

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY
No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

M.D. / M.S.
POST GRADUATE DEGREE COURSES



SYLLABUS AND CURRICULUM

2021 - 2022

M. D. PAEDIATRICS

THE TAMIL NADU Dr. M.G.R MEDICAL UNIVERSITY, CHENNAI

M. D. PAEDIATRICS

1. GOALS

The goals of postgraduate training in Paediatrics would be to train a basic medical graduate (MBBS)

- To practice as a Child Health specialist equipped with appropriate knowledge and skills necessary to care for the normal and sick child.
- To practice Child Health in the community (urban or rural) and to perform professionally at all levels of the existing health care system.
- To practice with empathy and the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues
- To research and find solutions to challenges in health care.

2. OBJECTIVES

The objectives to be fulfilled at the completion of the course are as follows: At the end of the program, the student should be able to:

- **Knowledge:**
 - Describe, identify and monitor normal patterns of growth and development of children.
 - Describe etio-pathogenesis, principles of clinical diagnosis, investigations and treatment of diseases of childhood.
 - Demonstrate an understanding of Basic (Pre and Para-clinical) Sciences and its application to the normal and abnormal processes.
 - Analyze clinical and investigation data approach and manage a health-related problem.
 - Identify and understand socio-economic-environmental-cultural factors in healthcare.
- Recognize problems outside his or her abilities and appropriately refer.
- Update one's knowledge and skills by self directed learning and by participating in continued medical education programs utilizing media – spoken, written, Print and electronic.
- Teach and share knowledge and skills with colleagues.
- Audit and analyze work, assist in research and publish scientific articles in peer reviewed journals.

- **Skills:**
 - Elicit an appropriate clinical history.
 - Demonstrate appropriate clinical physical examination skills on children.
 - Plan, decide upon and interpret appropriate cost effective investigations.
 - Perform essential procedures both diagnostic and therapeutic.
 - Manage, resuscitate and stabilize children in Pediatric or Neonatal emergencies.
- **Communication and attitudes:**
 - Communicate appropriately with guardians and children, assisting in their healthcare decision making.
 - Practice child health care at the highest ethical level, protecting the child at all costs.
 - Respect Patient's (and their guardian's) rights and professional relationships (Doctor-Doctor, Doctor-Nurse, Doctor-Patient, Doctor-Society).
 - Apply the highest level of ethics in Research, Publication, References and Practice of Paediatrics.

3. **COMPONENTS OF THE PG CURRICULUM**

The major components of the PG curriculum shall be:

- Theoretical knowledge
- Practical/clinical Skills
- Training in Thesis.:

All students will have to carry out a research program and bring out a dissertation (thesis). Students are encouraged to attend CME's, publish research papers and present posters, or platform presentations at State, National and International conferences.

- Attitudes, including communication.
- Training in research methodology, medical ethics/bioethics and medico legal aspects
- Students should compulsorily attend the research Methodology workshop conducted by the University within first six months of the M.D course.
- Students are encouraged to attend workshops/CME's on Bioethics conducted by the University and other reputed Institutions.
- Medical ethics, bioethics, moral and legal issues are part and parcel of the curriculum and syllabus.

4. **THEORY SYLLABUS**

Course Contents

The Field of Paediatrics

1. Evaluating Medical Literature Critical appraisal of Journal articles
2. History of Paediatrics
3. Overview of Child Health

4. Traditions and Cultural Issues pertaining to Child Care
5. The Normal Child
6. Preventive and Social Paediatrics
7. Epidemiology, Statistics and Research Methodology including Dissertation
8. Ethical Issues in Paediatric

Growth and Development

1. Biopsychological Models of Development
2. IQ assessment
3. Fetal growth and development
4. The newborn G/D
5. Infant, Preschool, Early school, Adolescence G/D
6. Assessment of Growth
7. Development Assessment
8. Standards/Normograms (including Indian)
9. Approach to short stature
10. Approach to Obesity
11. Approach to Undernutrition

