



College of Health and Medical Technologies

Department of Radiology Technologies

Radiobiology

The first stage

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Introduction to biosafety and security

Lecture No.9

Introduction of biosafety and security

Biosafety refers to “the containment principles, technologies and practices that are implemented to prevent unintentional exposure to pathogens and toxins, or their accidental release. ’

Biosecurity refers to measures that are taken to stop the spread or introduction of harmful organisms to human, animal and plant life.

The measures taken are a combination of processes and systems that have been put in place by bioscience laboratories, customs agents and agricultural managers to prevent the use of dangerous pathogens and toxins.

Bio-risk:- the risk associated with biological materials in the laboratory has a safety and a security component.

Bio-risk encompasses risks from the biosafety and laboratory biosecurity perspective , associated with biological materials.

KEY COMPONENTS OF BIORISK MANAGEMENT

1. Bio-risk Assessment: Process of identifying the hazards and evaluating the risks associated with biological agents and toxins, taking into account the adequacy of any existing controls, and deciding whether or not the risks are acceptable.

2. Biorisk Mitigation: Actions and control measures that are put into place to reduce or eliminate the risks associated with biological agents and toxins.

3. Performance: The implementation of the entire biorisk management system, including evaluating and ensuring that the system is working the way it was designed. Another aspect of performance is the process of continually improving the system.

COMPONENTS OF SAFETY IN ALL LABS

1-Safe handling, storage and disposal of -Specimens -Chemicals -Instruments - Radioactive components

2-Fire safety

3-Electrical safety

1. Consider all the specimens potentially infectious for HIV and other blood borne infections

2. All specimens should be placed in a leak-proof impervious container for transport.
3. Use gloves while handling all samples, especially when there is contact with body fluids, non-intact skin or mucous membrane.
4. If there is likelihood of spattering, use face mask with glasses and gowns. Wrap around gowns should be preferred. These should not be used outside the lab.
5. Cover cuts or abrasions present over skin with waterproof bandage. Universal safety precautions
6. Decontaminate the laboratory work surfaces immediately in case of spillage of blood or any other body fluids
7. Follow 'no needle recapping' strategy
8. All sharps should be collected and disposed away properly.
9. Never pipette by mouth. Use mechanical pipetting devices.
10. There should always be a system working efficiently for management of hospital generated waste.
11. It is advisable for the laboratory personnel to be vaccinated against Hepatitis-B.
12. Not permitted in Laboratories :Eating, Drinking, Storing food, Smoking, Handling contact lenses. Universal safety precautions