Safety and biosecurity

Lecture.6

كلية آشور الجامعة/قسم علوم الحياة

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تدريسي المادة: م.م. الحسن طالب

What are biological hazards?

Biological hazards - bacteria, viruses, mold and parasites have the ability to multiply quickly if given the right conditions or it is the negative effect of some microorganisms on the human body) The biological hazards have a strong and dangerous effect when exposed to them, they lead to death or infection with serious and infectious diseases.

Biohazards Materials

• Viruses

• Bacteria16

• Fungi

• Chlamydia/Rickettsia

Types of pathogens

1- Bacteria

– Size: 0.3 to 2 μm

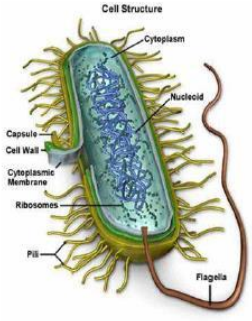
– Single-celled organisms

– Various morphologies

– Examples: Salmonella spp., E. coli, Vibrio spp. (Cholera), Mycobacterium (Tuberculosis)

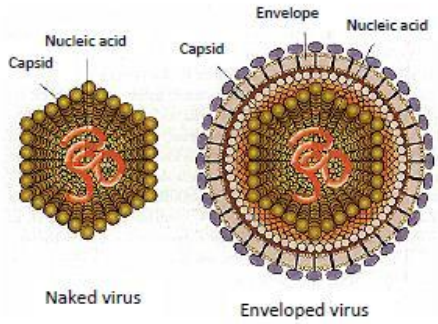


Lung infected by tuberculosis



2- Virus

– Size: 18-200 nm
– Basic structure: capsid (protein) + nucleic acid
– Obligate parasites
– Enveloped vs. non-enveloped
– Examples: Hepatitis, polio, HIV




Girl with polio

3- Protozoa

Size: 5-10 µm
– Single-celled eukaryotes
– Numerous morphologies
– Examples: *Cryptosporidium* spp., *Plasmodium* spp. (Malaria), *Giardia* spp.



Giardia



Malaria patient

4- Helminthes

•– Size: 20-100 µm

•– Multi-cellular eukaryotes

•– For transmission mainly concerned with eggs



Ascaris lumbricoides egg
• Causes human roundworm
• 70 µm length

Biohazardous Materials:

• Transgenic Plants, Animals and Insects



• Human and Primate Cells, Tissues, and Body Fluids

• Brain Tissue from Demented Patients