



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

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MGM 18 MD Geriatrics

Program Outcomes:

- PO1. To perform a comprehensive assessment of an older person, including mood and cognition, gait, nutrition and fitness for surgery for in-patient, dental patients, home or community setting, including day hospitals.
- PO2. To diagnose and manage acute illness in old age for an in-patient setting, home and community setting where appropriate.
- PO3. To diagnose and manage those with chronic disease and disability for OPD and in-patient, home, hospital and community setting.
- PO 4. To provide rehabilitation with the multidisciplinary team to an older patient for OPD and inpatient, home, hospital and community setting.
- PO 5. To organize and implement different National Health care programs for the older person.
- PO 6. To plan the transfer of care of frail older patients from hospital to home settings.
- PO 7. To apply the knowledge and skills of a competent Geriatrician in an intermediate care, home and/or community setting.
- PO 8. To evaluate and manage older patients presenting with the common geriatric problems: (a) falls with or without fracture, (b) delirium, (c) incontinence, (d) poor mobility etc.
- PO 9. To demonstrate competence in palliative care, orthogeriatric, old age psychiatry and stroke care.
- PO 10. To be competent in basic research methodology, ethical principles of research, comprehensive scrutiny of medical literature and interest in basic science or clinical research.
- PO 11. To conduct research to improve health status of the older person and thereby improve quality of life, to reduce disability and arrest or delay, age related problems.

KNOWLEDGE-

- PO12. At the end of the course, the student should have in-depth knowledge of Geriatric Medicine as well as of Internal Medicine including basic sciences and skills.
- PO13. The post graduate students also have to acquire the knowledge of physiological changes in aging, identify the manifestations due to majority of diseases and plan the management including relevant investigations and care of the elderly.
- PO14. Management of acute emergencies efficiently in elderly patients.
- PO15. Treatment of elderly should be based on rational drug therapy and pharmacokinetic changes in the elderly, avoiding polypharmacy.
- Should also have adequate knowledge and expertise for prevention of diseases including adult immunization, rehabilitations and social geriatrics and epidemiological studies.

SKILLS-

PO16. Through the training program the student should develop a positive attitude and empathy towards the elderly patient.

PO17. The student should develop skills of communication with the elderly patient especially considering their deficits in hearing and eyesight.

PO18. History taking and clinical skills with respect to the elderly patient have to be developed.

PO19. The student also needs to acquire skills in carrying out various diagnostic and therapeutic procedures including basic & advanced bed side procedures and use of geriatric assessment tools

PO20. Adequate skills in Basic Life Support (BLS) and Advanced Cardiovascular Life Support (ACLS) in emergency situations.

PO21. Should acquire leadership skills & team spirits and managerial skills.

PO22. Should be able to make use of information technology for research and publications and presentation in scientific conventions and skill in basic statistical analysis.

PO23. Should be able to take up teaching assignments in clinical Geriatrics and for nursing faculties and students for geriatric care.

SUBJECT SPECIFIC COMPETENCIES

A. Cognitive domain

At the end of the course, the student should have acquired knowledge in the following theoretical competencies:

1. To develop the ability to obtain a relevant focused history
2. To demonstrate the ability to appropriately diagnose, evaluate, and prescribe treatment and preventive strategies for older adults.
3. To develop ability to prescribe, review and monitor appropriate medication
4. To be able to formulate a diagnostic and therapeutic plan for the older patient according to the clinical information available and communicate the same
5. To understand and discuss the risks of treatments with patients and relatives so that they are aware of risks and able to make decisions
6. To develop ability to manage/control infection in patients including risk of cross-infection
7. To communicate effectively and sensitively with patients, relatives and carers
8. To be able to deliver bad news according to the needs of individual patients and their relatives/ carers
9. To know and be able to apply the principles and laws regarding medical ethics and confidentiality

