

DOW UNIVERSITY OF
HEALTH SCIENCES,
KARACHI.



Doctor of Medicine - MD

**Department of Postgraduate
Studies**

1 COURSE OUTLINE M.D CARDIOLOGY

(COURSE OUTLINE YEARWISE+DEPARTMENTAL ROTATION)

SCHEME OF THE PROGRAMS

Education event	Phase I one year		<ul style="list-style-type: none"> • Introduction to the program • Research methodology and biostatistics • BLS & ACLS workshops for basic computer skills communicate & presentation skills & Ethics. 		
			<ul style="list-style-type: none"> • 6th months Cardiology & 6th months in general Medicine training • Intermediate Examination(MCQ) from basic science community preventive cardiology + general Medicine • Submission of Research Protocol including the topic, objectives, Justification, material and method of research and bibliography • Synopsis approval and weting from Board of Higher Education after Scrutiny. • Log Book Maintenance 		
	Phase II 4-year		<ul style="list-style-type: none"> • Training of Cardiology Program • Research & Thesis • Rotations as schedule • Assignments and assessment(Log book) • Evaluation after every year (MCQ & written) 		
Evaluation of Thesis	<ul style="list-style-type: none"> • Research Thesis to be Evaluated by local & overseas program 				
Exit evaluation	<ul style="list-style-type: none"> • Final Examination • Continuous Assessment • Research Thesis • Written Papers • Oral and Practical 				
	3 months	3 months	3 months	3 months	
2 nd Year	Cardiology ward	Cardiology ward	Speciality (Elective) e.g. Pulmonology	Cardiac Surgery	
3 rd Year	Cathlab	Cathlab	ECHO	ETT / Gama Camera	Assessment 10%
4 th Year	CCU	CCU	Speciality (Elective) e.g. Nephrology	Holter Monetoring/ Electrophysiology	Assessment 10%
5 th Year	Cardiology ER	Cardiology ER	Cardiology OPD	Cardiology	Final Exam 80%

Note:

The performance of candidate will be evaluated by at the end of:

- 1 year departmental Evaluation by exam (as given by above)
- 6 monthly Thesis report during 2 to 5 years.

2-COURSE OUTLINE M. D CRITICAL CARE MEDICINE

SCHEME OF THE PROGRAMS

Education	Phase I one year	<ul style="list-style-type: none"> • Introduction to the program • 3 months module Research methodology and biostatistics, computer skills, communication and presentation skills and ethics. • BLS & ACLS workshops • Clinical Rotation in Medicine & Allied Departments for nine months
		<ul style="list-style-type: none"> • Primary Examination (MCQ) • Written
	Phase II 4- yearS	<ul style="list-style-type: none"> • Training of Critical Care Medicine program • Research & Thesis • Rotations as schedule below • Assignments and assessment (Log book) • Evaluation after every year(MCQ & written)
Evaluation of thesis	Research Thesis to be evaluated by local and overseas assessors	
Exit evaluation	Final Examination Continuous Assessment Written Papers Oral and Practical Thesis Viva	

	3 months	3 months	3 months	3 months	
1 st year	BLS/ACLS Research and biostatistics etc...	Internal medicine	Pulmonology <i>Topic of thesis selected</i>	Rotation in Cardiology, Nephrology & Neurology (One month each) <i>Synopsis submitted</i>	Primary Exam
2 nd Year	Medical ICU <i>Synopsis evaluated</i>	Medical ICU <i>Synopsis evaluated</i>	Surgical ICU <i>Research</i>	Anesthesiology <i>Research</i>	Assessment 10%
3 rd Year	Medical ICU <i>Research</i>	Medical ICU <i>Research</i>	2 months Rotations in 1. CCU & Cath Lab 2. Pediatric & Neonatal ICU 3. ER		Assessment 10%
4 th Year	Medical ICU <i>Research</i>	Medical ICU <i>Research</i>	Medical ICU <i>Thesis writing</i>	Medical ICU/ Bronchoscopy unit <i>Thesis submission</i>	Assessment 10%
5 th Year	Medical ICU / Bronchoscopy unit <i>Thesis evaluation local</i>	Medical ICU <i>Thesis evaluation overseas</i>	Medical ICU <i>Thesis evaluation overseas</i>	Medical ICU	Final Exam 70 %

3 COURSE OUTLINE M.D RADIOLOGY

SCHEME OF THE PROGRAMS:

Education	Phase I one year	<ul style="list-style-type: none"> • Introduction to the program • 3 months module Research methodology and biostatistics, computer skills, communication and presentation skills and ethics. • Radiology for nine months, (six months Radiography, two months Ultra sound, one month CT scan)
		<ul style="list-style-type: none"> • Primary Examination (MCQ) • Written
	Phase II 4- year	<ul style="list-style-type: none"> • Training of Radiology program • Research & Thesis • Rotations as schedule below • Assignments and assessment (Log book) • Evaluation after every year(MCQ & written)
Evaluation of thesis	Research Thesis to be evaluated by local and overseas assessors	
Exit evaluation	Final Examination Continuous Assessment Written Papers Oral and Practical Thesis Viva	

	3 months	3 months	3 months	3 months	
1 st year	Research and biostatistics etc...	Radiology	Radiology <i>Topic of thesis selected</i>	Radiology <i>Synopsis submitted</i>	Primary Exam
2 nd Year	Specialty <i>Synopsis evaluated</i>	Specialty <i>Synopsis evaluated</i>	Radiology <i>Research</i>	Radiology <i>Research</i>	Assessment 10%
3 rd Year	Radiology <i>Research</i>	Radiology <i>Research</i>	Radiology <i>Research</i>	Radiology <i>Research</i>	Assessment 10%
4 th Year	Radiology <i>Research</i>	Radiology <i>Research</i>	Radiology <i>Thesis writing</i>	Specialty (Elective) <i>Thesis submission</i>	Assessment 10%
5 th Year	Radiology <i>Thesis evaluation local</i>	Radiology <i>Thesis evaluation overseas</i>	Radiology <i>Thesis evaluation overseas</i>	Radiology	Final Exam 70 %

4 COURSE OUTLINE M.D PULMONOLOGY

SCHEME OF THE PROGRAM:

Education event	Phase I one year	<ul style="list-style-type: none"> • Introduction to the program • Research methodology and biostatistics • Internal Medicine for one year 			
		<ul style="list-style-type: none"> • Intermediate Examination (MCQ) • Written 			
	Phase II 4- year	<ul style="list-style-type: none"> • Training of Pulmonology • Research & Thesis • Rotations & schedule below • Assignments and assessment (Log Book) • Evaluation after every year (MCQ & written) 			
Exit Evaluation	Final Examination Continuous Assessment Research Thesis Written Papers Oral and Practical				
	3 Months	3 Months	3 Months	3 Months	
2 nd Year	Pulmonology	General Medicine Rotation	Pulmonology	Cardiology (2mo) Medical ICU (01mo) Rotation	
3 rd Year	Thoracic Surgery (2mo) Sleep Lab (01mo) Rotation	Pulmonology	Pulmonology	Pulmonology	Assessment 10%
4 th Year	Pulmonology	Pulmonology	Pulmonology	Electives (03 months)	Assessment 10%
5 th Year	Medical ICU (06 weeks) Radiology (06 weeks)	Pulmonology	Pulmonology	Pulmonology (06 weeks) Prep. Leave (06 weeks)	Final Exam. 80%

