Laboratory safety

Topics to be discussed

:

- What is biosafety?
- Why we need ?
- Levels of biosafety
- Biosafety cabinet
- Types
- Decontamination

What is biosafety?

Biosafety is the application of safety precautions that reduce a laboratorians risk of exposure to a potentially infectious material and limit contamination of the work environment and ultimately the community

Why we need biosafety ????

1. Lab has hazards of processing infectious agents
2. Accidental threat to workers and environment
3. To have adherence with safety regulations while dealing with highly infectious agents

A. General Safety Rules

1. Listen to or read instructions carefully before attempting to do anything.

2. Wear safety goggles to protect your eyes from chemicals, heated materials, or things that might be able to shatter.

3. Notify your supervisor if any accidents occur.

A. General Safety Rules

4. After handling chemicals, always wash your hands with soap and water.

5. During lab work, keep your hands away from your face.

6. Tie back long hair.

A. General Safety Rules

7. Know the **location** of the fire extinguisher, fire blanket, eyewash station, and first aid kit.

8. Keep your work area **uncluttered**. Take to the lab station only what is **necessary**.

A. General Safety Rules

9. Never put anything into your mouth during a lab experiment.

10. Clean up your lab area after you are finished.

11. Never "horse around" or play practical jokes in the laboratory.

Standard Microbiological Practices

- NOT permitted in laboratories:
  - Eating
  - Drinking
  - Storing food and drink
  - Smoking
  - Handling contact lenses
  - Pipetting by mouth

No eating, drinking or smoking in this area

No admittance to unauthorized personnel

No smoking

No entry for persons with a pacemaker

Do not eat or drink in this area

Lab coats
must be worn

Eye protection
must be worn

Hand protection
must be worn

Environment Laboratory Dress Code

Use pipet aid or other means

Do not mouth pipet

Never work alone in the lab!

Injury: Fainting

To do: Provide <u>fresh</u> air and have the person recline so that their head is <u>lower</u> than the rest of their body.

Injury: Burns

To do: Immediately flush with <u>cold</u> water until burning sensation is lessened.

Injury: Cuts

To do: Do not touch an open wound without safety gloves. Pressing directly on minor cuts will stop bleeding in a few minutes.

CAUTION

NO FOOD or DRINK	EYE PROTECTION REQUIRED	COVERING SHOES NEEDED	TOXIC CHEMICALS
CORROSIVE	FLAMMABLE	RESTRICTED ACCESS	HIGH VOLTAGE

Necessary Information: Some glassware may be under reduced pressure

Lab Safety Symbols

* They alert about the possible dangers in the lab.