10. To obtain valid consent from the patient
11. To develop the ability to perform audit of clinical practice
12. To work effectively with many teams and put the quality and safety of patient care as a prime objective
13. To be able to perform a comprehensive geriatric assessment
14. To be able to diagnose and manage acute illness in older patients in a variety of settings
15. To be able to diagnose and manage chronic disease and disability in older patients in both hospital and home settings
16. To recognize, diagnose and manage a state of delirium presenting both acutely or sub-acutely in older patients
17. To be able to assess and manage patients who present with dementia alone or with other illnesses
18. To acquire knowledge and skills required to assess and manage urinary and faecal incontinence in older patients
19. To be able to assess and manage older patients presenting with falls (with or without fracture)
20. To be able to assess the nutritional status of older people and devise an appropriate nutritional support strategy
21. To know how to assess the cause of immobility and declining mobility in older patients and its management
22. To be able to assess, diagnose and monitor common types of leg and pressure ulceration, surgical and other wounds in older patients
23. To be able to manage older patients with movement disorders
24. To be able to assess acutely ill orthopedic patients and their rehabilitation
25. To be able to assess and manage older patients with psychiatric conditions
26. To have the knowledge and skills to assess and advise appropriate palliative care to older patients with malignant and non-malignant life-limiting diseases
27. To provide care for patients with acute stroke and chronic stroke-related disability
28. To provide the post graduate student with advanced knowledge and skills to assess and manage older patients presenting with falls (with or without injury) or syncope
29. To develop knowledge and skills to assess and manage older patients with fracture, particularly hip fracture and manage fracture risk
30. To develop knowledge and skills to assess and manage older patients with gynecological problems
31. To identify the important concepts of patho-physiology of common diseases of older people.
32. To be able to describe / define
 - anatomical and histological changes associated with ageing
 - pathology associated with normal ageing and age associated disease processes
 - biochemical, molecular, cellular, genetic theories of ageing
 - physiology of ageing
 - effect of ageing upon pharmaco-dynamics and pharmacokinetics

B. Affective Domain

The post graduate student:

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. should 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. should 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

At the end of the course, the student should have acquired the following skills:

- History taking in the elderly
- Physical Examination of the old patient

Investigations in the elderly:

- Policy and interpretation
- Radiological, Hematological and Biochemical investigations
- ECG
- Urinalysis
- Radioisotope tests/ Bone Scan
- Imaging – Ultrasound, CT Scan, MRI
- How much to investigate?
- Concept of normal range
- Nutritional Assessment
- Investigation of heart diseases in old age
 - Cardiac Arrhythmias
 - Coronary Artery Disease
 - Acute Myocardial Infarction
 - Hypertension and Hypertensive Heart Disease
 - Postural Hypotension
 - Congestive Heart Failure
 - Aortic aneurysm
 - Bacterial endocarditis
 - Peripheral vascular disease
 - Deep Venous Thrombosis
- Investigations of the Gastro-intestinal tract
 - Disorders of the mouth/loss of teeth

- GERD / Hiatus Hernia/ Acid Peptic Disease
- Disease of the pancreas
- Diseases of the small intestine
- Diseases of the large intestine
- Fecal incontinence/ Constipation - prevention and management
- GI malignancy
- Disease of the liver and biliary System
- Investigations of the genitor-urinary tract
 - Urinary Tract Infection - diagnosis and management
 - Benign hypertrophy and cancer of the prostate - diagnosis and management
 - Urinary incontinence/ Urinary retention- evaluation and management
- Management of Psychiatric Illness
 - Diagnosis and management of - depression, cognitive impairment/ dementia, anxiety state/ acute confused state/delirium
- Investigations and management of endocrine disorders
 - Diabetes
 - Thyroid diseases
- Investigation and management of neurological disorders
 - Stroke
 - Parkinson's disease
- Investigation and management of ;
 - Osteoarthritis
 - Osteoporosis
- Investigation and management of:
 - COPD/bronchial asthma/ cor pulmonale/ acute and chronic respiratory failure
 - Tuberculosis
 - Pulmonary thromboembolism
 - Pneumonia - cause, diagnosis and treatment
 - Lung cancer

Malignancy in old age:

- Investigation and Management
- Early detection and Counseling

Surgery in the Elderly:

- Pre-operative Assessment
- Priorities for surgery
- Surgical Emergencies
- Fractures
- Pathological fractures

- Benign lesions
- Gangrene - Amputation
- Elective Surgery
- Post-operative problems and Management
- Anesthesia in old age

***COURSE OUTCOME
Syllabus***

The broad outline of the course contents is given below:

A) **Basic Sciences:** Biology of human ageing, Epidemiology of human ageing, Immunology of human ageing, Effect of ageing on different organs, death.