YEAR WISE ROTATION

FIRST YEAR

No Rotation

SECOND YEAR

General Medicine-----03 months

Cardiology-----02 months

Medical ICU-----01 month

THIRD YEAR

Thoracic Surgery-----02 months

Sleep lab. ----- 01month

FOURTH YEAR

Electives-----03 months

FIFTH YEAR

Medical ICU-----06 weeks

Radiology-----06 weeks

Preparation Leave-----06 weeks

COURSE OUTLINE YEAR WISE

FIRST YEAR TRAINING

- Is FOUNDATION MODULE
- Include:
 - Respiratory Anatomy
 - Respiratory Physiology
 - Pharmacology
 - Epidemiology
 - Pathology
- Duration : 12 months
- Exams : after 15 days of completion
- Only written paper
- Workshops And Research

SECOND YEAR TRAINING

- General Medicine rotation (03 months), Cardiology (02 months) and Medical ICU (01 months). The rest of months in Pulmonology (06 months).
- Research Protocol Synopsis approval
- Pulmonology topics
 - Pulmonary tuberculosis including MDR and XDR TB.
 - Extrapulmonary tuberculosis
 - Nontuberculosis Mycobacteria (NTM)
 - Diseases of Pleura

THIRD YEAR TRAINING

- Pulmonary infection (other than TB)
- Airway Diseases
- Interstitial Lung Disease

FOURTH YEAR TRAINING

- Neoplastic Diseases
- Occupational and Environmental Lung Diseases

FIVE YEAR TRAINING

- Diseases of the Alveolar Space
- Diseases of the Pulmonary Vasculature

5 COURSE OUTLINE M.D FAMILY MEDICINE

OBJECTIVES OF THE FAMILY MEDICINE PROGRAM:

1. Detect and treat common ambulatory, organic infectious and functional diseases prevalent in Pakistan.
2. Provide continuity of care, educate patients and communities regarding measures for disease prevention and treatment feasible in the existing socio-economic and cultural context
3. Analyze the influence of psycho-social economic and environment factors on the health status of individuals and groups, and suggest appropriate measures for their correction.
4. Maximize use of limited resources for optimal health delivery by collaborating with governmental and private organizations.
5. Participate in the process of health service planning and development for services which are efficient, effective and equitable.
6. Enhance community participation in solving health problems.
7. Pursue continuous and self-directed professional medical education to update knowledge and skills.
8. To actively undertake and participate in research related to Family Medicine.

Competencies & Skills

After end of the training for MD in Family Medicine, The trainee will have achieved the following:

1. Diagnose and manage independently the vast majority of conditions that occur frequently in the primary care setting.
2. Recognize and refer conditions that need to be managed in consultation with appropriate specialist either because of their severity or their potential complications. Family physicians may begin treatment or initiate stabilization, and resume responsibility later for ongoing management
3. Perform minor surgical procedures without consultation (surgical skills).
4. Advise and select investigations for diagnosis, interpret them and refer to appropriate specialist for further workup
5. Correctly write medical note, management plan, discharge summaries, letter for referral etc.
6. Demonstrate excellent verbal communication skills like in seminars ,bedside sessions, communication with patients and relatives
7. Elicit accurately physical signs and interpret them
8. Conduct research independently, Interpret the results and write up article for publication
9. Perform appropriate counseling and advocate preventive measures

TRAINING PROGRAM

The Family Medicine training program stresses on both clinical and community health competencies .In addition to curative, It includes preventive and rehabilitative medicine.

Outline of the Training Program

It is a five year training program which combines in and outpatient experiences in a variety of primary and subspecialty clinical disciplines.

Family Medicine Core Curriculum:

The Core Curriculum is two-Hour education session for family medicine residents scheduled every week and some workshops in a five-year residency program. In this session residents discuss core topic of family medicine in the form of presentations, case scenarios, group discussion. Some of the topics will be presented using the problem based learning approach. Participants of the core include all family medicine residents, interns, other family medicine faculty members. At least one senior faculty member is available as a resource person during each session. The other objectives of this session include improvement of presentation and communication skills.

- Health education
- Health promotion and screening
- Adult ambulatory medicine
- Reproductive health
- Common problems during childhood and adolescence
- Community psychiatry
- Nutrition of children, women and men
- Primary care management of medical emergencies
- Community dental health
- Medical ethics
- Pain management
- Terminal care
- Research methodology and medical audit
- Communication Skills

WORKSHOPS

- BLS, ACLS
- Communication skill
- Research methodology /synopsis
- Writing SPSS/ computer skill

Family Medicine Training consists of training in different specialties, achieved by rotating them in different clinical departments and outpatient clinics of both tertiary care centers and primary health care units / general practitioner clinics.

Departmental rotation:

Year 1-

Medicine and allied specialties (Cardiology, Neurology and Psychiatry) both in and outpatient department for 6 months
 Pediatrics, OBS & Gynae for 3+2 months both in and outpatient department
 One month for deficit and self-study before examination
 Submission of synopsis for research work

Year 2-

General Surgery and Orthopedics-3 months
 Eye and ENT-2 months
 Dermatology, Pulmonology and Psychiatry-3 months
 Family clinics, Radiology, Clinical Laboratory and ICU-4 months
 Submission and acceptance of synopsis for research work is mandatory

Year 3-

Rural clinics-3 month
 ER-rotation-3 months
 Research work data collection and writing-3 months
 Elective rotation in Family department of other university with recognized family medicine program-3 month
 Candidate will have to take Clinical examination in this year

Year 4-

Out-patient clinic rotation in Medicine, Cardiology, Psychiatry, Dermatology, Pediatrics, General surgery, Orthopedics, Eye, ENT, OBS & Gyne. All for 1-month except Pediatrics for 2-months

Year 5-

Year of Consolidation
 Running Family Clinic under supervision and independently as well
 Performing Procedures under supervision and independently as well
 Teaching Family Medicine Students
 Getting Thesis approved or paper published in HEC recognized journal
 Preparing for Final Theory and Clinical examination
 Core curriculum teaching throughout five years once every week for two hours

Course Outline

Medicine

1. Cardiovascular Diseases:
 - a. Diagnose and manage:
 - Common Arrhythmias
 - Chest Pain
 - Coronary Heart Disease (including Acute Myocardial Infarction)
 - Congestive Heart Failure
 - Hypertensive Disease (Including hypertensive crisis)
 - Thrombophlebitis
 - Rheumatic fever
 - Syncope
 - Acquired Valvular Disease
 - b. Recognize, stabilize and refer:
 - Congenital heart disease
 - Cardiomyopathies
 - Bacterial Endocarditis
 - c. Perform (skills):
 - Cardioversion
 - Cardiac resuscitation
 - Electrocardiography (& detect common abnormalities)
 - d. Select test/procedures and interpret reports of :
 - Exercise stress Testing
 - Echocardiogram

2. Endocrinology and Metabolic Disease

- a. diagnose and manage:
 - Diabetes Mellitus and complications
 - Thyroid Disorders
 - Osteoporosis and osteomalacia
 - Obesity
 - Amenorrhoea (primary and secondary)
 - Hirsutism
 - Gynaecomastia
 - Infertility
- b. recognize, stabilize and refer:
 - Adrenal Disorders
 - Hyper/hypocacemia
 - Hyper/hypogonadism
 - Thyroiditis and crisis
 - Hyper/hypoglycaemic comas

3. Gastrointestinal Diseases

- a. diagnose and manage:
 - Cirrhosis
 - Cholelithiasis, cholecystitis
 - Diarrhea and Gastroenteritis
 - Hepatitis
 - Hiatus hernia
 - Irritable bowel Syndrome
 - Jaundice
 - Peptic Ulcer Disease /GERD
 - Malabsorption syndromes

b. recognize, stabilize and refer:

- Hepatic coma and precoma
- Complicated peptic ulcer
- Cholecystitis, cholelithiasis
- Acute abdomen
- Gastrointestinal bleeding

c. perform (skills):

- Paracentesis

d. select tests and interpret reports:

- Liver function tests
- Abdominal ultrasound and computerized tomography scans
- Upper and Lower Gastrointestinal Series
- Endoscopies
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4. Haematology and Oncology

a. diagnose and manage:

- Anaemia
- Polycythaemia
- Thrombocytopenia
- Neutropenia

b. recognize early, stabilize and refer:

- Problems with anemia, thrombocytopenia and neutropenia
- Haemoglobinopathies
- Leukemias, myelomas, Lymphomas, Hodgkin's disease
- Bleeding disorders

c. perform (skills):

- Cancer prevention and periodic screening
- Symptomatic therapy and pain management of metastatic cancer
- Anticoagulant therapy
- Peripheral blood smear examination

d. select and interpret reports:

- Complete Blood count and peripheral blood picture
- Bone marrow examination

5. Infections Diseases

a. diagnosis and manage:

- Amoebiasis
- Coliform bacterial infections
- Gonococcal infections
- Helminthic infections common to Pakistan
- Hemolytic Streptococcal infections
- Haemophilus infections
- Herpes Zoster and Simplex
- Influenza
- Malaria
- Measles
- Meningococcal infections
- Mycoplasma pneumoniae
- Mumps
- Osteomyelitis
- Pneumococcal infections
- Respiratory viral infections
- Rubella
- Salmonella infections

- Shigellosis
 - Staphylococcal infections
 - Syphilis
 - Tuberculosis
 - Urinary Tract Infections
 - Varicella
- b. recognize, stabilize and refer:
- Acquired Immunodeficiency Syndrome
 - Opportunistic infections
 - Septic Shock
 - Tetanus
- c. perform (Skills):
- Throat swab
 - Malaria films
- d. select test and interpret reports:
- All cultures
6. Nephrology / Urology
- a. diagnose and manage:
- Fluid, electrolyte and acid base problems
 - Urinary Tract Infections
 - Urinary Calculi
 - Urethritis
 - Prostatitis
 - Epididymitis
- b. Recognize, stabilize and refer:
- Acute glomerulonephritis and acute renal failure
 - Hydronephrosis
 - Nephrotic syndrome
 - Prostatic hypertrophy with urinary retention
 - Urinary calculi with obstruction
 - Testicular torsion and Testicular tumors
 - Undescended testes
- c. perform(skills):
- Urine Dipstick
- d. select and interpret reports:
- Urinalysis
 - Urine culture
 - Intravenous Pyelogram and CT pyelogram
7. Neurology
- a. diagnose and manage:
- Cerebrovascular Accidents including TIA
 - Drug intoxication
 - Headaches
 - Herpes Zoster
 - Neuropathy, diabetic and nutritional
 - Parkinsonism
 - Spondylosis
 - Epilepsy
 - Dementia
 - Bell's palsy
- b. recognize, stabilize and refer:
- Meningitis
 - Multiple Sclerosis
 - Brain tumor or abscess
 - Encephalomyelitis

- Coma
 - Pituitary adenomas
 - Subdural and epidural hematoma
 - Myasthenia gravis
- c. perform (skills):
- Lumbar puncture
 - Fundoscopy
- d. select and interpret reports:
- EEG
 - EMG and Nerve conduction studies.
 - CAT scan
 - Skull and spine x-rays
 - MRI

8. Pulmonary medicine

- a. diagnose and manage:
- Asthma(acute exacerbations)
 - Upper and Lower Tract Respiratory Infections
 - Chronic Obstructive Pulmonary Disease
 - Tuberculosis
 - Pleural effusion
- b. recognize , stabilize and refer:
- Pneumothorax
 - Pulmonary body aspiration
 - State asthmaticus
 - Other causes of acute respiratory distress
- c. perform (skills):
- Arterial puncture for blood gas determination
 - Thoracentesis
 - Peak flowmetry
- d. selected and interpret reports:
- Chest x-ray interpretation
 - Pulmonary function tests and Spirometry
 - Pleural fluid aspiration

II OBSTETRICS AND GYNECOLOGY

- a. Diagnose and manage:
- Menstrual disorders
 - Common causes of vaginal discharge and Pelvic inflammatory disease
 - Normal Labor (assessment and management)
 - Antenatal care
 - Urinary tract infections in pregnancy
 - Maternal and fetal risk assessment
 - Puerperal sepsis
 - Endometrioses
 - Infertility
 - Urinary Incontinence
 - Ante, Peri and post natal Care for normal deliveries
 - Eclampsia
 - Antepartum hemorrhage
 - Postpartum hemorrhage
 - Foetal distress
- b. Recognize, stabilize and refer:
- Fetal distress
 - Pregnancy/Labor Complications
 - High risk pregnancies
 - Preeclampsia and Eclampsia

- Diabetes and Hypertension in pregnancy
 - Antepartum and Post partum Hemorrhage
 - Infertility
 - Endometriosis, ovarian cysts and tumors
 - Cervical, endometrial or ovarian carcinomas
 - Urinary Incontinence
- c. Perform (skills)/ provide:
- Examination of a pregnant lady (including Leopold's maneuver) Ante, Peri-and postnatal Care for normal deliveries
 - Normal labor (assessment and management)
 - Nutritional guidance for mothers
 - Family Planning and Counseling
 - Appropriate H R T
 - Out –patient work –up for infertility
 - Pap smear
 - Intrauterine Contraceptive device insertion
- d. Select & refer patients for :
- Caesarean section
 - Hysterectomy.
 - Induction of Labour.

III GENERAL SURGERY

- a. Diagnose and manage:
- Animal Bites
 - Minor burns and injuries
 - Severe acute pain
 - Bed sores
 - Breast disorders
 - Inguinoscrotal swellings
- b. Recognize, stabilize and refer:
- Acute abdomen
 - Gall Bladder Disease
 - Bowel Obstruction
 - Urinary Tract Obstruction
 - Appropriate fluid and electrolyte therapy
- c. Perform (skills):
- Local anaesthesia
 - Haemostasis
 - Rapid assessment of an acutely ill patient
 - Insertion of a chest tube
 - Laceration Suturing
 - Irrigation and debridement of contaminated wound
 - Incision and Drainage of superficial abscesses
 - Nasogastric tube insertion
 - Circumcision
 - Skin Biopsy
 - Removal of subcutaneous lumps and cysts
 - Fine Needle Aspiration
 - Dressings
 - Enema administration
 - Removal of faecal impaction
 - Urinary Catheterization and bladder wash
 - Wedge resection for ingrowing toe-nail

IV. Pediatrics

- a. Diagnose and manage:
- Low Birth Weight

- Malnutrition
- Acute Upper and Lower Respiratory Tract Infections
- Tuberculosis
- Childhood communicable diseases
- Diarrhea
- Anemia
- Infections
- Bronchial asthma, bronchiolitis
- Otitis media
- Worm infestations
- Febrile seizures
- Acute and chronic hepatitis
- Common injuries, minor burns, nappy rash
- Feeding disorders
- UTI and nocturnal enuresis
- Failure to thrive
- Poisoning
- Common behavioral problems – discuss the special aspects and
- Supportive management of emotional and behavioural problems of child care related to growth and development through adolescence

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Recognize, stabilize and refer:

- Very Low birth weight
- Neonatal injuries
- Congenital abnormalities
- Developmental delays, Mental retardation
- Strabismus
- Neonatal SEPSIS
- Neonatal tetanus
- Sepsis/Bacteremia
- Shock
- Status asthmaticus
- Status epilepticus
- Meningitis and Encephalitis
- Inborn Errors of metabolism
- Common malignancies
- Common pediatric surgical problems: cleft lip and palate, inguinal and umbilical hernias, undescended testes
- Acute abdomen
- Meningitis

b. Perform/provide/take (skills):

