MGM INSTITUTE OF HEALTH SCIENCES
(Deemed University u/s 3 of UGC Act, 1956)
Grade 'A' Accredited by NAAC
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MGM 09 MD General Medicine

Program Outcomes:

The intended outcome of course is a consultant specialist who can practice medicine at a defined level of competency in different practice settings. i.e. ambulatory (outpatient), inpatient, intensive care and emergency medicine.

The student is expected to know his subject in depth; however, emphasis should be on the diseases/health problems most prevalent in that area. Knowledge of recent advances and basic sciences as applicable to his/her specialty should get high priority

Postgraduate training should enable the student to:

KNOWLEDGE

PO1. Practice efficiently internal medicine specialty, backed by scientific knowledge including basic sciences and skills

PO2. Diagnose and manage majority of conditions in his specialty (clinically and with the help of relevant investigations

PO4. Plan and deliver comprehensive treatment using the principles of rational drug therapy

PO5. Plan and advise measures for the prevention and rehabilitation of patients belonging to his specialty.

PO6. Manage emergencies efficiently.

PO7. Recognize conditions that may be outside the area of the specialty/competence and refer them to an appropriate specialist.

PO8. Demonstrate skills in documentation of case details including epidemiological data

PO10. Demonstrate competence in basic concepts of research methodology and clinical epidemiology, and preventive aspects of various disease states

PO11. Be well versed with his medico-legal responsibilities

SKILLS

PO12. Basic Life Support (BLS) and Advanced Life Support (ALS) in emergency situations

PO13. Procedural skills- to do basic & advanced bed side procedures

PO14. To develop communication skills to communicate with patient & relatives regarding disease process, outcome, breaking bad news. Communication & interpersonal skills with paramedical staff.

PO15. Be a motivated 'teacher' - defined as one keen to share knowledge and skills with a colleague or a junior or any learner.

PO16. Should develop Leadership skills & skill to work in a team.

PO17. Undertake audit, use information technology tools and carry out research - both basic and clinical, with the aim of publishing the work and presenting the work at scientific forums.

SUBJECT SPECIFIC COMPETENCIES

A. Cognitive domain

By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:

Basic Sciences

1. Basics of human anatomy as relevant to clinical practice e.g. surface anatomy of various viscera, neuro-anatomy, important structures/organs location in different anatomical locations in the body; common congenital anomalie

2. Basic functioning of various organ-system, control of vital functions, patho-

physiological alteration in diseased states, interpretation of symptoms and signs in relation to patho-physiology.

3. Common pathological changes in various organs associated with diseases and their correlation with clinical signs; understanding various pathogenic processes and possible therapeutic interventions possible at various levels to reverse or arrest the progress of diseases.

4. Knowledge about various microorganisms, their special characteristics important for their pathogenetic potential or of diagnostic help; important organisms associated with tropical diseases, their growth pattern/life-cycles, levels of therapeutic interventions possible in preventing and/or eradicating the organisms.

5. Knowledge about pharmacokinetics and pharmaco-dynamics of the drugs used for the management of common problems in a normal person and in patients with diseases kidneys/liver etc. which may need alteration in metabolism/excretion of the drugs; rational use of available drugs.

6. Knowledge about various poisons with specific reference to different geographical and clinical settings, diagnosis and management.

7. Research Methodology and Studies, epidemiology and basic Biostatistics.

8. National Health Programmes.

9. Biochemical basis of various diseases including fluid and electrolyte disorders; Acid base disorders etc.

10. Recent advances in relevant basic science subjects.

Systemic Medicine

1. Preventive and environmental issues, including principles of preventive health care, immunization and occupational, environmental medicine and bio-terrorism.

2. Aging and Geriatric Medicine including Biology, epidemiology and neuro-psychiatric aspects of aging.

3. Clinical Pharmacology - principles of drug therapy, biology of addiction and complementary and alternative medicine.

4. Genetics - overview of the paradigm of genetic contribution to health and disease, principles of Human Genetics, single gene and chromosomal disorders and gene therapy.