B) **Clinical Geriatric Medicine:** General Medicine, Geriatric Medicine, Cardiology, Pulmonary Medicine, Gastroenterology, Endocrinology, Nephrology, Neurology, Rheumatology, Hematology and Oncology.

Allied specialties: Orthopedics, Urology, Gynecology, Ophthalmology, ENT, Dentistry, Psychiatry, Pre - and post - anesthetic evaluation and management.

C) **Preventive geriatrics:** Rehabilitation, end of life care, legal, ethical and economic aspects

The details of the course contents under each of the four papers are outlined herewith:

Paper I: Basic Sciences of the following systems:

1. Anatomy
2. Physiology
3. Biochemistry
4. Pharmacology
5. Microbiology
6. Pathology

Paper II: General Medicine and Psycho-Geriatrics

Introduction to Clinical Medicine:

- Headache
- Chest pain
- Chills and Fever
- Lassitude and Asthenia
- Cough
- Nausea and Vomiting

- Dysphagia
- Ascites
- Weakness, Tremor
- Dizziness, Vertigo, Disorders of Sensation, Seizures

Immunological Factors in Disease:

- Components of immune system
- Mechanism of the immune response
- Immune deficiency and lympho-proliferative disorders
- Types of immune reaction and their relation to disease
- Suppression of immune reactions and its effects

Infection and Diseases:

- Nature of microorganisms
- Epidemiology and spread of infections
- Immunity and Immunosenescence
- Diagnosis and management of infections
- Pyrexia of unknown origin

Chemotherapy of Infections:

- Antibiotics and other antibacterial agents
- Anti-virals
- Anti-fungals
- Anti-retroviral therapy

Disturbances in Electrolyte and Water Metabolism:

- Hyponatremia and hyponatremia
- Hyperkalemia and hypokalemia
- Calcium-phosphate and magnesium metabolism
- Disturbances in H⁺ ion concentration

Diseases of the Cardiovascular System:

- Cardiac Arrhythmias
- Cardiac failure
- Valvular Heart Disease
- Ischemic Heart Disease
- Pericardial diseases

- Cardiomyopathies, Myocarditis
- Atherosclerosis, hypertension
- Diseases of the aorta
- Peripheral Vascular Disease

Diseases of the Respiratory System:

- Disease of the Upper and Lower Respiratory Tract
- Bronchial Asthma, chronic Obstructive Pulmonary Disorder (COPD), Cor pulmonale
- Acute and Chronic Respiratory Failure
- Neoplasm of lung
- Diseases of Pleura, Mediastinum and Diaphragm

Diseases of the Gastrointestinal System:

- Diseases of the esophagus, Gastro-esophageal Reflux Disorder (GERD)
- Peptic Ulcer, Gastritis and other diseases of the stomach
- Inflammatory diseases of small and large intestine
- Diverticulosis
- Malignancy of stomach, small intestine, colon and rectum
- Mal-absorption syndrome
- Diseases of the peritoneum

Diseases of the Liver and Biliary Tract:

- Diagnostic procedures in liver disorders
- Derangement of hepatic/biliary metabolism
- Acute Hepatitis
- Chronic active hepatitis
- Cirrhosis of liver
- Tumors of liver
- Liver Abscess
- Infiltrative and Metabolic diseases of liver
- Disorders of Gall Bladder and Bile Duct
- Ascites

Diseases of the Pancreas:

- Diagnosis of pancreatic diseases
- Acute and chronic pancreatitis
- Tumors of pancreas

Diseases of the Kidney and Urinary System:

- Acute Renal Failure
- Chronic Kidney Disease
- Glomerulonephritis
- Nephrotic syndrome
- Vascular diseases of the kidney
- Infections of the urinary tract
- Obstructive Uropathy
- Urinary Incontinence
- Nephrolithiasis
- Renal Cell Carcinoma

Diseases of the Endocrine System:

- Thalamus and pituitary gland
- Diseases of the Anterior Pituitary
- Disorders of the neuro-hypophysis
- Hyper thyroidism and hypo -thyroidism
- Hyper parathyroidism and hypo -parathyroidism
- Diabetes Mellitus
- Hyperinsulinism /Glucagon and its effects
- Diseases of the Adrenal Cortex and Medulla
- Diseases of the testes and ovaries

Diseases of Blood and Blood Forming Organs:

- Blood formation and destruction
- Anemia
- Bone Marrow Failure
- Blood Groups and Blood Transfusion
- Myeloproliferative disorders
- Abnormal hemoglobins
- Disorders of platelets
- Hemorrhagic disorders
- Leukemia
- Lymphomas
- Diseases of Spleen and Reticulo-endothelial system

Diseases of Connective Tissue, Joints and Bones:

- Rheumatoid Arthritis, including Late Onset Rheumatoid Arthritis (LORA)
- Ankylosing spondylitis

- Systemic Lupus Erythematosus/ Vasculitis
- Scleroderma
- Polymyalgia Rheumatica
- Gout/ Pseudogout
- Osteoarthritis
- Diseases of bone - Metabolic and Endocrine
- Tumors of Bone

Diseases of the Nervous System:

- Diagnostic methods in Neurology
- Coma
- Headache
- Epilepsy
- Sleep Disorders
- Diseases of Cranial Nerves
- Cerebro-vascular Diseases
- Diseases of the Spinal Cord
- Diseases of the Peripheral Nervous System
- Pyogenic infections of the CNS
- Viral Infections
- Multiple Sclerosis and other demyelinating diseases
- Metabolic and Nutritional diseases of brain
- Degenerative diseases

Diseases of the Skin:

- Skin lesions of general medical significance
- Generalized pruritus
- Pressure ulcers
- Pigmentation of the skin
- Disorders of Melanin Metabolism
- Photosensitivity and other reactions to light
- Hirsutism and Alopecia
- Cutaneous manifestations of internal malignancy
- Psoriasis
- Scabies
- Fungal infections of skin

Psycho-Geriatrics:

- Epidemiology of Mental Disorders in the elderly
- Definition and Classification of Psychiatric Disorders

- Delirium /Acute confusional state
- Dementia
- Depression in old age
- Bipolar disorder
- Functional psychiatric disorders in old age
- Personality and behavioral disorders
- Psychogeriatric service - Principles of treatment
- Management of Psychiatric Illness
- Alcoholism and the elderly patient
- Care-giver problems

Paper III: Geriatric Medicine

General:

- Demography, World Trends
- Trends in India and Developing countries
- The Aged and Society - Past and Present
- The evolution of Geriatric Medicine

Gerontology:

- Normal and abnormal aging
- Theories of aging
- Metabolic and Structural aspects of aging
- Biochemical changes in the Normal aging Brain
- Aging in tissues and cells
- Atherosclerosis and aging
- Ecology of Human Senses
- The milieu interior and aging

Geriatric Medicine:

- How are older patients different?
- Common patterns of disease in old age
- Alteration in pain and temperature responses
- Missing Symptoms
- Complications of Illness
- Non-specific presentations
- Masking by known disease
- History taking in the elderly
- Physical Examination of the old patient

Investigations in the elderly:

- Policy and interpretation
- Radiological, Hematological & Biochemical investigations
- ECG
- Urinalysis
- Radio isotope tests
- Bone Scan
- Imaging – Ultrasound, CT Scan, MRI
- How much to investigate?
- Concept of normal range