- A good pediatric history and do a good physical examination
- Neonatal examination and assessment
- Natal and perinatal care
- Well child care
- Normal monitoring
- Rehydration
- Developmental assessment and monitoring
- Immunizations
- Neonatal resuscitation and prepare for transport.
- Lumbar puncture
- Blood SAMPLING
- Paracentesis
- Venesection

- Intubation
- Oxygen administration

a. Perform (skills):

- Accurate growth charting
- Accurate developmental assessment and monitoring
- Appropriate immunization
- Run a well child care clinic
- Provide breast feeding and nutrition advice
- Bronchodilator administration through nebulizer/supacer
- Rehydration, oral and intravenous fluid replacement

VI. DERMATOLOGY

A. diagnose and manage the common dermatological problems:

- Acne
- Allergic dermatosis
- Carbuncles and furuncles
- Cellulitis
- Diaper dermatitis
- Drug rashes including mild Steven-johnson Syndrome
- Eczema
- Fungal skin infections
- Herpes simplex and zoster
- Impetigo
- Keratoses
- Pediculosis
- Molluscum contagiosum
- Paronychia
- Psoriasis
- Scabies
- Seborrheic dermatitis
- Urticaria

b. detect and refer the uncommon/serious dermatological problems like:

- Pemphigus vulgaris , severe drug reactions etc.
- Skin cancers
- Stevens-Johnson syndrome
- Systemic Lupus erythematosus

c. perform (skills):

- Excision of superficial lesions
- Skin biopsy
- Skin scraping for fungus or scabies
- Cautery of superficial lesions

VII. ORTHOPEDICS (1 month)

a. Diagnose and manage:

- Arthritis, Bursitis and Tendinitis
- Carpal tunnel syndrome (without neurologic impairment)
- Contusions
- Foot care of diabetic patients
- Fracture clavicle
- Low back pain (without neurologic impairment)
- Osteoporosis prevention and treatment

- Sprains and strains
- b. Recognize, stabilize and refer complex problems like:
 - Gangrene
 - Sever Compartment syndromes
 - Compound comminuted, open fractures
 - Congenital hip dislocation
 - Osteomyelitis
 - Poliomyelitis requiring reconstruction or appliances
 - Septic joints
 - Spondylolisthesis with neurologic impairment
 - Tuberculosis of the bones and joints
- c. Perform (skills):
 - Accurate rheumatological examination of all joints and bones
 - Aspiration of joint effusions and injection into joints
 - Dressing of wounds and bandaging of sprained joints
 - Physical therapy for rehabilitation of injured joints
 - Radiological descriptions of fracture position, alignment and healing
 - Safe and effective splinting of fractures
- d. Select test and interpret reports:
 - X-Ray bones and joints, Computed tomography scan, MRI

VII. OPHTHALMOLOGY (1 MONTH)

- a. Detect and manage common problems such as :
 - Blepharitis
 - Conjunctivitis
 - Corneal abrasion
 - Evaluation of the red eye
 - Hordeolum (styes)
 - Ophthalmia neonatorum
 - Periorbital cellulitis (mild)
 - Trachoma infections
 - Episcleritis
- b. Recognize and refer:
 - Acute visual loss
 - Cataract
 - Corneal ulceration and its complications
 - Diabetic retinopathy
 - Disorders of accommodation
 - Herpetic infections
 - Glaucoma
 - Ocular manifestations of systemic diseases
 - Orbital cellulitis
 - Retinal detachment
 - Strabismus
 - Pterygium, Infections of the cornea, sclera and the uveal tract
 - Trichiasis, entropion, ectropion, symblepharon, ptosis
- c. Perform (skills):
 - Ophthalmologic examination (cornea, lens and retina)
 - Assess the intraocular pressure and vision
 - Excision of a chalazion
 - Remove superficial foreign body from the cornea

XI OTORHINOLARYNGOLOGY

A. DIAGNOSE AND MANAGE:

- Allergic, acute atrophic rhinitis
- Diphtheria
- Epistaxis
- Facial nerve paralysis (Bell's palsy)
- Labyrinthitis
- Otitis media and externa
- Pharyngitis, Laryngitis
- Sinusitis
- Thrush
- Tonsillitis

b. recognize, stabilize and refer:

- Acute airway obstruction specially epiglottitis
- Cholesteatoma , Deafness
- Nasal polyps, adenoids, septal deviation, haematoma/abscess
- Oropharyngeal/nasal carcinomas or other tumors
- Peritonsillar, retropharyngeal abscess requiring surgical therapy
- Thyroid nodules
- Vincent's angina
- Vocal cord abnormalities

c. perform (Skills):

- Appropriate ear, nose and throat examination
- Ear wax removal
- Nasal packing for control of epistaxis
- Removal of foreign body from nose or external ear

d. Select patients and refer for:

- Laryngoscopy & Foreign body removal from airway or oesophagus
- Nasal septum repair, Sinus drainage
- Tonsillectomy
- Tympanoplasty and tympanocentesis

X. PSYCHIATRY

a. diagnose and manage:

- Anxiety disorders
- Depression
- Family crisis counseling
- Somatoform disorders
- Substance abuse rehabilitation

b. recognize, stabilize and refer:

- Severe depression
- Suicidal patients
- Psychotic disorders
- Violent patient

c. perform (skills):

- Take a psychiatric history
- Assess mental status
- Sedate acutely psychotic patients
- Use psychotropic drugs appropriately & rationally
- Provide supportive psychotherapy

XI. Radiology

a. Interpret and describe classic finding in:

- Abdominal films (plain) for obstruction, perforation, stones:

- Bone radiographs for dislocations, arthritis and fractures of long bones including normal healing, delayed healing or malunion:
 - Chest x ray for effusions, congestive failure, tuberculosis, cardiomegaly, neoplasm:
 - Intravenous pyelogram for gross obstruction and gross renal function:
 - Paranasal sinus films for haziness and fluid:
 - Skull x-rays for fractures
 - Spine x-rays of the cervical, thoracic or lumbar spine for gross collapse, osteoporosis and arthritis
- b. Select and interpret reports:
- Abdominal ultrasound
 - Appropriate sequencing of radiologic procedures
 - Barium studies
 - Computed tomography
 - Magnetic resonance imaging
 - Upper gastrointestinal series

XVII. EMERGENCY ROTATION (2 months)

a. Initial stabilization and transfer of patients:

Surgical Emergencies

- Acute Abdomen
- Trauma /Shock
- Bite wounds (human and animal)
- Burns
- Urological emergencies

Medical Emergencies

- Cardiac
- Respiratory
- Gastrointestinal
- Neurological
- Drug reactions and anaphylaxis
- Coma
- Near drowning

Pediatric Emergencies

- Meningitis & Encephalitis
- Status Asthmatics
- Status Epilepticus
- Severe Dehydration

Ob/Gyn Emergencies

- Antepartum Haemorrhage
- Postpartum Haemorrhage

b. Skills and Procedures

- Wound management
- Local anaesthesia
- Incision and drainage of superficial abscess
- Haemostasis
- Endotracheal intubation
- Paracentesis (thoracic and abdominal)
- Nasogastric tube insertion
- Foreign body removal (superficial, soft tissue)
- Removal of fecal impaction

6 COURSE OUTLINE M.D NEUROLOGY

FIVE YEAR RESIDENCY PROGRAMME
INTERNAL MEDICINE ONE YEARS
NEUROLOGY FOUR YEARS
COURSE OUTLINE

Overview of basic anatomy and functions of the nervous system.