5. Immunology - The innate and adaptive immune systems, mechanisms of immune mediated cell injury and transplantation immunology

6. Cardio-vascular diseases - Approach to the patient with possible cardio-vascular diseases, heart failure, arrhythmias, hypertension, coronary artery disease, valvular heart disease, infective endocarditis, diseases of the myocardium and pericardium and diseases of the aorta and peripheral vascular system.

7. Respiratory system - approach to the patient with respiratory disease, disorders of ventilation, asthma, Congenital Obstructive Pulmonary Disease (COPD), Pneumonia, pulmonary embolism, cystic fibrosis, obstructive sleep apnoea syndrome and diseases of the chest wall, pleura and mediastinum.

8. Nephrology - approach to the patient with renal diseases, acid-base disorders, acute kidney injury, chronic kidney disease, tubulo-interstitial diseases, nephrolithiasis, Diabetes and the kidney, obstructive uropathy and treatment of irreversible renal failure.

9. Gastro-intestinal diseases - approach to the patient with gastrointestinal diseases, gastrointestinal endoscopy, motility disorders, diseases of the oesophagus, acid peptic disease, functional gastrointestinal disorders, diarrhea, irritable bowel syndrome, pancreatitis and diseases of the rectum and anus.

10. Diseases of the liver and gall bladder - approach to the patient with liver disease, acute viral hepatitis, chronic hepatitis, alcoholic and non-alcoholic

steatohepatitis, cirrhosis and its sequelae, hepatic failure and liver transplantation and diseases of the gall bladder and bile ducts.

11. Haematologic diseases - haematopoiesis, anaemias, leucopenia and
leucocytosis, myelo-proliferative disorders, disorders of haemostasis and haemopoietic stem cell transplantation.

12. Oncology - epidemiology, biology and genetics of cancer, paraneoplastic syndromes and endocrine manifestations of tumours, leukemias and lymphomas, cancers of various organ systems and cancer chemotherapy.

13. Metabolic diseases - inborn errors of metabolism and disorders of metabolism.

14. Nutritional diseases - nutritional assessment, enteral and parenteral nutrition, obesity and eating disorders.

15. Endocrine - principles of endocrinology, diseases of various endocrine organs including diabetes mellitus.

16. Rheumatic diseases - approach to the patient with rheumatic diseases, osteoarthritis, rheumatoid arthritis, spondyloarthropathies, systemic lupus erythematosus (SLE), polymyalgia, rheumatic fibromyalgia and amyloidosis.

17. Infectious diseases - Basic consideration in Infectious Diseases, clinical syndromes, community acquired clinical syndromes. Nosocomial infections, Bacterial diseases - General consideration, diseases caused by gram - positive bacteria, diseases caused by gram - negative bacteria, miscellaneous bacterial infections, Mycobacterial diseases, Spirochetal diseases, Rickettsia,
Mycoplasma and Chlamydia, viral diseases, DNA viruses, DNA and RNA respiratory viruses, RNA viruses, fungal infections, protozoal and helminthic infections .

18. Neurology - approach to the patient with neurologic disease, headache, seizure disorders and epilepsy, coma, disorders of sleep, cerebrovascular diseases,

Parkinson's disease and other movement disorders, motor neuron disease, meningitis and encephalitis, peripheral neuropathies, muscle diseases, diseases of neuromuscular transmission and autonomic disorders and their management.

19. The mental condition characterized by complete self absorption with reduced ability to communicate with the outside world (Autism), abnormal functioning in social interaction with or without repetitive behaviour and/or poor communication etc.

20. Dermatology - Structure and functions of skin, infections of skin, papulo-squamous and inflammatory skin rashes, photo-dermatology, erythroderma, cutaneous manifestations of systematic diseases, bullous diseases, drug induced rashes, disorders of hair and nails, principles of topical therapy.

B. Affective Domain:

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.

