



## Safety in laboratories

### Microbes transmitted through the blood

They are the microbes that are found in human blood, tissues, or fluids, which may cause disease to humans, and these disease-causing bodies include "but are not limited to" hepatitis virus type (B) and hepatitis virus type (C) ), And human immunodeficiency virus (AIDS).

standard Precautions

Hand hygiene.

Use of personal protective equipment (e.g., gloves, masks, eyewear).

Respiratory hygiene/cough etiquette.

Sharps safety (engineering and work practice controls).

Safe injection practices (i.e., the aseptic technique for parenteral medications).

Sterile instruments and devices.

### Containment

It means using safe methods to deal with the pathogens of infection in the vicinity of the laboratory, where they are received and kept.

(بمعنى اخر) Containment is the term used to describe methods, practices, procedures, facilities, and equipment used to safely manage biohazardous materials in the laboratory.)

**The purpose of containment** is to reduce or eliminate the exposure of workers within the laboratory, other people, and the environment to potentially hazardous agents. An example of containment is a centrifugal safety vessel, a closed container that prevents the escape of airborne spray during the centrifugation process.

### Initial containment

Well-maintained biological safety cabinets are used and prefer the second category as well as other appropriate personal protective equipment and physical control devices in the **following cases**:

- A.** When performing laboratory procedures that may result in types of infectious aerosols, this includes the operations of concentrated expulsion, grinding, mixing, shaking operations, strong mixing, the opening of containers containing infectious substances whose pressure may differ from the surrounding pressure, and the operations of removing infected tissues taken from animals The embryo-forming eggs.
- B.** When infectious substances are used in large quantities or high concentrations. These materials can be introduced into centrifugation processes, and it is required to open these covers or safety containers that this be inside the biological safety cabinets

### **Remove pollutants**

The removal of pollutants is a step that needs to be done regularly. It involves eliminating bacterial agents in microbiological laboratories and stopping their influence to protect workers in the laboratory and prevent contamination of laboratory procedures.



### **Cleansing**

It is the use of antimicrobial agents on inanimate objects such as work surfaces, equipment ... etc., to eliminate all microbes that represent a potential danger to humans or threaten the experiment's safety.

**How can we maintain the cleanliness of a laboratory?**

- 1 – Schedule cleaning time. Working in the lab can be hectic. ...
- 2 – Do it regularly. Cleaning regularly makes your lab both efficient and safe. ...
- 3 – Use the right tools. ...
- 4 – Get rid of old reagents and samples. ...
- 5 – Defrost your freezers.

### **Laboratory Biological Safety Plan (Lab)**

It is a written document in which the risks that may be exposed to and all procedures, equipment, and constructions required to limit or reduce the exposure of laboratory workers to infection-causing agents or dangerous biological materials are recorded.

### **Dealing with sharp instruments and how to get rid of them**

- ❖ Sharps such as scalpels, needles, and syringes (syringes) must be placed in the containers designated for this. It is forbidden to bend single-use needles after use, and it is not permissible to pull them out, break them, re-cover them or separate them from syringes (syringes) that are disposed of after use. It is also not permissible to handle it with your hands before disposal.

**However**, the best way to get rid of them is by placing them in non-porous containers placed in appropriate places, used specifically for the purpose of disposing of sharp instruments.



- ❖ The syringes should be completely disposed of after use.
- ❖ The greatest measure of precautionary measures must be taken when dealing with contaminated sharps such as needles, syringes, glass slides, droppers, capillaries, and scalpels. Plastic or coated capillary tubes should be used.

- ❖ It is forbidden to handle broken glassware directly by hand. Rather, it should be disposed of by mechanical means.