Stroke
Epilepsy
Neurodegenerative diseases
Alterations of consciousness and brain death
Nervous system infections
Traumatic brain injury
Movement disorders
Headache
Back pain
Neuromuscular disease

Autonomic Disorders
Child Neurology
Memory Disorders
Neuroimmunology and Multiple Sclerosis
Neuro-oncology
Neuromonitoring (IONM)
Neuropsychology
Neurocritical Care
Neuroradiology,
Neuro-Ophthalmology,
Neuropathology,
Sleep Disorders,
Neurometabolic disorder
Neurotoxicology
Disorder of special senses
Disorders of spinal cord
Neurophysiology
Neurorehabilitation

DEPARTMENTAL ROTATION
FIRST YEAR MEDICINE
THREE YEARS NEUROLOGY

ONE YEAR ROTATION

NEUROPHYSIOLOGY	}	THREE MONTHS EACH
NEURORADIOLOGY		
NEUROREHABILITATION		
PAEDIATRIC NEUROLOGY	}	ONE MONTH EACH
NEURO OPHTHALMOLOGY		
NEUROPATHOLOGY		

7 COURSE OUTLINE OF MD DERMATOLOGY

Common and Important Skin Disorders (Rook's Text Book of Dermatology)

- Genetic and genodermatoses
- Neonatal dermatology
- Naevi and other development disorders
- Pruritus
- Eczemas
- Occupational skin diseases
- Skin disorder related to cold
- Photodermatoses
- Infections/infestations with special emphasis on tropical disease
- like leprosy, tuberculosis and leishmaniasis.
- Disorders of Keratinization
- Skin tumors (Benign and Malignant)
- Pigmentary disorders
- Disorders of skin appendages
- Disorders of connective tissue
- Lichenoid disorders
- Sarcoidosis.
- Collagen vascular disease.
- Acne and related disorders
- Bullous disorders.
- Vascular disorders including purpura, urticarial, erythemas, vasculitis, leg ulcers.
- Drug Reactions.
- Skin Diseases in childhood, Pregnancy & old age.
- Skin manifestations of systematic diseases.
- Skin disease of specific sites
- Mucosal disorders
- Sexually transmitted disease.
- All topics from Volumes 1, 2, 3 and 4 of Rook's Textbook of
- Dermatology

ROTATIONS

A certificate testifying the candidate's attendance is obligatory for the admittance to the final examination and an entry in the logbook must also appear to this effects. The trainer should arrange for the sub-specialty training according to the facilities available. Where sub-specialties are not available, the head of the department of Dermatology should certify that candidates have handled sufficient cases of these sub-specialties:

- Plastic Surgery
- Radiotherapy
- Paediatrics
- Leprosy
- Sexually transmitted diseases
- Pathology

SYLLABUS

The outline of various topics given in this syllabus is a guide to what at the moment are considered to be important topics which the candidate is expected to know. This is to help both the candidate and the examiner in defining the minimum boundaries of MD examination.

- Anatomy and physiology of the skin and its appendages.
 - Cutaneous microbiology
 - Immunology of the skin.
 - Dermatological history taking and clinical examination.
- Communication skills

8 COURSE OUTLINE OF MD PSYCHIATRY

SCHEME OF THE PROGRAMS

Education event	Phase I one year	<ul style="list-style-type: none"> • Introduction to the program • Research methodology and biostatistics • Psychiatry for one year
		<ul style="list-style-type: none"> • Intermediate Examination (MCQ) • Written
	Phase II 4- year	<ul style="list-style-type: none"> • Training of Psychiatry program • Research & Thesis • Rotations as schedule below • Assignments and assessment (Log book) • Evaluation after every year(MCQ & written)
Exit evaluation	Final Examination Continuous Assessment Research Thesis Written Papers Oral and Practical	

	3 months	3 months	3 months	3 months	
2 nd Year	Psychiatry	Specialty	Specialty	Psychiatry	
3 rd Year	Specialty	Specialty	Psychiatry	Psychiatry	Assessment 10%
4 th Year	Psychiatry	Psychiatry	Psychiatry	Specialty (Elective)	Assessment 10%
5 th Year	Medical ICU	Psychiatry	Psychiatry	Psychiatry	Final Exam 80 %

Compulsory Rotation

Three months each

1. Neurology
2. Medicine

b) Any portion of the rotation which cannot be completed in the Dow University associated hospitals will be required to be completed in other recognized hospitals.

Basic Structure of the Program

The program is for duration of five years.

a) Entry Test:

- This will consist of a paper of 100 BCQ's.
- Contents Salient basic sciences related to the specialty.
 Aptitude for the relevant specialty.

Year One

- The candidate will spent the first year in the parent unit.
- During this period he will be introduced to the basic working of the department and will learn the basic sciences related to Psychiatry in depth will learn clinical methods and diagnostic test and investigations.

INTERMEDIATE EXAMS

Year Two

- The candidate will spent the first six month in rotations which are as above.
- In the next six months spent in the parent unit, the topic of thesis, the draft of synopsis will be finalized and submitted in the postgraduate department.
- The candidate will be given clinical responsibilities.
- Will also participate in training of medical student and paramedical staff.

Year Three

- The candidate will spent the first six month in rotations which are as above.
- In the first three months postgraduate department will get the synopsis reviewed and modified.
- In the remaining nine months the candidate will be given further clinical responsibilities and start the research for thesis.
- Will participate in training of medical student and house officers and junior PG's of year one and two.

Year Four (Senior Resident)

- Will be spent in the specialty.
- The research will completed in the first nine months and thesis returned and submitted in the last three months.
- There is an elective rotation of three months in any medical specialty.
- Clinical responsibilities will include independent decision making on the ward rounds and operating on medium procedures independently and the major procedures under supervision.
- Will participate in training of medical student and house officers and junior PG's of Year one and two.

Year Five (Chief Resident)

- Will be spent in the specialty.
- During this year the thesis will be assessed
- Clinical responsibility of junior consultant.
- Will participate in training of medical student and house officers and junior PG's of year three and four.

The program director in consultation with other supervisor in this specialty may plan internal rotation of trainees in different units to provide variety of experience.

9 COURSE OUTLINE OF MD ANAESTHESIOLOGY

DEPARTMENT ROTATION SCHEDULE FOR M.D CANDIDATES

1ST YEAR

OPERATION THEATERS	TIME DURATION
PREOPERATIVE ASSESSMENT	1 MONTH
RECOVERY ROOM	1 MONTH
GENERAL SURGERY	3 MONTHS
ORTHOPAEDIC	1 MONTH
GYNAE / OBS	1 MONTH
EYE	1 MONTH
ENT	1 MONTH
NEURO SURGERY	1 MONTH
ICU	1 MONTH
EOT	1 MONTH

2ND YEAR

OPERATION THEATERS	TIME DURATION
GENERAL SURGERY	2 MONTHS
ORTHOPAEDIC	1 MONTH
GYNAE / OBS	2 MONTHS
EYE	1 MONTH
ENT	1 MONTH
SPECIALIST	1 MONTH
ICU	1 MONTH
NEURO SURGERY	1 MONTH
GYNAE EOT	1 MONTH
PREOPERATIVE ASSESSMENT	1 MONTH

3RD YEA

OPERATION THEATERS	TIME DURATION
GENERAL SURGERY	2 MONTHS
VASCULAR SURGERY	1 MONTH
FACIAL MAXI. / PLASTIC	1 MONTH
BURNS	1 MONTH
ENT	1 MONTH
ICU	1 MONTH
GYNAE / OBS	1 MONTH
NEURO SURGERY	1 MONTH
PAEDS	1 MONTH
ERCP	1 MONTH
PAIN	1 MONTH

4TH YEAR

OPERATION THEATERS	TIME DURATION
GENERAL SURGERY	1 MONTH
VASCULAR SURGERY	1 MONTH
BURNS	1 MONTH
ENT	1 MONTH
EYE	1 MONTH
ORTHO	1 MONTH
GYNAE / OBS	1 MONTH
MAXILLO FACIAL/ PLASTIC	1 MONTH
PAEDS	1 MONTH
ICU	1 MONTH
EOT	1 MONTH
CARDIAC SURGERY	1 MONTH