Psychological Disorders

1. Assessment and Interviewing
2. Psychiatric considerations of CNS injury
3. Vegetative Disorders-Rumination, Pica, Enuresis, Encopresis, Sleep disorders
4. Habit Disorders
5. Mood Disorders
6. Anxiety Disorders
7. Disruptive Behavioral disorders
8. Suicide
9. Sexual behavior variations
10. ADHD
11. Psychosis
12. Autism
13. Psychological treatment
14. Poor Scholastic performance
15. Neurodevelopment dysfunction in school age child
16. Psychosomatic Illness
17. Learning Disorders

Social Issues

1. Adoption
2. Effects of a mobile society
3. Street Child
4. Impact of Violence
5. Child Care

6. Single parent child
7. Separation, death
8. Foster care
9. Abuse and Neglect
10. Child Labor
11. Media (TV, Movies) and its effect on the child

Children with Special Needs

1. Failure To Thrive – Problems, Approach and Evaluation
Children in Poverty
2. Developmental disabilities, Chronic Illness
3. Homeless children
4. Mental Retardation – Problems, Approach and Evaluation Foster Children
5. Care of Child with fatal illness
6. Runaway Children

Nutrition

1. Nutritional Requirements- Water, energy, proteins, CHO, Fats, Minerals, Vitamins,
2. Diet/Nutrition Evaluation
3. Athletic Diet
4. Diet for later childhood and Adolescent
5. Infant and Child Feeding
6. Breast Milk Feeding, Human Lactation Management, BFHI
7. Nutrition Values of Indian Foods, Recipes
8. Weaning foods
9. Feeding through 1 and 2nd years
10. Nutritional Disorders Including Obesity
11. Protein Energy Malnutrition
12. Vitamin Deficiencies and Excess
13. Micro-nutrient Malnutrition
14. Nutrition in Special situations – LBW, Premature, IEM, Chronic illness, Surgery, Critically ill child
15. TPN

Patho-physiology of Body Fluids and Fluid therapy (Approach and Management)

1. Physiology of Fluids, Electrolytes and Acid Bases
2. Dehydration and fluid management
3. Dyselectrolytemia
4. Acid Base Disorders
5. Special Situations - Pyloric stenosis, CNS disorders, Burns, Peri-operative, Endocrine disorders, Renal Failure.

Acutely Ill child

1. Evaluation in Emergency
2. Pediatric Anesthesia
3. Injury Control
4. Emergency Medical Services
5. Organization of a PICU/NICU
6. Pediatric Critical Care
7. Equipment for Intensive care Respiratory Failure, Ventilation Circulatory Failure and Shock(all types)
Acute Neurological Dysfunction- approach to a child with altered sensorium
Resuscitation – Basic and Advanced, NALS/PALS
Post Resuscitation stabilization
Cold/Heat Injury
8. Transportation of Sick Child/neonate
9. Post-operative supportive care

Emergencies/ Critical Care Paediatrics

1. Fluid abnormalities
2. Electrolyte abnormalities
3. Thermoregulation problems
4. Acute Renal failure
5. Hypertensive crisis
6. Congestive Cardiac failure
7. Cardiogenic shock
8. Pericardial tamponade
9. Cyanotic spells
10. Unstable and stable Arrhythmias
11. Vomiting and Diarrhea
12. Recognition of critical illness
13. Stridor
14. Pulmonary edema-cardiogenic and non cardiogenic
15. Traumatic brain injury
16. Polytrauma
17. Diabetic ketoacidosis
18. GI Bleeds - Hematemesis, Melena, Hematochezia Rapid Sequence incubation
19. Adrenal Crisis
20. Metabolic problems – hyperammonemia, lactic acidosis, acid base abnormalities, Hypoglycemia
21. Septicemic shock, Viral infections and shock
22. Pneumothorax, empyema, pleural effusion, ascites