Flammability

Health Hazard 1 2 0 Instability

Special Precautions

AUTHORIZED PERSONNEL ONLY!
THE FOLLOWING HAZARDS ARE PRESENT

Organic Peroxides

Corrosives

Carcinogens

Oxidizer

Radioactive Material

Permit Holder: PI Faculty
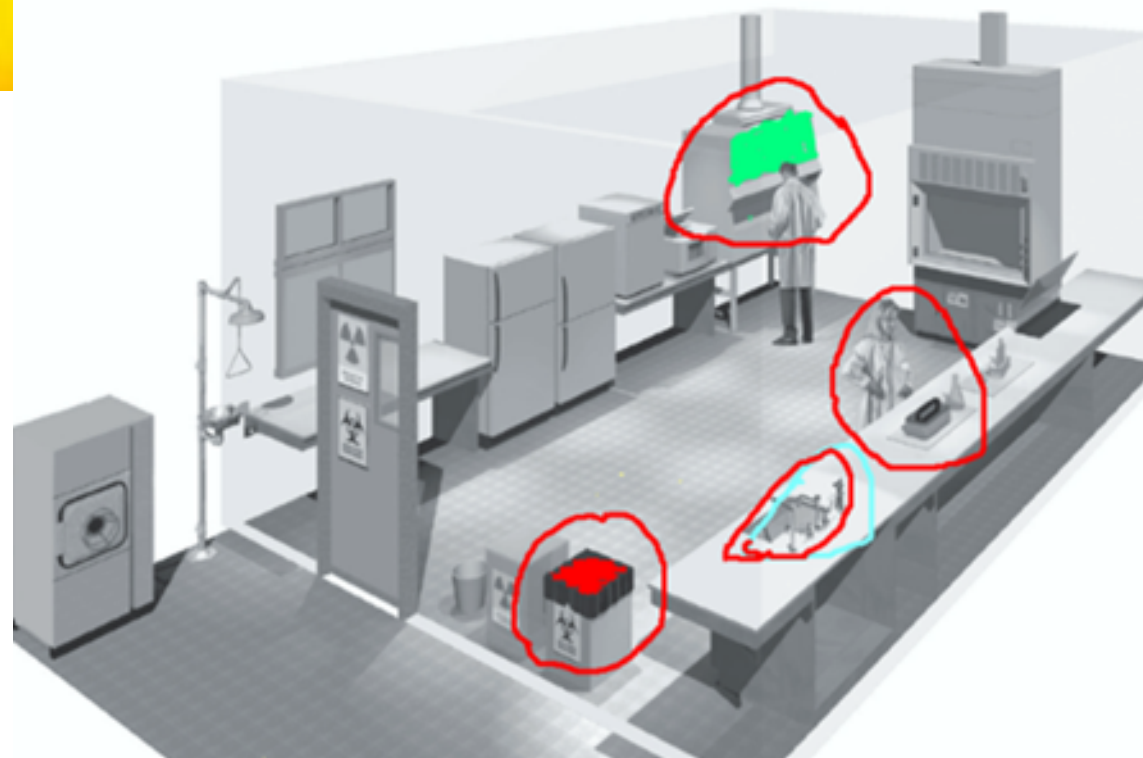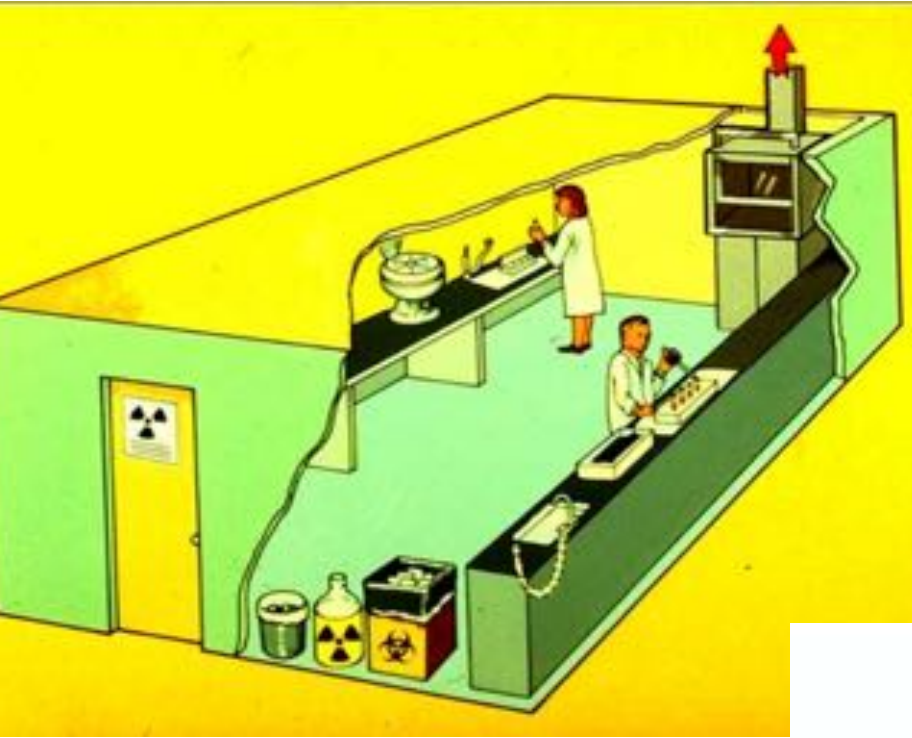
Biohazard

