

MEDICINE

The teaching and training in clinical subjects will commence at the beginning of third semester and continue throughout

The clinical subjects will be taught to prepare the MBBS graduates to understand and manage clinical problems at the level of a practitioner. Exposure to subject matter will be limited to orientation and knowledge required of a general doctor. Maximum attention to the diagnosis and management of the most common and important conditions encountered in general practice should be emphasised in all clinical subject areas. Instructions in clinical subjects should be given both in out patient and in-patient during clinical posting.

Each of the clinical departments shall provide integrated teaching calling on pre-clinical, para-clinical and other clinical departments to join in exposing the students to the full range of disciplines relevant to each clinical area of study. Problem approach will be emphasised based on basic social sciences and a continuation of clinical and laboratory syllabi to optimally understand and manage each clinical condition.

The course shall comprise of:

Objectives: (Annexure I)

At the end of the course, the learner should be able to:

1. Elicit clinical history, perform thorough physical examination, elicit physical signs, interpret findings, develop differential diagnoses and request relevant laboratory investigations.
2. Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, life style diseases, tropical and environmental diseases.
3. Plan relevant diagnostic and investigative procedures and be able to interpret them.
4. Outline the principles of management and prevention of common health problems affecting the community.
5. Plan and write prescription for comprehensive treatment using the principles of rational drug therapy
6. Provide first level care for common medical conditions and emergencies and recognize the timing and level of referral, if required.
7. Perform essential bedside procedures like venipuncture, SC and IM injections, biological fluid examinations.
8. Assist common bedside procedures like pleural aspiration, bone marrow aspiration and biopsy, lumbar puncture etc.
9. Resuscitate a patient efficiently by providing Basic Life Support in emergencies.
10. Develop an interest in the care for all types of patients.
11. Evaluate each patient as a person in society and not merely a collection of organ systems or symptoms and signs.
12. Discern the hopes and fears of patients, which underlie the symptom complexes and know how to handle these emotions, both in himself / herself and others.
13. Demonstrate skills in documentation of case details including epidemiological data.
14. Respect patients' rights and privileges including patients' right to information and right to seek a second opinion.
15. Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities.
16. Demonstrate communication skills in interviewing patients, providing explanations to patients and families about the management and prognosis, providing counseling and giving health education messages o patients, families and communities.
17. Have an open attitude to the developments in Medicine so as to be aware of the need to keep abreast of new knowledge.

18. Learn and adopt new ideas and new situations where resources may be limited.
19. Comprehend, accept and manage the uncertainties in scientific knowledge and medical practice.
20. Understand the ethical and legal implications of his/her medical decisions.

Course content

	Topics	Must/should know	Desirable to know	May know
1.	Good medical practice			
	The art of medicine, doctor-patient relationship, communication skills, doctor's responsibilities	Yes		
	The Approach to Grave Prognosis and Death		Yes	
	Medical Ethics and New Technologies		Yes	
	Electronic Medical Records			Yes
	Primary Care in Low- and Middle-Income Countries			Yes
	Challenges in health in low- and middle-income countries		Yes	
	Integrative Health Practices			Yes
	Clinical approach to disease and care of patients:			
	Clinical diagnostic reasoning i.e. diagnostic possibilities based on interpretation of history, physical findings and laboratory investigations	Yes		
	Palliative Care	yes		
	Principles of rational management:			
	keeping in mind the best evidence in favor of or against different remedial measures (EBM)	Yes		
2	Medical Ethics			
	Principles of medical ethics- Beneficence, non –maleficence, patient autonomy, equity Different concepts- health ethics,	Yes		
	<u>Brief introduction to perspectives of medical ethics:</u> Hippocratic Oath, declaration of Helsinki, WHO declaration of Geneva,	Yes		
	<u>Ethics of the individual:</u> Confidentiality, physician patient relationship, Patient autonomy, organ donation	Yes		
	Death and dying, and Euthanasia		Yes	
	<u>Ethics of human life:</u> In vitro fertilization, prenatal sex-determination, surrogate motherhood, genetic engineering		Yes	
	<u>Professional ethics:</u> Code of conduct, fee charging and splitting, allocation of resources in health care	Yes		
	<u>Family and society in medical ethics:</u> Family planning , Care of terminally ill/dying patient	Yes		
	<u>Ethical work up of cases:</u> Gathering information, gain confidentiality, shared decision making, informed consent	Yes		
	<u>Research ethics:</u> animal and experimental research, human experimentation, informed consent, drug trials			Yes
	Practice of universal precautions	Yes		
	Bio medical waste: types, potential risks and their safe management.	Yes		