5TH YEAR

OPERATION THEATERS	TIME DURATION
GENERAL SURGERY	1 MONTH
ORTHO	1 MONTH
CARDIAC	1 MONTH
ICU	1 MONTH
GYNAE EOT	1 MONTH
EYE	1 MONTH
ENT	1 MONTH
MAXILO FACIAL / PLASTIC	1 MONTH
NEURO SURGERY	1 MONTH
GYNAE / OBS	1 MONTH
ERCP	1 MONTH
PAEDS	1 MONTH

Curriculum M.D. 1st Year

Pharmacology

Principles of pharmacokinetics and pharmacodynamics

Detailed pharmacology of specific drug classes:

1. Volatile anaesthetics, N₂O
2. IV induction agents
3. Analgesics narcotics, NSAIDs
4. Sedatives benzodiazepines
5. Neuromuscular blocking agents
6. Anticholinesterases, anticholinergics
7. Local anaesthetics
8. Inotropes and vasoactive drugs
9. Antihypertensives
10. antiarrhythmics
11. Bronchodilators 13 agonist, steroids
12. Antiemetics, aspiration prophylaxis drugs
13. Diuretics
14. Mics. Antihistamine, calcium, magnesium sulphate, potassium chloride, oral hypoglycemic, Insulin, medications for thyrotoxicosis
15. Drug interactions and concurrent medications

Monitoring, Equipment and Clinical Measurement

Standards of monitoring

1. Pulse oximetry, capnography and gas analysis
2. ECG
3. Temperature monitoring
4. Neuromuscular blockade monitor
5. Noninvasive and invasive blood pressure monitoring
6. CVP, PA catheter, TEE
7. EEG and evoked potentials

Physics

1. Safety standards and organization
2. Oxygen delivery systems
3. Core Physical Principles
4. Gas laws and clinical Application
5. Solubility of Gases
6. Flow of Fluids basic concept
7. Electricity, Principles of electrical safety
8. Hazards to the patient and anaesthetist

Anesthetic Machine

1. Anaesthetic Gases, Storage and Piping
2. Principles of operations -flowmeters, vaporizers
3. Malfunctions, Safety features - alarms
4. Circuits Types of circuits - advantages, disadvantages
5. Ventilators types, Principles of operation, Models of ventilation
6. Physiology and techniques of humidification
7. Infusion and PCA Pumps principles of function and limitations
8. Cleaning/Sterilization of Equipment

Anatomy, Physiology and Pathophysiology / Pathophysiologic States

Respiratory System

Anatomy

1. Upper and lower respiratory tract anatomy
2. Considerations for bronchoscopy and topicalization of airway
3. Diagrammatic mechanics
4. Mediastinum

Physiology

1. Control of breathing, Respiratory Mechanics and lung volumes, Gas exchange, Ventilation / Perfusion matching
2. Pulmonary function tests and blood gas analysis
3. Oxygen and carbon dioxide transport
4. Pulmonary Circulation
5. Respiratory Function during anaesthesia
6. Postoperative respiratory complications

Pathophysiologic States

1. Obstructive lung disease / Restrictive lung disease
2. Aspiration syndrome, ARDS
3. Embolic lung disease, Pulmonary vascular disease/ Pulmonary hypertension
4. Sleep apnea syndrome
5. Inhalational therapy Oxygen, Inhaled bronchodilators, Nitric oxide
6. Mechanical Ventilation Modes, Physiologic Effects, PEEP and Auto-PEEP

Endocrine and Metabolism Anatomy / Physiology of Thyroid & Pancreas & Adrenals

1. Diabetes Mellitus
2. Hyper and Hypofunction of adrenal gland
3. Hyper and Hypofunction of Pituitary gland and hypothalamus
4. Hyper and Hypofunction of Thyroid and Parathyroid
5. DI, SIADH, Calcium, Phosphate, and Magnesium homeostasis
6. Carcinoid syndrome, Malignant hyperthermia
7. Surgery, anaesthesia and stress response
8. Thermoregulation

Liver

Anatomy

1. Hepatic Circulation

Physiology

1. Liver Function, Test of Liver Function, Effects of anaesthesia and surgery on liver function

Pathophysiology states

1. Hepatitis — acute and chronic, End-stage liver disease, hepatotoxins
2. Postoperative jaundice
3. Portal hypertension
4. Porphyria

Kidney

Anatomy

1. Renal Function Tests
2. Effects of anaesthesia and surgery on renal function
3. Acid-base control, Fluid and Electrolyte Balance

Pathophysiology states

1. Acute and Chronic Renal Failure
2. Principles of Dialysis
3. Nephrotoxins

Hematology / Transfusion / Immunology

1. Hemoglobin, Anemias, Hemoglobinopathies
2. Normal coagulation, Anticoagulation and management of abnormal coagulation
3. Transfusion therapy — Indications, risks/complications of blood transfusion
4. Blood components, blood substitutes, artificial colloids
5. Autologous transfusion and blood conservation techniques
6. Blood Bank Procedures
7. Immunology physiology of immune system, immunological diseases, anaphylaxis
8. Management of immune-compromised patients, transplantation/rejection

Cardiovascular

Anatomy

1. Electrical activity and conduction, Contractility
2. Coronary Circulation
3. Determinants of cardiac output

Physiology

1. Peripheral vasculature & microcirculation
2. Determinants of cardiac output

Pathophysiologic States

1. CAD
2. Valvular heart Disease
3. Congenital heart disease
4. Cardiomyopathies, Pericardial disease
5. CHF — left and right ventricular dysfunction
6. Hypertension, Arrhythmias
7. Physiology of CPR

Autonomic Nervous System

Anatomy

1. Sympathetic receptors and transmitters
2. Parasympathetic receptors and transmitters

Physiology

1. Anaesthetic effects on the Autonomic Nervous System
-

1. Autonomic Hyper-reflexia
2. Congenital and Acquired diseases of autonomic function

Neuromuscular Junction

Neuromuscular transmission, Tests of neuromuscular function

Pathoohysiologica I States

1. Myasthenia Gravis
2. Myasthenic Syndrome

Central Nervous System

Anatomy—CNS and peripheral nervous system

Physiology

1. Intracranial Pressure, Cerebral Circulation and Determinants of Cerebral Blood Flow
2. Spinal Cord Function
3. Effects of anaesthetics on the CNS

Pathophysiologic States

1. Trauma to brain, spinal cord, peripheral nerves
2. Space occupying lesions
3. Neurovascular disease
4. Paraplegia / quadriplegia

Airway Assessment and Management

1. Airway anatomy
2. Indications for Intubation
3. Airway Assessment Prediction of the Difficult Airway
4. Anaesthesia of the Airway Techniques of Airway Management
5. Management of acute upper airway obstruction
6. ASA Airway Algorithm
7. Assessment and Management of Extubation, Complications of Intubation/Re-intubation, Complications of tracheostomy

Cardiopulmonary Resuscitation

1. Physiology of CPR
2. ACLS Protocol
3. Specific Algorithms
4. Controversies
5. Pharmacology of Resuscitation Drugs
6. Neonatal and Paediatric Resuscitation

Teaching & Communication Skills

Presentation Skills

Morning presentations, ICU rounds, on table discussions, interactive sessions/lectures, MM meeting, journal club

Should prepare

Power point slides & overheads

Teaching

One-to-one teaching with students and junior residents and paramedics

Principles of evaluation

Monthly test, on table assessment by supervisor

Learning skills

PG courses, CME, conferences

Curriculum M.D. 2nd Year

Clinical Anaesthesia

Neuroanaesthesia

Preoperative Evaluation & NPO Criteria, Appropriate Investigations, Preoperative Optimization
Monitoring EEG, Evoked Potentials, ICP, Transcranial Doppler