23. Severe Anemia, Bleeding child, Neutropenia
24. Pain management, Drug therapy
25. ARD
26. Respiratory Failure
27. Burns/ electrocution
28. Animal Bites
29. Preanesthetic check up PAC
30. Sickle cell crisis, severe complicated malaria
31. Acute severe asthma, Bronchiolitis
32. Status epilepticus
33. Febrile seizure
34. Coma, Increased intra-cranial pressure
35. Cardiopulmonary resuscitation
36. Shock
37. Upper airway obstruction
38. Near drowning
39. Poisoning
40. Snake bite
41. Scorpion sting
42. Physical abuse
43. Sexual abuse

Human Genetics

1. Molecular Basis of Disorders
2. Molecular Diagnosis
3. Human Genome Project
4. Inheritance Patterns
5. Chromosomal/genetic clinical Abnormalities
6. Genetic Counseling
7. Dysmorphism
8. Gene therapy

Metabolic Disorders

1. Approach to IEM
2. Purine and pyrimidine metabolism defects
3. Amino acid Metabolic defects - Common
4. Porphyria
5. Amino acid Metabolic Defects – Rare
6. Lipid Metabolism - Common
7. Lipid Metabolism - Rare
8. CHO Metabolism – Common
9. CHO Metabolism – Rare

10. Mucopolysaccharidosis

11. Mucopolipidosis

12. Hypoglycemia

Fetus and Newborn

1. Mortality and morbidity

2. Newborn – history, examination, routine delivery care, nursery care, bonding

3. High risk pregnancies

4. Dysmorphology

5. Fetus

Growth/Development

Fetal distress Maternal

diseases Maternal

medications

Detection, treatment, prevention of fetal disease

Antenatal diagnosis

Fetal therapy

Antenatal therapy

Counseling

Teratogens, radiation

6. High risk infant

Multiple pregnancies

Prematurity Postdated

IUGR/LBW

LFD

7. Congenital anomalies/ malformations

8. Birth injuries

9. Hypoxia - ischemia, asphyxia

10. Organization and levels of newborn care

11. Normal Newborn

12. Common problems in a normal newborn

13. Delivery room emergencies

14. Respiratory disorders

15. Oxygen therapy, toxicity

16. Ventilation

16. GI disturbances including NEC

17. Hyperbilirubinemia

18. Cardiac problems

19. PPHN

20. Blood disorders

Polycythemia

Anemia

Hemorrhagic disease of newborn

Hemolytic disease of newborn

Thrombocytopenia

21. Genitourinary disturbances
22. Metabolic disorders
22. Endocrine disorders- IDM, CAH
23. Ambiguous genitalia
24. Fluid and electrolytes in Newborn care
25. Nutrition and feeding the newborn – term/preterm, LBW, IUGR
26. Neonatal transport
27. Surgical problems
 - TEF
 - Anorectal malformations
 - Diaphragmatic Hernia/Eventration
 - Hirschsprung
 - Urogenital anomalies
 - NEC
 - Congenital Lobar Emphysema
 - Volvulus
28. Thermoregulation
29. Neonatal follow-up

Neonatal Infections

1. Epidemiology
2. Intrauterine infections
3. Viral Infections
4. Neonatal sepsis/meningitis
5. Pneumonia

6. UTI
7. Hepatitis
8. Nosocomial
9. Universal precautions
10. Prevention of infections
11. Therapy- antimicrobials, adjuvants

Adolescent Health

1. Epidemiology
2. Depression
3. Sexual development and SMR stages
4. Suicide
5. Deliveries of health care
6. Pregnancy
7. Contraception
8. STD
9. Menstrual problems
10. Substance abuse
11. Anorexia nervosa, bulimia

12. Sleep disorders

13. Skin/Orthopedics

Immunological system

1. Basics of Immunology
2. Approach to immunodeficiency
3. HIV
4. Bone marrow transplantation
5. Primary B cell diseases
6. Primary T cell diseases
7. Complement and phagocytic diseases
8. Chronic granulomatous disease
9. Chediak Higashi Disease
10. Neutrophil abnormalities
11. Adhesion disorders

