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# Occupational Biohazards

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# Learning Objectives

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## Define occupational biohazards

- Identify types of biological hazards
- Recognize routes of exposure
- Understand prevention and control measures

# Introduction

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**Occupational biohazards are biological agents**

- They pose risks to workers' health
- Common in healthcare, labs, agriculture, waste sectors

# Definition of Biohazard

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**Biological substances** that threaten human health

بهدد

- Include microorganisms and biological toxins
- May cause infectious diseases

# Types of Biohazards – Bacteria

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Example: Mycobacterium tuberculosis

- Can spread via **airborne transmission**
- Major risk in **healthcare settings**

# Types of Biohazards – Viruses

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Example: Hepatitis B virus (HBV)

- Example: Human Immunodeficiency Virus (HIV)
- Transmitted via blood and body fluids

# Types of Biohazards – Fungi

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Example: **Aspergillus species**

- Cause **respiratory infections**
- **Common** in **dusty environments**

# Types of Biohazards – Parasites

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## Example: Plasmodium species

- Transmitted through **vectors**
- Risk in **tropical environments**

حناج لافلا  
معد البانوز  
Malaria  
مكا

البيئه الاستوائيه

# Biological Toxins

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Produced by [microorganisms]

- Example: Endotoxins
- May cause inflammatory reactions

# Routes of Exposure

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- **Inhalation**
- **Direct** contact
- **Needlestick** injuries → شائعة جدا في القطاع الطبي
- **Ingestion**
- **Mucous membrane** exposure

# High-Risk Occupations

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- Healthcare workers
  - Laboratory technicians
  - Waste management workers
  - Farmers and veterinarians

# Healthcare Setting Risks

- Exposure to **bloodborne pathogens**

خط  
HBV  
HCV  
HIV

- **Improper sharps disposal**

التدخل غير السليم  
من الأدوات الحادة

- Lack of **PPE compliance**

ما فيها التزام  
بإجراءات الحماية

# Prevention – Personal Protective Equipment (PPE)

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- Gloves
- Masks and respirators
- Protective gowns
- Eye protection

# Prevention – Vaccination

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- Hepatitis B vaccine
- Routine immunization programs
- Post-exposure prophylaxis

# Engineering Controls

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- **Biological safety cabinets** *→ سلة نقابية مخفية*
- Proper ventilation systems
- Sharps disposal containers

# Administrative Controls

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- **Training programs**

- **Standard operating procedures**

- **Exposure control plans**

→ شوية الخطة  
بعد التمرين  
biological hazard

# Biosafety Levels (BSL)

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- BSL-1: **Minimal** risk
  - BSL-2: **Moderate** risk
  - BSL-3: **Serious airborne** risk
  - BSL-4: **High-risk dangerous** pathogens

# Risk Assessment

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- Identify hazards
- Evaluate exposure likelihood
- Implement control measures

# Emergency Response

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- Immediate wound washing
  - Report incident
  - Seek medical evaluation

# Conclusion

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- Occupational biohazards are **preventable**
- Safety measures **reduce** risk significantly
- Continuous education is essential

# References

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- **World Health Organization (WHO)**
  - **Centers for Disease Control and Prevention (CDC)**
  - **Occupational Safety and Health Administration (OSHA)**