1. Increased ICP
2. Supratentorial Masses, Posterior fossa surgery, Cerebral Aneurysms, Occlusive Cerebrovascular Disease, AVM
3. Spinal Cord Surgery
4. Interventional neuroradiology
5. Epileptic Neurosurgery
6. Neuroendocrine Disease
7. Induced Hypotension
8. Postoperative management
9. Severe head injury, Subarachnoid hemorrhage, Spinal cord injury
10. Seizures

Complication

1. Electrolyte Disorders — SIADH, Cerebral salt-wasting syndrome
2. Air embolism, Intracranial hypertension
3. Methods of Brain Protection
4. Declaration of Brain Death

Obstetrical Anaesthesia

1. Preop Assessment
2. Physiologic Changes of Pregnancy
3. Medical Diseases in the Parturient
4. Physiology of the Uteroplacental unit — Placental Drug Transfer
5. Principles of Fetal Assessment and Monitoring
6. Informed Consent in the Obstetrical Patient

Anaesthetic concerns and complications

1. Labour anaesthesia Regional, Pharmacologic Agents, Other modalities
2. Effects of Anaesthesia/ Analgesia on uterine blood flow/ uterine activity
3. Management of Preterm Labour, Prolapsed cord, Pre-eclampsia, Eclampsia, HELLP
4. Multiple Gestations, Abnormal Presentations, Shoulder dystocia
5. Pre and post-partum Hemorrhage, Uterine Dehiscence,, Utrine Inversion
6. Amniotic Fluid Embolism
7. Operative vaginal delivery, Cesarean Section
8. Non-obstetrical Surgery in the Pregnant Patient
9. CPR in the Pregnant Patient
10. Neonatal Resuscitation

Regional Anaesthesia

1. Pharmacology of Local Anaesthetic Drugs
2. Knowledge of Anatomy, Indications & Contraindications, and Complications of Spinal anaesthesia
3. Epidural anaesthesia, Combined spinal/epidural anaesthesia, Caudal anaesthesia
4. Upper extremity blocks axillary block, interscalene blocks, supraclavicular block, intravenous regional technique
5. Lower extremity blocks femoral-sciatic block, ankle block, popliteal block
6. Miscellaneous blocks acular blocks, anaesthesia of airway for fibre optic bronchoscopy, intercostals block
7. Intrapleural block, paravertebral block

Complications

Complications of Regional Anaesthesia, Neurological Complications

Critical Care

1. Knowledge of Indications, Techniques Used and Complications of Invasive and Noninvasive Monitoring in Critically ill patient
2. Pathophysiology and Management of Pain and Sedation in ICU
3. Respiratory Failure, Methods of Mechanical Ventilation, new modes and weaning modes
4. SIRS, Sepsis, severe sepsis, septic shock, MODS recent guidelines
5. Coma, hepatic encephalopathy, Status Epilepticus, Eclampsia, tetanus, GB
6. Endocrine Dysfunction in the Critically ill Patients
7. Nutritional Support in Critically ill Patients
8. Fluid, electrolyte and acid base balance
9. Inotropic and vasopressor support in critically ill
10. Management of hepatic and renal dysfunction
11. Altered Coagulation, DIC and blood component therapy
12. Burn Patients, Hypothermia
13. Acute Intoxications organophosphorus poisoning
14. General care of the critically ill patient. Infection control, DVT, critical illness neuropathy, bed sores
15. Scoring system in ICU GCS, APACHE
16. Bed side procedures Bronchoscopy, chest tube insertion, percutaneous tracheostomy
17. Transport of Critically ill Patients
18. Brain death test and Declaration of Brain Death
19. Organization and delivery of Critical Care Services Design, Staffing, Services

Pain

1. Anatomy and Physiology of Pain Pathways
2. Principles and Techniques of Acute Pain Management
3. Systemic Opioids, non-opioid analgesics, PCA, Regional techniques, nerve blocks
4. Principles and Techniques of Chronic Pain Management, Medications
5. Psychological Support
6. Neuroablative techniques
7. Neuroaugmentative techniques - spinal cord stimulation, TENS, Acupuncture
8. Organization of a multi-disciplinary pain service

Anaesthesia for Genitourinary Surgery

1. Preoperative Evaluation, Preparation and Premedication
2. Concomitant Disease
3. Anaesthetic Considerations for Nephrectomy, lithotripsy, prostate surgery, percutaneous nephrolithotomy
4. Postop Management
5. Pain management
6. Complications — TURP syndrome

Anaesthesia for ENT Surgery

1. Preoperative Assessment and Preparation
2. Concomitant Disease
3. Airway Assessment

Ophthalmologic Anaesthesia

1. Preoperative Assessment and Preparation
2. Concomitant Disease
3. Considerations of intraocular pressure
4. Effects of ophthalmologic medications
5. Knowledge of Anatomy, Technique and Complications of Retrobulbar and Peribulbar Block

PACU

1. Facilities and Staffing
2. Monitoring Standards
3. Transfer to PACU personnel and PACU orders
4. Discharge Criteria
5. Complications in the PACU, Respiratory, CVS, CNS, pain, hypo / hyperthermia

Cardiopulmonary Resuscitation

1. Physiology of CPR
2. ACTS Protocol
3. Specific Algorithms
4. Controversied
5. Pharmacology of Resuscitation Drugs
6. Neonatal and Paediatric Resuscitation

Teaching & Communication Skills

Teaching

One-to-one teaching with students and junior residents and paramedics

Principles of evaluation

Monthly test, on table assessment by supervisor

Learning skills

PG courses, CME, conferences

Presentation Skills

Curriculum M.D. 3rd Year

Trauma

1. Trauma Protocol and Role of Anaesthesia
2. Assessment and Management Principles in Acute Trauma
3. Blunt Trauma, Penetrating Trauma, Airway Trauma/ Airway Management
4. Head and Spinal Cord Injury
5. Thoracic Trauma, CVS Trauma, Abdominal Trauma, Major Orthopedic Trauma
6. Hypotension in the trauma patient (recent trends)
7. Management of the Acutely Traumatized Patient in the OR
8. Management of the Trauma Patient for Repeated Surgical Procedures
9. Trauma scoring system

Anaesthetic Considerations in

1. Thoracic Aneurysm Surgery, Abdominal Aneurysm Surgery, Peripheral Vascular Surgery
2. Carotid Endarterectomy, Emergency Vascular Surgery
3. Post-op pain management
4. Post-op complications

Anaesthesia for Gastrointestinal Surgery

Preoperative Evaluation, Preparation and Premedications, Concomitant Disease

Anaesthesia Considerations for

1. Cholecystectomy
2. Appendectomy, Bowel Obstruction and Perforation, Bowel Resection
3. Acute Gastrointestinal Bleeding, Splenectomy, Pancreatic Resection, Hepatic Resection, Portal Shunting Procedures
4. Adrenal Surgery
5. Anaesthesia at Remote Location
6. Computer skills --- Part - II

Curriculum M.D. 4th Year

Paediatric Anaesthesia

1. Preoperative Assessment
2. Anatomical, Physiological and Pharmacologic Considerations in Newborns, Infants and Children
3. Monitoring & equipment for Paediatric Anaesthesia
4. Perioperative Fluid and Electrolyte Management — Fasting Guidelines
5. Perioperative Temperature Management
6. Anaesthetic Management of the Paediatric Patient

Common Paediatric Syndromes and Emergencies :

1. TE fistula, congenital diaphragmatic hernia, pyloric stenosis, GI anomalies, FB in airway, epiglottitis, premature concerns
2. Child with Recent URTI
3. Difficult Airway
4. Trauma
5. Congenital Heart Disease for non-cardiac surgery
6. Pain Management and Regional Anaesthesia
7. Anaesthesia outside the OR