Immunology:

- Genetic aspects of Immunity and Immunological Diseases
- Mutation
- Alternative theories of Aging
- Cancer
- Immunological Surveillance

Nutrition:

- Nutritional requirement
- Changes in total body mass and body composition
- Nutritional Assessment
- Nutritional deficiency in old age
- Osteoporosis
- Osteomalacia and Vitamin D
- Iron and Vitamins
- Recommended intake of nutrients
- Prevention of nutritional deficiency

Cardiovascular System:

- Physiology and Pathology of Cardiovascular system in old age
- Investigation of Heart Diseases in old age
- Cardiac Arrhythmias
- Coronary Artery Disease and Acute Myocardial Infarction
- Hypertension and Hypertensive Heart Disease
- Postural Hypotension
- Valvular Heart Disease
- Chronic Congestive Heart Failure
- Aortic aneurysm
- Bacterial Endocarditis

- Peripheral Vascular Disease
- Deep Venous Thrombosis and Pulmonary Embolism

Endocrine and Metabolic Disorders:

- Changes with aging
- Diabetes Mellitus
- Diseases of the Pituitary, Parathyroid and Thyroid
- Obesity
- Sexual dysfunction
- Disorders of Sodium, Potassium, Calcium, Magnesium and Zinc
- Disturbances of Fluid Metabolism
- Hyperpyrexia / Heat Stroke

Central Nervous System:

- The Aging Brain
- Vascular lesions of the Central Nervous System
 - Dementia
 - Degenerative disorders including Parkinsonism
 - Head Trauma
 - Infections of the Nervous System
 - Epilepsy
 - Peripheral Neuropathy
 - Disorders of Spinal cord and Nerve Roots
 - Neoplasia

Genitourinary System:

- Structural changes with aging
- Acute and Chronic Renal Failure
- Infections of the Genito-urinary Tract
- Diseases of the Bladder and Prostate
- Urinary Incontinence
- Aging changes in the Genital Tract
- Post-menopausal bleeding
- Gynecological disorders in the elderly

Disorders of the Special Senses:

- Disorders of the Eye
- Hearing Disturbances
- Disturbance of Taste and Smell

- Dental Problems

Infections in the Elderly:

- Host Defenses - Natural Barriers
- White Cell response, Immune mechanism
- Diagnosis of Fevers
- Urinary Infection - Diagnosis and Treatment
- Pneumonias - Cause, Diagnosis and Treatment
- Septicemia
- Bacterial Endocarditis
- Antibiotic Treatment
- Rational Use of Antibiotics

Gastro-intestinal system:

- Changes with age
- Investigations of the Gastro-intestinal tract
- Disorders of the mouth
- GERD / Hiatus Hernia
- Acid Peptic Disease
- Disease of the Pancreas
- Diseases of the small Intestine
- Diseases of the large Intestine
- Fecal Incontinence
- GI Malignancy
- Disease of the liver and Biliary System
- Constipation – Prevention and Management

Respiratory System:

- Changes with age
- Infections of the Respiratory System
- Bronchial Asthma, Chronic Obstructive Airway Disease, Cor Pulmonale
- Bronchogenic carcinoma
- Respiratory Abnormalities in Extra-pulmonary conditions
- Respiratory Failure

Musculoskeletal System:

- The aging joints
- Degenerative Joint Disease

- Gout/ Pseudo-gout
- Rheumatoid Arthritis
- Infective Arthritis
- Myositis/ Myopathy
- Polymyalgia Rheumatica/ Temporal Arthritis
- Osteoporosis
- Osteomalacia

Hematopoietic System:

- Changes with aging
- Anemia in the elderly
- Leukemias and Lymphomas
- Para-proteinaemia
- Myelodysplastic syndromes
- Disorders of Hemostasis

Dermatology:

- Aging skin
- Senile purpura
- Bed sores
- Pruritus/ Intertrigo
- Cancers/benign lesions
- Pemphigus/ pemphigoid
- Herpes Zoster
- Leg ulcer

