

# MICROBIOLOGY

## AIM:

To introduce the students to the exciting world of microbes. To make the students aware of various branches of microbiology, importance, significance and contribution of each branch to mankind and other fields of medicine. The objectives of teaching microbiology can be achieved by various teaching techniques such as:

- a) Lectures
- b) Lecture Demonstrations
- c) Practical exercises
- d) Audio visual aids
- e) Small group discussions with regular feedback from the students

## OBJECTIVES:

### A. KNOWLEDGE AND UNDERSTANDING

At the end of the Microbiology course, the student is expected to:

1. Understand the basics of various branches of microbiology and be able to apply the knowledge relevantly.
2. Apply the knowledge gained in related medical subjects like. General Medicine and General Surgery and Dental subjects like. Oral Pathology, Community Dentistry, Periodontics, Oral Surgery, Pedodontics, Conservative Dentistry and Oral Medicine in higher classes.
3. Understand and practice various methods of sterilization and disinfection in dental clinics.
4. Have a sound understanding of various infectious diseases and lesions in the oral cavity.

## SKILLS:

1. Student should have acquired the skill to diagnose and differentiate various oral lesions.
2. Should be able to select, collect and transport clinical specimens to the laboratory.
3. Should be able to carry out proper aseptic procedures in the dental clinic.

A brief syllabus of Microbiology is given as follows:

### A. GENERAL MICROBIOLOGY

1. History, Introduction, Scope, Aims and Objectives:
2. Morphology, and Physiology of bacteria.
3. Detail account of Sterilization and Disinfection.
4. Brief account of Culture media and Culture techniques.
5. Basic knowledge of selection, collection, transport, processing of clinical

- Specimens and identification of bacteria.
6. Bacterial Genetics and Drug Resistance in bacteria

## **B. IMMUNOLOGY**

1. Infection - Definition, Classification, Source, Mode of transmission and types of Infectious disease.
2. Immunity
3. Structure and functions of Immune system
4. The Complement System
5. Antigen
6. Immunoglobulins - Antibodies - General structure and the role played in defense mechanism of the body.
7. Immune response
8. Antigen - Antibody reactions - with reference to clinical utility.
9. Immunodeficiency disorders - a brief knowledge of various types of immunodeficiency disorders - A sound knowledge of immunodeficiency disorders relevant to dentistry
10. hypersensitivity reactions
11. Autoimmune disorders – Basic knowledge of various types sound knowledge of autoimmune disorders of oral cavity and related structures
12. Immunology of Transplantation and Malignancy
13. Immune haematology

## **C. SYSTEMATIC BACTERIOLOGY**

1. Pyogenic cocci - Staphylococcus, Streptococcus, Pneumococcus, Gonococcus, Meningococcus brier account of each coccus - detailed account of mode of spread, laboratory diagnosis, Chemotherapy and prevention - Detailed account of Cariogenic Streptococci.
2. Corynebacterium diphtheriae - mode of spread, important clinical feature, Laboratory diagnosis, Chemotherapy and Active immunisation.
3. Mycobacteria Tuberculosis. and Leprosy
4. Clostridium - Gas gangrene, food poisoning and tetanus.
5. Non-sporing Anaerobes - in brief about classification and morphology, in detail about dental pathogens - mechanism of disease production and prevention.
6. Spirochaetes Treponema pallidum - detailed account of Oral Lesions of syphilis, Borrelia vincentii.
7. Actinomycetes.

## **D. VIROLOGY**

1. Introduction
2. General properties, cultivation, host - virus interaction with special reference to Interferon.
3. Brief account of Laboratory diagnosis, Chemotherapy and immune prophylaxis in general.
4. A few viruses of relevance to dentistry.

- Herpes Virus
- Hepatitis B Virus - brief about other types
- Human Immunodeficiency Virus (HIV)
- Mumps Virus
- Brief - Measles and Rubella Virus

5. Bacteriophage - structure and significance

#### **E. MYCOLOGY**

1. Brief Introduction
2. Candidosis - in detail
3. Briefly on oral lesions or systemic mycoses.

#### **F. PARASITOLOGY**

1. Brief introduction - protozoans and helminths
2. Brief knowledge about the mode of transmission and prevention of commonly seen parasitic infection in the region.