Allergic disorders

1. Allergy and Immunological basis
2. Insect allergy
3. Diagnosis
4. Ocular allergy
5. Therapy – principles
6. Adverse food reaction
7. Allergic Rhinitis
8. Asthma
9. Atopic dermatitis
10. Urticaria, Angioedema
11. Anaphylaxis
12. Serum sickness
13. Adverse drug reactions

Rheumatology

1. Autoimmunity
2. Ankylosis spondylosis
3. Laboratory evaluation
4. Neonatal Lupus
5. JRA
6. Scleroderma
7. SLE
8. Mixed connective Tissue Disease
9. Vasculitis
10. Dermatomyositis
11. Erythema Nodosum
12. Behcet syndrome

13. Sjogren syndrome
14. Nonrheumatic conditions
15. Painsyndromes, panniculitis,
16. polychondritis, amyloidosis

Infectious diseases

1. Fever
2. Clinical use of Micro Lab
3. Fever without a focus
4. Sepsis and Shock
5. CNS Infections
6. Pneumonia
7. Gastroenteritis
8. Osteomyelitis, Septic arthritis
9. Compromised host infections
10. Bacterial Infections
11. Anaerobic infections
12. Viral Infections
13. Mycotic infections
 - Candidiasis
 - Aspergillosis
14. Parasitic infections
 - Helminthiasis
15. Protozoal
 - Malaria
 - Kalazar
 - Leishmania
 - Giardia
 - Amoeba
16. Antiparasitic drugs
17. Antimicrobials
18. Antivirals drugs, interferon
19. Preventive measures
 - Health advice for travelling
 - Infection control

Immunization

- Principles
- Schedules
- Controversies
- Standard and Optional Vaccines
- Recent advances in Vaccines

Digestive system

1. Normal tract – Physiology, Anatomy, Development
1. Food allergy
2. Clinical features of Disorders

3. Disorders of Esophagus
4. Disorders of Stomach
5. Disorders of Intestines except Food allergy
6. Disorders of Pancreas
7. Disorders of Liver and biliary system
Acute Hepatitis, Chronic Hepatitis, Cirrhosis, Metabolic Liver Diseases, Cholestatic liver disease, Neonatal Obstructive Cholangiopathy, Complications of Liver Disease – Portal Hypertension, Encephalopathy, Coagulopathy,
8. Disorders of Peritoneum
9. GI function tests
10. Approach to Malabsorption

Respiratory system

1. Development and function
2. Congenital disorders of nose
3. Disorders of Upper Respiratory tract
4. Disorders of Lower respiratory tract
5. Hypoventilation
6. Pleural disorders
7. Chronic Respiratory Disease Interstitial fibrosis, ILD, empyema, lung abscess, bronchiectasis
8. Hypostatic pneumonia
9. Kyphoscoliosis
10. Recurrent Respiratory Disease
11. Ventilation
12. Central hyperventilation
13. Pulmonary Function tests
14. Obesity
15. Cystic Fibrosis
16. Obstructive sleep apnea
17. Pulmonary Hemosiderosis
18. Neuromuscular skeletal disorders
19. Cough Syncope
20. Bronchial Asthma

Cardiovascular System

1. Investigations –Lab, ECG, CXR, ECHO, Cath
2. Physiology and Pathophysiology of Transitional Circulation Embryology
3. Sick Sinus
4. Congenital Heart Disease
Epidemiology Approach
Cyanotic
Acyanotic
5. Tumors of Heart
6. Heart Lung, Heart

7. Transplants
8. Aneurysms and fistulae
9. Cardiac Arrhythmia
10. Acquired heart disease
 - Infective Endocarditis
 - Rheumatic Heart Disease
11. Diseases of the Myocardium – Myocarditis, Cardiomyopathy
12. Cardiac Therapeutics

