Bacteriology course plan for medical students

Date of preparation : May2021

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Medical Bacteriology course

Course Code	127
Name of Course	Medical Bacteriology
Stage	Basic Science
prerequisite courses	-------
Course type	Theoretical Practical Total
Education hours	41h 20h 61h
General objectives	**cognitive objectives:** At the end of the course, they are expected to have achieved the following skills: 1. Knowing the place of microbes in nature, how to name and classify them, the difference between prokaryotic and eukaryotic cells. 2. Getting to know the biochemical anatomical structure, metabolic characteristics, growth physiology and genetic exchanges among microorganisms 3. Knowing the mechanism and effect of various antimicrobial substances (antibiotics, etc.), chemical substances and physical factors on microorganisms and the mechanisms of drug resistance of pathogenic bacteria 4. Understanding the concepts of the natural microflora of the human body, hospital infections, the mechanisms of causing illness by microbes, the way of infection transmission and the stability of pathogens in the body 5. Classification of different Families and Genera of bacteria. 6. Knowledge of the most important pathogenic indicators and mechanisms of infection by bacteria 7. Knowing how to choose a sample, sampling time and how to send the sample to the laboratory to detect pathogenic bacteria 8. Knowledge of cases of contamination as a result of tests **Skill goals - At the end of the course, the student is expected to be able to:** 1. Prepare slides from the samples taken from the pharynx, wounds, urine, stool and mucus and stain them with the Gram stain method. 2. Cultivate clinical samples prepared from wounds, urine, stool and mucus. 3. Perform the Antibiogram test by choosing the appropriate antibiotics and interpret the results.
Course description	In this lesson, the student will get to know the general concepts of bacteria and their classification, especially the important human pathogenic bacteria, and based on this information, he will learn the various aspects of bacterial infectious diseases in a practical way. By studying the beneficial and harmful effects of micro - organisms on human life, familiarity with a variety of pathogenic bacteria, classification, building, growth physiology, biochemical properties, genetics and ways to cause disease, how they are

	controlled, prevented and the eradication of bacterial diseases is introduced.
Essential content	Bellow tables indicate the theoretical bacteriology topics, and the content of the necessity of the scientific activities of the bacteriology laboratory.

	Theoretical topics of bacteriology
1	Classification of microorganisms anatomical and chemical building (2 sessions)
2	The Physiology of growth and metabolism of micro -organisms
3	Genetics of micro -organisms
4	Antibiotics (Mechanism of action and classification) (sessions 4, 5 and 6 in 2 sessions)
5	Mechanisms of resistance to antibiotics (sessions 4, 5 and 6 in 2 sessions)
6	The effect of chemical and physical factors on micro -organisms (sessions 4, 5 and 6 in 2 sessions)
7	Microbiota, Normal Flora and Probiotics, Parasite and Host Relationship (Sessions 7 and 8 in one session)
8	Bacteria Mechanisms, Types of Infections (Hospital and Outdoor Hospital) (Sessions 7 and 8 in One Session)
9	Gram -positive cocci (2 sessions)
10	Gram Negative cocci
11	Corynebacterium, Listeria, Lactobacilli, Actinomyces, Nocardia
12	Enterobacteriaceae(Escherichia, Proteus, Enterobacter, Klebsiella, Serratia)
13	Enterobacteriaceae(Salmonella, Shigella, Yersinia)
14	Mycobacterium tuberculosis, Mycobacterium leprae, other Mycobacterium
15	Pseudomonas, Acinetobacter, other Non-fermenter
16	Vibrionaceae, Campylobacter, Helicobacter
17	Bacillus(Bacillus anthracis), Anaerobic Gram-negative bacilli(Bacteroides)
18	Clostridium tetani and Clostridium botulinum, Clostridium perfringens and Clostridium difficile
19	Brucella, Haemophilus
20	Treponema, Borrelia, Leptospira, Bordetella, Legionella
21	Chlamydia, Mycoplasma, Rickettsia

Essential content of the practical activities of the bacteriology laboratory

1	Safety points in the Laboratory
2	Clinical sampling methods
3	Preparation of Gram stain and wright stain and Giemsa stain
4	Culture of selective cocci and bacilli
5	Observing the stained range of common diseases
6	Laboratory Diagnosis of common bacteria and interpretation of experiments
7	Interpretation of Antibiogram samples