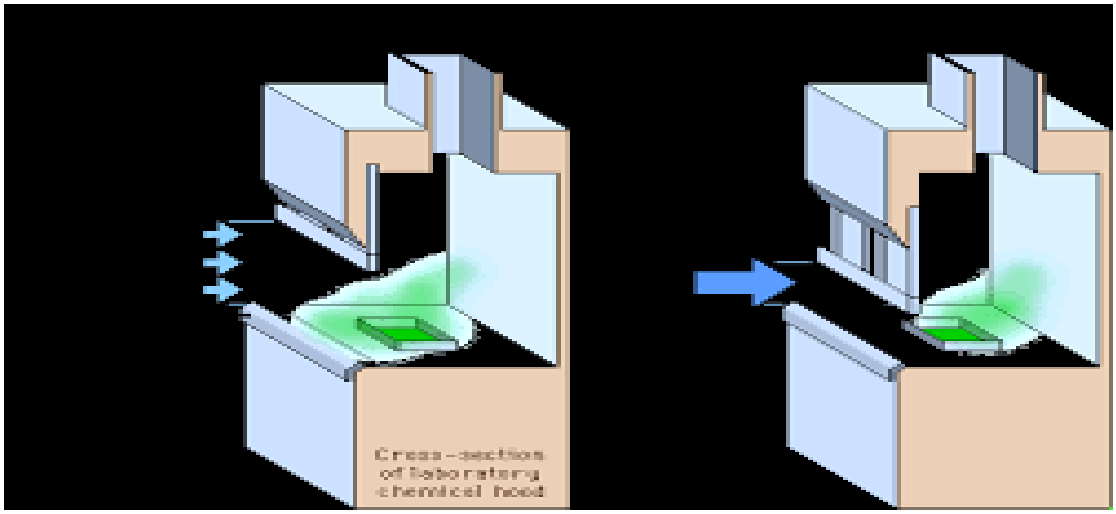
Hazardous substances

In general, hazardous materials can be divided into **physical factors** (such as needles, And glass), **chemical agents** (such as acids, alkalis), and **biological agents** (such as clinical samples microbial cultures), which may be harmful if used or handled inappropriately.

Biological safety cabin(Hood)

It is a major device for preventing the spread of infection. It is designed to draw air inside by mechanical methods used to prevent the spread of infectious airborne dispersal and aerosols emitted from some laboratory procedures.

There are three classes of biosecurity cabins: Class I, Class II, and Class III, and they are operated with the introduction of the user's hands and arms only. In these cabins, very dangerous pathogenic microbes are dealt with.



Class I biosafety cabinets: provide personnel and environmental protection but no product protection .

Class II and Class III cabinets: provide personnel, environmental, and product protection.

The role of the laboratory in infection control

1. Collect samples
2. Accurate identification and sensitivity testing
3. Laboratory information systems
4. Rapid diagnostic test
5. Reporting of laboratory data
6. Storage of living organisms

Personal protection tools

They are equipment that is placed on the body to protect it from risks in the laboratory

- Body robe
- The gags
- Safety glasses or face shield
- Gloves

How to deal with risks or reduce exposure to them?

Take note of the following when working

- Disinfect hands before and after wearing protective gear
- Do not touch the face
- Change gloves when they get dirty
- Not to wear loose clothing and accessories
- Not to eat or drink inside the laboratory
- Writing a report in the event of an occupational infection or needling
- Apply professional safety measures and caution when handling patient samples

Homework:

What are the most dangerous types of risks in the laboratory? Mention the reason.