



**Al-Mustaqbal University**  
College of Sciences  
Intelligent Medical Systems Department

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جامعة المستقبل  
AL MUSTAQBAL UNIVERSITY

# كلية العلوم قسم علوم الأنظمة الطبية الذكية

LECTURE: (2)

**Subject:** Biology

**Level:** First

**Lecturer:** MSc. Sura Mohammed jasim

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## **Biosafety**



### **BIOSAFETY**

Laboratory biosafety – the containment principles, technologies and practices that are implemented to prevent the unintentional exposure to pathogens and toxins, or their accidental release.

### **BIORISK**

The probability or chance that a particular adverse event (in the context of this document: accidental infection or unauthorized access, loss, theft, misuse, diversion or intentional release), possibly leading to harm, will occur.

### **CLASSIFICATION OF BIORISK IN TO FOUR GROUP ACCORDING TO HAZARED**

#### **1- RISK GROU 1:-**

- \* No or low individual and community risk
- \* A microorganism that is unlikely to cause human or animal disease. Example:
- \* Nonpathogenic strain of E. coli
- \* Food spoilage bacteria.

#### **2- RISK GROUP 2:-**

Moderate individual risk, low community risk

- \* These organisms offer moderate risk to the laboratory worker and a limited risk to members of the community.
- \* Effective preventive measures and treatment are available and the risk of spread in the community is limited.

Examples:

- Hepatitis viruses
- Staphylococci
- Streptococci

### **3- RISK GROUP 3:-**

- \* High individual risk , low community risk
- \* They do not ordinarily spread rapidly from one to another .
- \* Again , there effective vaccines and therapeutic materials for most pathogens in this group .
- \* Example: -Mycobacterium tuberculosis



### **4- RISK GROUP 4:-**

- \* High individual and community risk
- \* They can causes serious disease and are rapidly transmitted one individual to anther
- \* Effective treatment and preventive measures are available.

Example : covid 19



## PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE “specialized clothing/equipment worn by an employee for protection against infectious materials.

- \* Provides protection from biohazard agent.
- \* It is removable and/or disposable (prevents contamination of community and environment)
- \* Must be worn when handling infectious materials
- \* Must be removed before leaving the work place

### TYPE OF PPE

1 .body protection.

- \* Head Protection(Protect hair and scalp from contamination, Hair covers)
- \* Foot Protection(Disposable shoe covers (additional layer of protection) , Rubber boots
- \*Dedicated lab shoes , Non-slip footwear).
- \* Additional Body Protection (based on risk assessment): (Disposable sleeve covers)



2- face protection ( Face shield Surgical mask Indirectly vented safety goggles Safetyglasses)



3. hand protection( Gloves are made of different materials o Latex, nitrile, vinyl,



4. respiratory protection(P100 respirator , N95 respirator).



**N95 respirator**



**P100 respirator**