	PEP Prophylaxis	Yes		
	Hand washing	Yes		
2	Common Symptoms of Disease			
	Pain: pathophysiology, clinical types, assessment and management	Yes		
	Fever: clinical assessment and management	Yes		
	Rare causes of Fever of unknown origin			Yes
	Cough, chest pain, dyspnoea, hemoptysis	Yes		
	Edema, anasarca, ascites	Yes		
	Pallor, jaundice	Yes		
	Bleeding	Yes		
	Anorexia, nausea and vomiting	Yes		
	Constipation and diarrhea	Yes		
	Hematemesis, malena and hematochezia	Yes		
	Common urinary symptoms- dysuria, pyuria, anuria, oliguria, polyuria, nocturia, enuresis	Yes		
	Body pains and joint pains	Yes		
	Headache, seizures, fainting, syncope, dizziness, vertigo	Yes		
	Disturbances of consciousness and coma	Yes		
	Weight loss and weight gain	Yes		
	Clinical genetics – common types, clinical presentation, investigation and prevention of genetic diseases and genetic counseling			Yes
	Medial disorders and pregnancy	Yes		
3	Nutrition and Nutritional Disorders			
	Nutritional assessment & needs	Yes		
	Protein energy malnutrition	Yes		
	Obesity	Yes		
	Vitamin deficiency & excess	Yes		
	Mineral deficiency and excess	Yes		
	Diet therapy	Yes		
4	Fluid, Electrolyte and Acid-base Imbalance			
	Fluid and electrolyte balance; acidosis and alkalosis in particular relevance to diarrhea, vomiting, dehydration, uremia and diabetic ketoacidosis	Yes		
5	Poisonings, Stings and Bites			
	General approach to the poisoned patient	Yes		
	Poisoning by specific pharmaceutical agents- organophosphorus compounds	Yes		
	Poisoning: methyl alcohol, narcotics, aluminium phosphide, sedatives / hypnotics, other poisonings common locally		yes	
	Drugs of misuse	Yes		

	Snake bite and Envenomation	Yes		
	Other bites and stings – scorpion, spider		Yes	
6	Specific Environmental and Occupation Hazards			
	Heatstroke and hypothermia	Yes		
	Chemicals and pesticides	Yes		
	Drowning and near drowning	Yes		
	Electrical injuries	Yes		
	Radiation injury			Yes
	Heavy metal poisoning			Yes
7	Immune Response and Infections	Yes		
	Approach to infectious diseases – diagnostic and therapeutic principles	Yes		
	Immune defense mechanisms		Yes	
	Laboratory diagnosis of infections	Yes		
	Principles of immunization and vaccine use	Yes		
	Immunodeficiency disorders – acquired			Yes
	Immunodeficiency disorders – congenital			Yes
	Clinical syndromes – diagnostic and therapeutic approach <ul style="list-style-type: none"> • The febrile patient • Fever and rash • Fever of unknown origin • Infective endocarditis • Intra-abdominal infections and abscesses • Acute infectious diarrhoeal diseases and food poisoning • Sexually transmitted diseases – overview & clinical approach • Infections of skin, muscle & soft tissues • Osteomyelitis • Hospital acquired infections • Infections in immuno-compromised hosts 	Yes		
8	Specific Infections – Epidemiology, clinical features, laboratory diagnosis, rational use of antimicrobial therapy and their prevention:			
	Protozoal infections			
	Amoebiasis, Giardiasis, Malaria, Leishmaniasis Trichomoniasis	Yes		
	Toxoplasmosis, Trypanosomiasis	Yes		
	Bacterial infections :			
	Common gram positive infections	Yes		
	Common gram-negative infections	Yes		
	Enteric fever	Yes		
	Tetanus	Yes		
	Pertussis and diphtheria		Yes	
	Legionella infections			Yes
	Botulism			Yes
	Gas gangrene, other clostridia infections		Yes	
	Cholera	Yes		
	Shigellosis and bacillary dysentery		Yes	
	Brucellosis			Yes
	Plague		Yes	
	Leptospirosis	Yes		
	Donovanosis (Granuloma inguinale)		Yes	
	Helicobacter Pylori	Yes		
	Infections due to pseudomonas & other gram- negative bacteria	Yes		
	Anaerobic infections		Yes	
	Mycobacterial diseases			
	Tuberculosis	Yes		
	Leprosy	Yes		