Vascular Anaesthesia

1. Preoperative Assessment Preop Evaluation, Preparation and Premedication
2. Concomitant Diseases
3. Monitoring for Major Vascular Surgery

Anaesthesia for Endoscopic Surgery

1. Preoperative Assessment and preparation of the Patient for Endoscopic Surgery
2. Risks/Benefits of Endoscopic Approach
3. Relative and Absolute Contraindications

Anaesthetic Considerations in Endoscopic Surgery

1. Positioning
2. Physiology of CO₂. Pneumoperitoneum
3. Physiology of Thoracoscopic Surgery ,
4. Complications
5. Indications for conversion to open procedure

Anaesthesia for Orthopedic Surgery

1. Preoperative Assessment and preparation of the Patient for Orthopedic surgery
2. Concomitant Disease
3. DVT prophylaxis
4. Choice of Anaesthetic Technique — Risks/Benefits of GA vs Regional

Anaesthetic Considerations in

1. Major Lower Extremity Arthroplasty Surgery
2. Spinal Surgery
3. Shoulder Surgery, Fractures, Surgery under Tourniquet, Cement implantation syndrome
4. Postop Pain Management
5. Postop Complications
6. Fat Embolism, Pulmonary Embolism, Compartment Syndrome

Anaesthesia for Patients with Systemic Disease

Anaesthetic Considerations for Patients with

1. Endocrine Disease Diabetes, Thyroid Disease, Parathyroid Disease, Pituitary Disease, Adrenal Disease . Pheochromocytoma, Carcinoid
2. Collagen Vascular & Neuromuscular Disease, Rheumatoid Arthritis
3. SLE, scleroderma, Ankylosing Spondylitis, Myopathies Gravis, Myotonia, Muscular Dystrophy, MH, Guillain Barre, Parkinson's Disease
4. Hematologic Disease Hemoglobinopathies, Hemolytic Anaemias, Hemophilia, Von Willwbrand's Disease. Thalessimia
5. Malignancy
6. Paraneoplastic Syndromes
7. Effects of Chemotherapeutic Agents
8. Genetic Disorders Turner's Syndrome, Trisomy 21
9. Infectious Diseases AIDS, Hepatitis, Concurrent URTI
10. Other Systemic Infection / Sepsis
11. Substance Abuse Acute intoxication, Chronic addiction
12. Obesiy

Cardiopulmonary Resuscitation

1. Physiology of CPR
2. ACLS Protocol
3. Specific Algorithms
4. Controversies
5. Pharmacology of Resuscitation Drugs
6. Neonatal and Paediatric Resuscitation

What to read

Books

1. Morgan
2. Aitkenhead
3. Problem Oriented
4. Miller
5. Brash

Use of Literature searchers, the Net

Communication

Administration, communication with patients and families, breaking bad news, managing

Curriculum M.D. 5th Year

Cardio Thoracic Anaesthesia

Preoperative Assessment, Appropriate Investigations, Risk Stratification, Preoperative Optimization

Considerations in Specific Respiratory Diseases

1. Asthma/ COPD
2. Cystic Fibrosis/Pulmonary Fibrosis/Pulmonary Hypertension

Anaesthetic Considerations

1. Pathophysiology of lateral position and open thorax, One Lung Anaesthesia
2. Bronchoscopy, Mediastinoscopy
3. Lobectomy, Pneumonectomy, Tracheal Resection, Thoracoscopic Surgery
4. Airway Laser Surgery
5. Esophageal Surgery

Management of Specific Problems

1. Mediastinal Mass
2. Bronchopleural Fistula
3. Pulmonary Hemorrhage
4. Bullae, Pneumothorax

Postoperative Management

techniques of Post-Thoracotomy Analgesia

Cardiac patient for noncardiac surgery

Anaesthetic Considerations

1. Patients with CAD
2. CHF — Right and Left ventricular dysfunction
3. Hypertension, Cardiomyopathies, Tamponade
4. Valvular Disease
5. Dysrhythmias, Pacemaker, Defibrillator
6. Congenital Heart Disease
7. Postoperative Management, Pain Management
8. Postoperative Complications — Ischemia, MI, Arrhythmias, LVF, RVF
9. Cardiogenic Shock — Pathophysiology and Management
10. ACLS Protocol

Transplantation Anaesthesia

1. Preoperative Assessment, Preparation and Management for transplantation of Kidney, Liver
2. Management of Transplant Patient for Non-transplant surgery
3. Transplantation Immunology
4. Management of Liver and Cadaver Organ Donor

Anaesthesia for Laser Surgery

1. Types of lasers and their use
2. Hazards of laser surgery and appropriate precautions
3. Management of an airway fire

Anaesthesia in Remote Locations

1. Special Considerations
2. Location and personnel
3. Patient selection, monitoring, transport, recovery

Considerations in Anaesthesia for

1. Radiologic Procedures — MRI, CT, Angiography, cardioversion
2. Emergency room procedures
3. ECT

Dental & Orofacial Surgery

Preoperative Assessment & Preparation

Anaesthetic Considerations in:

1. Maxillary / Mandibular surgery
2. Anaesthesia in a dental office
3. Dental surgery in an uncooperative patient

10 COURSE OUTLINE M.D EMERGENCY MEDICINE

SCHEME OF THE PROGRAMS:

Entry Evaluation	MBBS One year house job Valid PMDC registration Valid English Proficiency Test (TOEFL, IELTS) Entry examination Interview	
Education	Phase I one year	<ul style="list-style-type: none"> • Introduction to the program • 3 months module Research methodology and biostatistics, computer skills, communication and presentation skills and ethics. • BLS & ACLS workshops • Clinical Rotation in Medicine & Allied Departments for nine months
		<ul style="list-style-type: none"> • Primary Examination (MCQ) • Written
	Phase II 4- yearS	<ul style="list-style-type: none"> • Training of Emergency Medicine program • Research & Thesis • Rotations as schedule below • Assignments and assessment (Log book) • Evaluation after every year(MCQ & written)
Evaluation of thesis	Research Thesis to be evaluated by local and overseas assessors	
Exit evaluation	Final Examination Continuous Assessment Written Papers Oral and Practical Thesis Viva	

	3 months	3 months	3 months	3 months	
1 st year	Emergency Medicine BLS/ACLS Research and biostatistics etc...	Emergency Medicine	General Medicine <i>Topic of thesis selected</i>	Rotation in Cardiology, Pulmonology & Neurology <i>(One month each) Synopsis submitted</i>	Primary Exam
2 nd Year	Gynae & Obs <i>Synopsis evaluated</i>	General Paediatrics <i>Synopsis evaluated</i>	Surgery <i>Research</i>	Surgical Specialties 1. Orthopedics 2. Plastics and 3. Burns 4. Neurosurgery <i>(One month each) Research</i>	Assessment 10%
3 rd Year	Emergency Medicine <i>Research</i>	Emergency Medicine <i>Research</i>	1. Medical ICU <i>(One months)</i> 2. Surgical ICU <i>(One months)</i> 3. Pediatric & N natal ICU <i>(one month)</i> 4. CCU <i>(one month)</i> 5. Radiology <i>(Two month)</i>		Assessment 10%
4 th Year	Emergency Medicine <i>Research</i>	Emergency Medicine <i>Research</i>	Emergency Medicine <i>Thesis writing</i>	Elective Rotation <i>Thesis submission</i>	Assessment 10%
5 th Year	Emergency / Bronchoscopy unit <i>Thesis evaluation local</i>	Emergency <i>Thesis evaluation overseas</i>	Emergency <i>Thesis evaluation overseas</i>	Emergency	Final Exam 70 %