**Department of Anesthesia Techniques**
**{Biology}**
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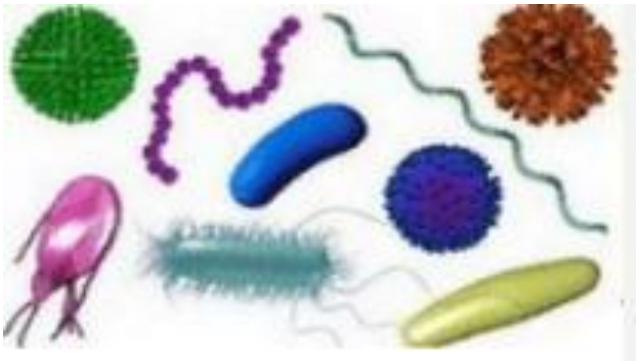
# Biological Agents

Biological agents include bacteria, viruses, fungi, other microorganisms and their associated toxins. They have the ability to adversely affect human health in a variety of ways, ranging from relatively mild, allergic reactions to serious medical conditions—even death



## The Main Routes Infection can Enter the Body are:

**Body fluids** – A body fluid e.g. blood, urine, pus, saliva e.g. syphilis, HIV etc.

**Through saliva**_(e.g. glandular fever).

**Through the air** – e.g. common cold, respiratory viruses.

**Through touch** – Those caught by directly touching the skin/skin to skin contact such as chickenpox.

**Through ingestion** – contaminated food causes food poisoning e.g. cholera

**Through bites from other creatures** – e.g. infections from dog and cat bites e.g. malaria.

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## control measure in biology

Control measures are systems and actions used to reduce the risks of exposure to biological agents and hazards.

**What are Control Measures?**

Eliminate the hazard.

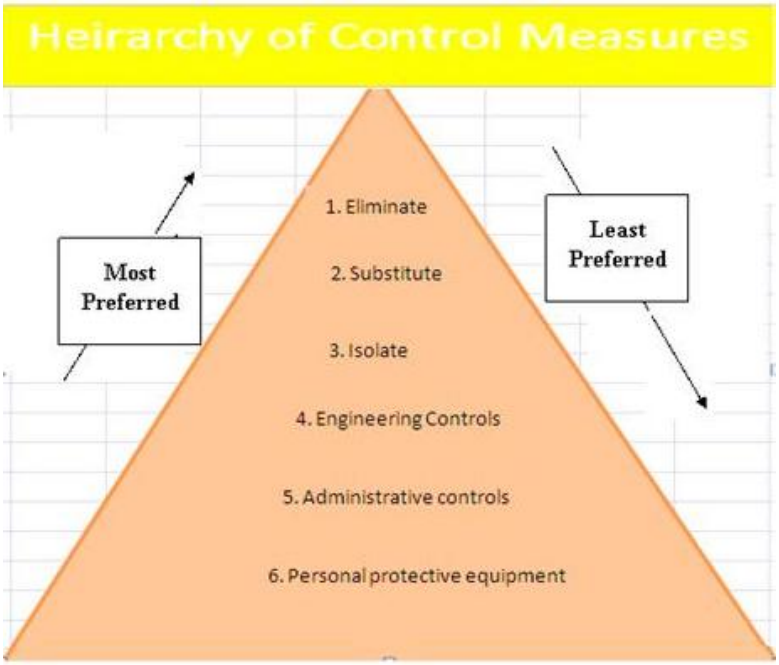
Substitute the hazard with a lesser risk.

Isolate the hazard.

Use engineering controls.

Use administrative controls.

Use personal protective equipment.



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## hazard group classification system

The aim of this guide is to help you understand the different categories of hazards, so you can confidently identify them in your workplace.

Biological Hazards. For example, mould, blood and other bodily fluids, harmful plants, sewage, dust and vermin.

Chemical Hazards such as skin irritation, respiratory system irritation, blindness, corrosion and explosions.

Physical Hazards. including heights, noise, radiation and pressure.

Safety Hazards. For example, exposed wires or a damaged carpet might result in a tripping hazard. These are sometimes included under the category of physical hazards.

Ergonomic Hazards. For example, a poor workstation setup in an office, poor posture and manual handling.

Psychosocial Hazards. Psychosocial hazards include sexual harassment, victimisation, stress and workplace violence.

## Biological safety cabinets (BSCs)

Biosafety Cabinets (BSCs) are enclosed workspaces with a ventilated hood that is designed to contain pathogenic microorganisms during microbiological processes.

Biosafety cabinets are classified into three classes:

1-Class I and II Biosafety cabinets are used for Biosafety levels I and II but, when used correctly in conjunction with useful microbiological techniques

2-Class III BSCs are most suitable for work with hazardous agents that require Biosafety Level 3 or 4.

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## Biorisk and biohazard

**Biorisk** defines as the combination of the probability of occurrence of harm and the severity of that harm where the source of harm is a biological agent or toxin.

**A biological hazard or biohazard**, is a biological substance that poses a threat to the health of living organisms, primarily humans. This could include a sample of a microorganism, virus or toxin that can adversely affect human health.


The biohazard symbol

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## Assessing risk for work with human blood and tissues hazards

A risk assessment focuses on hazard identification at each step or task level, and can provide essential information for enhancing safety practices.

For example People working with blood samples must:

*Wear two pairs of disposable gloves, with the outside disposed of and replaced after each procedure.

*A laboratory coat.

*A surgical mask.

*Eye protection.