2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

Clinical Assessment Skills

Elicit a detailed clinical history

Perform a thorough physical examination of all the systems

Procedural skills

Test dose administration

- Mantoux test
- Sampling of fluid for culture
- IV- Infusions
- Intravenous injections
- Intravenous canulation
- ECG recording
- Pleural tap
- Lumbar puncture
- Cardiac
- TMT
- Holter Monitoring
- Echocardiogram
- Doppler studies
- Cardio Pulmonary Resuscitation (CPR)
- Central venous line insertion, CVP monitoring
- Blood and blood components matching and transfusions
- Arterial puncture for ABG
- Fine needle aspiration cytology (FNAC) from palpable lumps
- Bone marrow aspiration and biopsy
- Abdominal paracentesis - diagnostic
- Aspiration of liver abscess
- Pericardiocentesis
- Joint fluid aspiration
- Liver biopsy
- Nerve/ muscle/ skin/ kidney/ pleural biopsy

- Ultrasound abdomen, echocardiography
- Upper GI endoscopy, procto-sigmoidoscopy

Respiratory management

- Nebulization
- Inhaler therapy
- Oxygen delivery

Critically ill person

- Monitoring a sick person
- Endotracheal intubation
- CPR
- Using a defibrillator
- Pulse oximetry
- Feeding tube/Ryle's tube, stomach wash

- Naso-gastric intubation
- Urinary catheterization – male and female
- Prognostication
- Haemodialysis

Neurology- interpret

- **Nerve Conduction studies**
- **EEG**
- Evolved Potential interpretation
- Certification of Brain death
- Intercostal tube placement with underwater seal Thoracocentesis
- Sedation
- Analgesia

Laboratory-Diagnostic Abilities

- Urine protein, sugar, microscopy

- Peripheral blood smear
- Malarial smear
- Ziehl Nielson smear-sputum, gastric aspirate
- Gram's stain smear-CSF, pus
- Stool pH, occult blood, microscopy
- KOH smear
- Cell count - CSF, pleural, peritoneal, any serous fluid

Observes the procedure

- Subdural, ventricular tap
- Joint Aspiration – Injection
- ***Endoscopic Retrograde Cholangio- Pancreatography (ERCP)***
- Peritoneal dialysis

Interpretation Skills

Clinical data (history and examination findings), formulating a differential diagnosis in order of priority, using principles of clinical decision making, plan investigative work-up, keeping in mind the cost-effective approach i.e. problem solving and clinical decision-making.

- Blood, urine, CSF and fluid investigations - hematology, biochemistry
- X-ray chest, abdomen, bone and joints
- ECG
- Treadmill testing
- ABG analysis
- Ultrasonography
- CT scan chest and abdomen
- CT scan head and spine
- MRI

- Barium studies
- IVP, VUR studies
- Pulmonary function tests
- Immunological investigations
- Echocardiographic studies

Interpretation under supervision

- Hemodynamic monitoring
    - Nuclear isotope scanning
    - MRI spectroscopy/SPECT
    - Ultrasound guided aspiration and biopsies

Communication skills

- While eliciting clinical history and performing physical examination
- Communicating health, and disease
- Communicating about a seriously ill or mentally abnormal
- Communicating death
- Informed consent
- Empathy with patient and family members
- Referral letters, and replies
- Discharge summaries
- Death certificates
- Pre-test counseling for HIV
- Post-test counseling for HIV

Pedagogy -teaching students, other health functionaries-lectures, bedside clinics, discussions

Health education - prevention of common medical problems, promoting healthy

life-style, immunization, periodic health screening, counseling skills in risk factors for common malignancies, cardiovascular disease, AIDS

Dietary counseling in health and disease

Case presentation skills including recording case history/examination, preparing follow-up notes, preparing referral notes, oral presentation of new cases/follow-up cases

Co-coordinating care - team work (with house staff, nurses, faculty etc.)

- Linking patients with community resources
- Providing referral
- Genetic counseling

Others

- *Demonstrating*
  - professionalism
  - ethical behavior (humane and professional care to patients)
- *Utilization of information technology*
  - Medline search, Internet access, computer usage
- *Research methodology*
  - designing a study
  - interpretation and presentation of scientific data
- *Self-directed learning*
  - identifying key information sources
  - literature searches
  - information management
- *Therapeutic decision-making*
  - managing multiple problems simultaneously
  - assessing risks, benefits and costs of treatment options

- involving patients in decision-making
- selecting specific drugs within classes
- Rational use of drugs

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