	Viral infections			
	Common exanthemata e.g. Measles, mumps, rubella, varicella	Yes		
	Herpes simplex and herpes zoster	Yes		
	Influenza and other common viral respiratory infections	Yes		
	Human immunodeficiency virus (HIV)	Yes		
	Viral gastroenteritis	Yes		
	Dengue fever	Yes		
	Rabies	Yes		
	Viral encephalitis	Yes		
	Infectious mononucleosis		Yes	
	Rickettsia, Mycoplasma & Chlamydial diseases		Yes	
	Infections in immunocompromised host	Yes		
	Common fungal infections e.g. Candidiasis, Aspergillosis, Histoplasmosis, Cryptococcosis, Mucormycosis, Pneumocystis carinii.	Yes		
	Common worm infestations e.g. hookworm, roundworm, thread worm	Yes		
9	Cardiovascular system			
	Clinical examination of the cardiovascular system	Yes		
	Functional anatomy, physiology and investigations	Yes		
	Major manifestations of cardiovascular disease Chest pain, breathlessness, palpitation, Acute circulatory failure (cardiogenic shock) Presyncope and syncope, Cardiac arrest and sudden cardiac death, Abnormal heart sounds and murmurs.	Yes		
	ECG, x ray chest with reference to common CVS diseases	Yes		
	Acute and chronic congestive cardiac failure	Yes		
	Rheumatic fever and rheumatic heart disease	Yes		
	Valvular heart disease			
	Infective endocarditis	Yes		
	Coronary artery disease	Yes		
	Common congenital heart disease in the adults: ASD, VSD, PDA, TOF and coarctation of aorta	Yes		
	Cor pulmonale	Yes		
	Hypertension and hypertensive heart disease	Yes		
	Common cardiac arrhythmias	Yes		
	Deep vein thrombosis	Yes		
	Atherosclerosis and peripheral vascular disease		Yes	
	Pericardial disease: pericardial effusion and cardiac tamponade	Yes		
	Aortic aneurysm		Yes	
	Myocarditis and cardiomyopathy		Yes	
10	Respiratory system			
	Clinical examination of the respiratory system	Yes		
	Respiratory physiology and diagnostic investigations – x ray chest, sputum examination, pulmonary function tests	Yes		
	Bronchoscopy		Yes	
	Nuclear Medicine Techniques in respiratory system			Yes
	Major manifestations of lung disease			
	Cough, dyspnoea, chest pain, haemoptysis, the solitary radiographic pulmonary lesion, Acute and chronic respiratory failure	Yes		
	Upper respiratory infections	Yes		
	Pneumonias	Yes		
	Bronchial asthma	Yes		
	Chronic obstructive pulmonary disease	Yes		
	Pulmonary tuberculosis: different presentations	Yes		
	Suppurative lung diseases: bronchiectasis, lung abscess	Yes		
	Cystic Fibrosis		Yes	
	Pleural diseases – effusion, empyema, pneumothorax	Yes		

