

# Infectious Diseases

## Infectious Diseases

### 1. Introduction

- Infectious diseases are caused by pathogenic microorganisms invading the body.
- They can spread between people, animals, and the environment.

### 2. Types of Pathogens

- **Bacteria:** single-celled organisms causing diseases like tuberculosis and cholera.
- **Viruses:** require host cells to replicate, as in influenza and HIV.
- Fungi, protozoa, and helminths cause additional infections.

### 3. Transmission and Spread

- Direct contact, droplets, and airborne routes.
- Vector-borne spread, such as mosquitoes carrying malaria.
- Contaminated food, water, and surfaces.

### 4. Host Response and Disease

- The immune system defends through innate and adaptive responses.
- **Incubation period:** time between exposure and symptom onset.
- Severity depends on pathogen virulence and host immunity.

### 5. Control and Prevention

- Vaccination, sanitation, and hygiene reduce spread.
- Antimicrobials treat infections, though resistance is a growing concern.
- Surveillance and isolation help contain outbreaks.