Malignancy in old age:

- Incidence, Clinical Significance
- Presentation
- Investigation and Management
- Counseling

Pharmacological Aspects of Aging:

- Pharmacokinetics in the elderly
- Pharmacodynamics
- Drug Selection and Dosage
- Drug Interactions
- Adverse Drug Reactions

- Drug Compliance
- Drug Misuse/Drug abuse

Surgery in the Elderly:

- Pre-operative Assessment
- Priorities for surgery
- Surgical Emergencies
- Fractures
- Pathological fractures
- Benign lesions
- Gangrene - Amputation
- Elective Surgery
- Post-operative problems and Management
- Anesthesia in old age

Special Problems:

- Pressure Sore
- Care of the Chronically ill
- Care of patients with terminal illness
- Religion and Illness
- Falls
- Nursing home placement

Paper IV: Social and Preventive Geriatrics including Rehabilitation, and Advances in Geriatrics

Social Geriatrics:

- Types of Family - Joint family system- promotion of Joint Family System – Role of Elders and the younger generation
- Isolation, loneliness and dependency - Dependency ratio - Generational equality
- Social changes due to urbanization and industrialization with respect to Elders
- Financial aspects - sources of income, old age pension
- Role of Government and NGOs in up-liftment of socio-economic status of older people
- International and national policies on ageing and old age care

- Geriatric Service for the Elderly in Western Countries and in India - Structure of geriatric Service - Family as basic Unit - Models of Geriatric Service
- Day Hospital, Day Care Centre, Long Stay Care Institution, Home for the Aged
Functions of the Day Hospital - Staff and patients of day Hospital
- Nursing Home in Western Countries - Goals of Geriatric Care - Need for similar services in India
- Psycho-geriatric services - structure and facility - Domicilliary Assessment and community Care
- Terminal Care Services - social and Spiritual problems in Terminally ill
- Ethical Issues in Geriatric Medicine - Self determination an decision making in treatment options - Informed Consent - Quality of life - Age limits on health care
- Euthanasia - Acts of Omission and Commission

Preventive Geriatrics:

- Preventing Diseases and promoting health in old age - Types of preventive activities - Risk factor management in elderly - screening
- Health belief model - General Health practices in elderly
- Exercise in the elderly - Physical and Mental domain - Benefits of Exercise
- Development of Anticipatory Care and its Rationale - methods of Anticipatory Care
- Health promotion and Health Education in the Elderly
- Anti-Aging interventions

Rehabilitation:

- The concepts and History of Rehabilitation
- The goals of Rehabilitation
- Principles of Rehabilitation - Assessment, goals, priorities and monitoring progress
- Rehabilitation in old age - Special features in relating to aging, multiple pathology, Policies, expectation, carers, acute illness, social and financial support
- Clinical evaluation of rehabilitation - impairment, disability and handicap
- Prevalence of disability, types of disability

- Rehabilitation as Team work - Team leadership, therapist, physiotherapy, occupational therapy, social worker, physician and nursing personnel.
- Self care evaluation and management of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) - Self Care Assessment Tools
- Aids and application - tools for living
- Role of physiotherapy in the elderly
- Contractures and other deleterious effects of immobility
- Pressure Ulcer - factors, prevention and management
- Rehabilitation of Stroke in the elderly
- Rehabilitation of specific diseases - Parkinsonism, Paraplegia, Fracture neck of femur, acute and chronic arthritis, lower limb amputation, low back pain
- Organization and effectiveness of rehabilitation services - Community Services
- Geriatric Unit, Day hospital, Day Care Centre, Long Stay Care Institution - role of rehabilitation in the above services

Advances in Geriatric Medicine:

- Alzheimer's Disease
- Parkinsonism
 - Osteoporosis
 - Urinary Incontinence
 - Falls / Prevention of Fractures

- Parenteral Nutrition
- Stroke Clinic and Memory Clinic
- Anti-aging research



Dr. Rajesh B. Goel

Registrar

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