	Interstitial and infiltrative lung diseases	Yes		
	Common occupational lung diseases	Yes		
	Tumors of the bronchus and lung	Yes		
	Pulmonary vascular diseases <ul style="list-style-type: none"> • Pulmonary hypertension • Pulmonary thromboembolism 	Yes		
	Acute respiratory distress syndrome	Yes		
	Obstructive sleep apnoea		Yes	
	Diseases of the nasopharynx, larynx and trachea		Yes	
	Diseases of the mediastinum, diaphragm and chest wall		Yes	
	Lung Transplantation			Yes
11	Renal and genito-urinary system			
	Renal physiology and common renal function tests: urine examination, renal function tests, common imaging methods	Yes		
	Cellular and Molecular Biology of the Kidney			Yes
	Major manifestations of renal and urinary tract disease : Dysuria, pyuria, urethral symptoms, disorders of urine volume, hematuria, proteinuria, oedema, incontinence, obstruction of the urinary tract.	Yes		
	Acute renal failure	Yes		
	Chronic renal failure	Yes		
	Urinary tract infections and pyelonephritis	Yes		
	Congenital abnormalities of the kidneys and urinary system			Yes
	Glomerulonephritides and nephrotic syndrome	Yes		
	Tubulo-interstitial diseases		Yes	
	Renal involvement in systemic disorders	Yes		
	Drugs and the kidney	Yes		
	Renal vascular diseases		Yes	
	Urinary tract calculi and nephrocalcinosis	Yes		
	Tumors of the kidney and genitourinary tract		Yes	
	Renal replacement therapy: basics		Yes	
	Transplantation in the Treatment			Yes
12	Gastrointestinal tract			
	Clinical examination of the abdomen	Yes		
	Basic investigations: stool examination, role of imaging, endoscopy and tests of functions.	Yes		
	Major manifestations of gastrointestinal disease Abdominal pain (acute and chronic), dysphagia, dyspepsia, vomiting, constipation, diarrhea, abdominal lump, weight loss, gastrointestinal bleeding-upper and lower, approach to the patient with gastrointestinal disease	Yes		
	Diseases of the mouth and salivary glands – oral ulcers, candidiasis, Parotitis.	Yes		
	Diseases of the oesophagus – GERD, other motility disorders, oesophagitis, carcinoma oesophagus.	Yes		
	Diseases of esophagus: CONGENITAL ANOMALIES			Yes
	Diseases of the stomach and duodenum-gastritis, peptic ulcer disease, tumors of stomach.	Yes		
	Disease of the small intestine Acute gastroenteritis & food poisoning , acute, sub-acute and chronic intestinal obstruction, intestinal tuberculosis	Yes		
	Inflammatory bowel disease Malabsorption syndrome	Yes		

	Tumors of small intestine			Yes
	Disorders of the colon and rectum Bacillary dysentery, amoebic colitis ,ulcerative colitis Irritable bowel disease	Yes		
	Tumors of the colon & rectum		Yes	
	Abdominal tuberculosis :peritoneal,nodal, gastrointestinal	Yes		
	Ischaemic gut injury			Yes
	Anorectal disorders		Yes	
	Diseases of the peritoneal cavity :acute and chronic peritonitis, ascites	Yes		
13	Disease of pancreas			
	Acute and chronic pancreatitis	Yes		
	Tumors of pancreas		Yes	
14	Hepatobiliary tract disease			
	Clinical examination of the abdomen for liver and biliary disease	Yes		
	Functional anatomy, physiology , liver function tests, basics of role of imaging of the hepatobiliary disease	Yes		
	Major manifestations of liver disease <ul style="list-style-type: none"> • 'Asymptomatic' abnormal liver function tests • Jaundice • Acute (fulminant) hepatic failure • Portal hypertension and ascites • Hepatic (porto-systemic encephalopathy) 	Yes		
	Hepatorenal failure		Yes	
	Liver abscess- amoebic & pyogenic	Yes		
	Acute and chronic hepatitis –viral and toxic	Yes		
	Alcoholic liver disease	Yes		
	Cirrhosis of liver and chronic liver disease	Yes		
	Fatty liver and non alcoholic steatohepatitis	Yes		
	Infiltrative diseases of liver		Yes	
	Intrahepatic biliary diseases			Yes
	Vascular liver diseases			Yes
	Acute and chronic 'cholecystitis', cholelithiasis	Yes		
	Tumors of gall bladder and bile ducts		Yes	
15	Endocrine and Metabolic disorders			
	Diabetes mellitus: aetiopathogenesis, diagnosis, management, recognition of acute and chronic complications, and immediate management of acute complications, special problems in management.	Yes		
	Hypo and hyperthyroidism – major manifestations, recognition, interpretation of thyroid function tests	Yes		
	Iodine deficiency disorders	Yes		
	Cushing's syndrome and Addison's disease - recognition	Yes		
	Pituitary disorders: Acromegaly and Sheehan's syndromes		Yes	
	Calcium and phosphorus metabolism: parathyroid and metabolic bone Disease.	Yes		
	Hypogonadism		Yes	
	Hypopituitarism and hyperpituitarism		Yes	
	Hypothalamic disorders		Yes	
	Hypoparathyroidism and hyperparathyroidism		Yes	
	Diseases affecting multiple endocrine Glands			Yes
16	Hematological disorders			