BSL-2

REQUIREMENTS
- No Food or Drink in Lab
- Long Pants/Skirts and Closed-toe Shoes Required
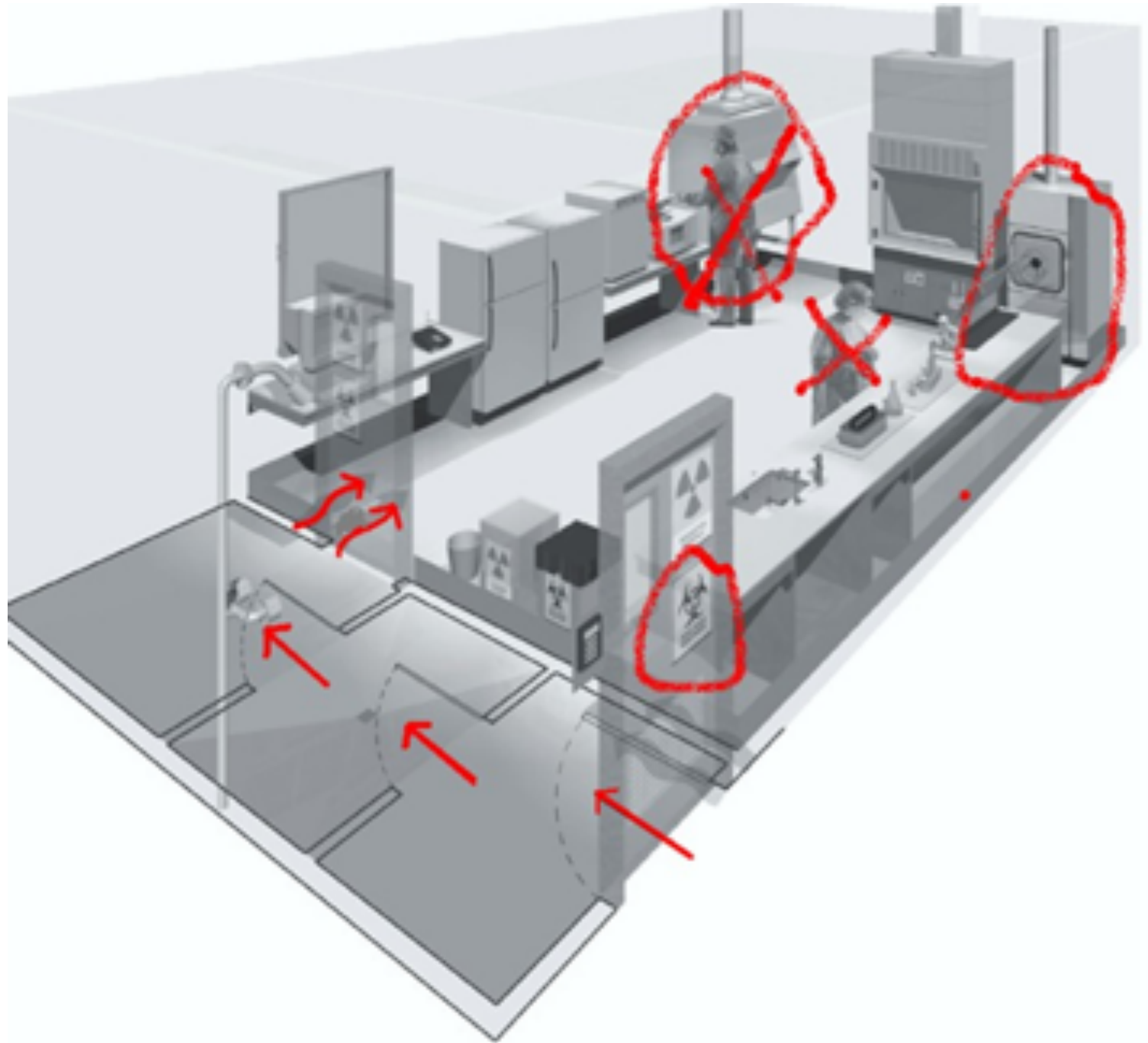- Minimum PPE Required: Labcoat and Goggles
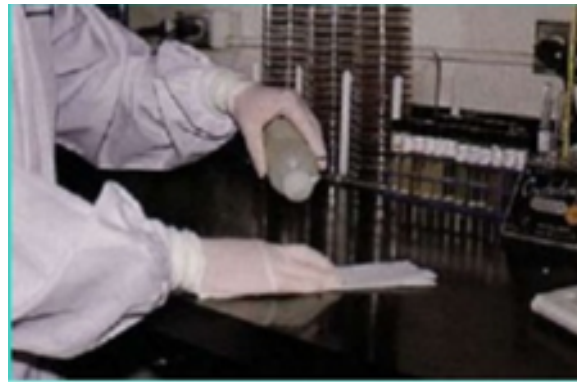
Levels of biosafety
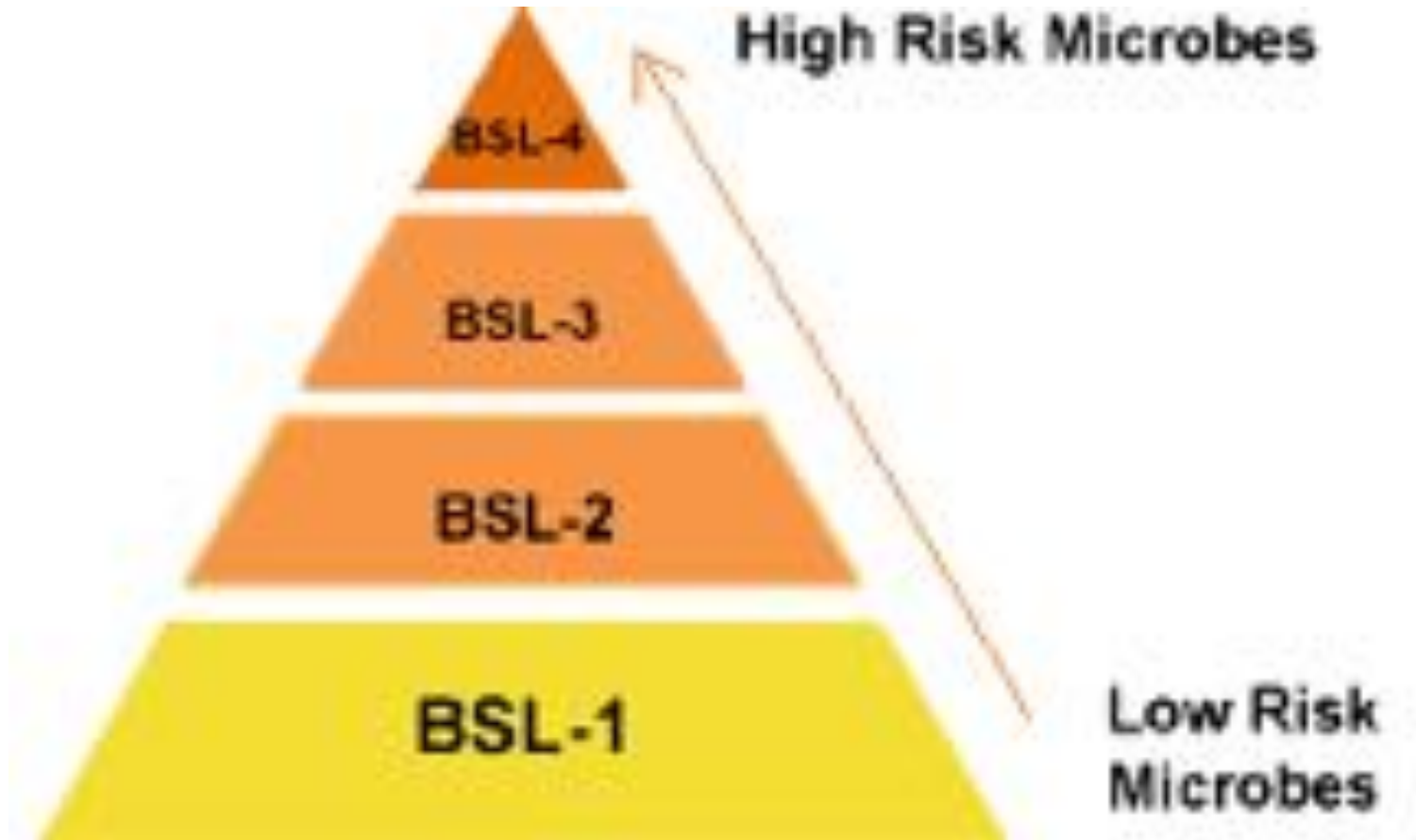
BSL-3

REMEMBER:

The main purpose of a BSC is to **protect you and the environment** from exposure to biohazards while working with infectious agents

In addition, Class II and III BSCs will protect your research materials from airborne contaminants with the aid of HEPA supply filters

Ethyl Alcohol

Distilled Water

HG1100

HG1101

SOAP

WASH

CLOROX

Disposal methods

• Chemical disinfection

○ Chemicals are added to the wastes to kill or inhibit pathogens.

○ This type of treatment is suitable mainly for treating liquid infectious wastes such as blood, urine, feces or hospital sewage.

○ Typically, a 1% bleach (sodium hypochlorite) solution or a diluted active chlorine solution (0.5%) is used.

Incineration

Controlled incineration at high temperatures (over 1000°C) is one of the few technologies with which all types of health-care waste can be treated properly and it has the advantage of significantly reducing the volume and weight of the wastes treated.

• Autoclaving

Autoclaving is environmentally safe but in most cases it requires electricity, which is why in some regions it is not always suitable for treating wastes.