	Definition, prevalence, etiological factor, pathophysiology, pathology, recognition, investigations and principles of treatment of: <ul style="list-style-type: none"> Anemias: iron deficiency, megaloblastic and common haemolytic anemias (thalassemia, sickle cell and acquired hemolytic) Common bleeding disorders (thombocytopenia and hemophilia) Agranulocytosis and aplastic anemia 	Yes		
	Leukemias: Recognition, diagnosis, differential diagnosis and broad principles of management	Yes		
	Lymphomas: Recognition , diagnosis , differential diagnosis and broad principles of management	Yes		
	Blood group and transfusion: Major blood group systems and histo compatibility complex, concepts of transfusion and component therapy; indications for transfusion therapy, precautions to be taken during blood transfusion, hazards of transfusion and safe handling of blood and blood products.		Yes	
	Disorders of coagulation and venous thrombosis	Yes		
	Bone marrow transplantation		Yes	
	Oncologic Emergencies		Yes	
17	Disorders of the Immune System, Connective Tissue and Joints			
	Introduction to the immune system and autoimmunity	Yes		
	Allergies, Anaphylaxis, and systemic mastocytosis			yes
	Primary immune deficiency diseases			Yes
	Autoimmunity and autoimmune diseases		Yes	
	Systemic Lupus Erythematosus, Antiphospholipid Syndrome, Rheumatoid Arthritis, Acute Rheumatic Fever, Systemic Sclerosis (Scleroderma),and Related Disorders, Amyloidosis	Yes		
	Behçet's Syndrome, Relapsing Polychondritis, IgG4-Related Disease, Vasculitic syndromes			yes
	Polymyositis, Dermatomyositis,and Inclusion Body Myositis		yes	
	Recognition of major manifestations of musculoskeletal disease:	Yes		
	Approach to articular and musculoskeletal disorders	Yes		
	Musculoskeletal manifestations of disease in other systems	Yes		
	Diseases of bone			
	Neurological Diseases		Yes	
18	Clinical examination of nervous system	Yes		
	Functional anatomy, physiology and investigations : EEG,	Yes		
	Major manifestations of nervous system disease:Headache and facial pain, raised intracranial tension, faintness, dizziness,	Yes		
	Migraine and cluster headaches	Yes		
	Seizures and epilepsy	Yes		
	Cerebrovascular disease	Yes		
	Dementias including Alzhiemer's disease		Yes	
	Acute and chronic meningitis	Yes		
	Viral encephalitis	Yes		
	Diseases of cranial nerves		Yes	
	Intracranial tumours		Yes	

	Diseases of spinal cord – transverse myelitis and cord	Yes		
	Multiple sclerosis and other demyelinating diseases		Yes	
	Parkinson's disease and other extrapyramidal disorders		Yes	
	Cerebellar disorders	Yes		
	Motor neuron disease		Yes	
	Peripheral neuropathy		Yes	
	Neurological manifestations of system diseases	Yes		
	Nutritional and metabolic diseases of the nervous system		Yes	
	Myasthenia gravis and other diseases of neuromuscular	Yes		
	Diseases of muscle		Yes	
	Recognition of brain death	Yes		
	Primary and metastatic tumours of the Central Nervous System		Yes	
	Clinical Pharmacology and Therapeutics			
19	Principles of drug therapy	Yes		
	Adverse drug reactions	Yes		
	Drug interactions	Yes		
	Monitoring drug therapy		Yes	
	Rational prescription writing	Yes		
	Concept of essential drugs		Yes	
20	Critical Care Medicine			
	Physiology of the critically ill patient	Yes		
	Recognition of major manifestations of critical illness, circulatory failure: shock, respiratory failure, renal failure, coma, sepsis, disseminated intravascular coagulation.	Yes		
	General principles of critical care management	Yes		
	Scoring systems of critical care		Yes	
	Outcome and costs of intensive care			Yes
	Ethical issues related to critical care	Yes		
21	Pain Management and Palliative Care			
	General principles of pain	Yes		
	Assessment and treatment of pain	Yes		
	Palliative care		Yes	
22	Geriatrics			
	Principles of Geriatric Medicine	Yes		
	Normal ageing	Yes		
	Clinical assessment of frail elderly	Yes		
	Decisions about investigations and rehabilitation	Yes		
	Major manifestations of diseases in elderly	Yes		
	Special issues for care of elderly	Yes		

Teaching and Learning methods

Lectures, Small group discussions, Seminars, Algorithms, Problem Based Learning, Videography, Integrated teachings and e-modules.

Skills

Skill labs, Role play, Problem based - paper and real cases, Integrated teaching and Field visits.

INFECTIOUS DISEASES AND ENVIRONMENTAL MEDICINE

Symposia / Modules

1. Fever with rash
2. FUO
3. Rodenticide, aluminum phosphide, CuSO₄, drug overdose, methyl alcohol and others (2 symposia)

4. Diarrhoea and dysentery
5. HIV infection (Symposium)

DISEASES OF THE GASTROINTESTINAL TRACT AND LIVER DISEASES

Symposia / Modules

1. Ascites
2. Jaundice
3. Chronic diarrhea

NEPHROLOGY

Symposia / Modules

1. Glomerulopathies, tubular disorders.
2. Drugs and the kidney.

HEMATOLOGY

Symposia

1. Anemia.
2. Bleeding disorders.

ENDOCRINOLOGY

Symposia / Modules

1. Interpretation of thyroid and adrenal function tests.
2. Diabetic emergencies / endocrine emergencies.

NEUROLOGY

Symposium

1. COMA
2. Neurological emergencies – (Status epilepticus, others)

CARDIOLOGY

Symposia / Modules

1. Heart failure.
2. Hypertension.

RESPIRATORY SYSTEM

Symposia / Modules

- a) Pulmonary Function Tests, sputum examination and chest radiograph interpretation
- b) Laboratory investigations in respiratory disease
- c) Respiratory emergencies – Acute respiratory failure, chronic respiratory failure, status asthmaticus.

Paper wise distribution of Topics (Annexure II)

Paper 1

Topics	Weightage
Infection and Tropical diseases	30
Nutrition and Its disorders	20
Genetics and Aging	10
Disturbance of water, electrolyte and acid base imbalance	20
Specific Environmental and Occupation Hazards	15
Respiratory system	25
Good medical practice	5
Common symptoms of diseases	15
Psychiatry	40

Paper 2

Topics	Weightage
Neurological disorders.	25
Gastroenterology Tract and Hepato-biliary System	25
Cardiovascular System	25
Critical Care Medicine & Poisoning.	10
Endocrinal diseases, Diabetes mellitus & Metabolism	25
Diseases of Connective tissue, joints and bones	25
Diseases of kidney and urogenital System	25
Dermatology & S.T.D	40

Reference books: (Annexure III)

1. Harrison Principles of internal Medicine
2. Davidson Principle and Practice of medicine
3. Mcleod's Clinical methods
4. Hutchison's Clinical Methods