Blood

1. Development of Hematopoietic system
2. Elliptocytosis
3. Anemias
 - Inadequate production
 - Nutrition – Iron, Folate, B12
 - Bone Marrow failure
 - Hemolytic
 - Congenital and Acquired
4. Stomatocytosis
5. Other membrane defects
6. Constitutional pancytopenia
4. Polycythemia
7. Granulocyte transfusions
8. Pancytopenia
9. Blood and component transfusions
10. Thrombotic disorders
 - Hemorrhagic disorders – acquired and congenital
 - Physiology
 - Bleeding disorders
 - Coagulation disorders
11. Hypersplenism, trauma, splenectomy
12. Physiology and Disorders of the Spleen
13. Lymphatic vessel disorders
14. Lymphatics

Neoplasms

1. Principles of diagnosis
2. Epidemiology
3. Principles of treatment
4. Molecular pathogenesis
5. Leukemia
6. Soft tissue sarcomas
7. Lymphomas
8. Gonadal, germ cell tumours

9. Neuroblastoma
10. Liver neoplasm
11. Kidney tumors
12. GI neoplasm
13. Bone Neoplasms
14. Carcinomas
15. Retinoblastoma
16. Skin Cancer
17. Benign tumours

Nephrology

1. Structure and function of kidney
2. Hematuria and conditions
3. Membranous GN
4. HUS
5. Lupus nephritis- Evaluation
6. Membrano Prolif GN
7. Proteinuria
8. Chronic infectious GN
9. Nephrotic syndrome
10. Goodpasture
11. Acute Glomerulonephritis
12. Tubular disorders
 - Function
 - RTA
 - DI
13. Renal Failure
14. RPGN
15. Renal Replacement therapy
16. Bartter syndrome- Investigations
17. Interstitial nephritis
18. Toxic nephropathy
19. Cortical necrosis

Urological disorders

1. UTI
2. Congenital anomalies, dysgenesis kidney
3. Vesico-ureteral reflux
4. Bladder anomalies
5. Obstructions
6. Penis, urethra anomalies
7. Voiding dysfunction
8. Scrotal anomalies
9. Genitourinary trauma
10. Urolithiasis
11. Investigations – imaging, renal function tests

12. Neurogenic bladder

Gynecological problems

1. Menstrual Problems
2. Neoplasms
3. Vulvovaginitis
4. Breast Disorders
5. Developmental anomalies
6. Hirsutism, polycystic ovaries
7. A child with special Gynec needs
8. Gynec imaging
9. Athletic problems

Endocrine

1. Hypothalamus and pituitary
 - Hyperpituitarism
 - Hypopituitarism, Growth hormoneDI
 - ADH
 - Physiology of Puberty
 - Disorders of puberty
 - Precocious Puberty
 - Delayed puberty
2. Thyroid
 - Thyroid studies
 - Hypothyroidism
 - Thyroiditis Goitre
 - Hyperthyroidism
3. Parathyroid and disorders
4. Carcinoma of thyroid
5. Tumours of testis/ovary
6. Multiple Endocrine Disorders
7. Diabetes mellitus

Adrenal Disorders

- CAH
- Cushing
- Addisons
- Excess mineralocorticoids
- Feminizing adrenal tumours
- Pheochromocytoma

CNS

1. Examination, Localization of lesions
2. Movement disorders
3. Congenital anomalies
4. Seizures
5. Headaches

6. Neurocutaneous disorders
7. Coma
8. Brain death
9. Head Injury
10. Neurodegenerative disorders- Approach, Grey/white matter disorders
11. Acute Stroke
12. Brain abscess
13. Tumors
14. Spinal cord disorders
15. Investigations
16. Antiepileptic drugs
17. SSPE
18. Rabies Vaccine Encephalomyelitis,
19. Acute Demyelinating Encephalomyelitis
20. Approach, Investigations of UMN, LMN, Extrapyramidal, Cerebellar lesions
21. Cerebral Palsy
22. Neuroinfections
23. Encephalopathies

Neuromuscular

1. Evaluation, investigations
2. Development disorders of muscle
3. Muscular Dystrophies, Congenital Myopathy, Myositis
4. Endocrine Disorders
5. Neuromuscular transmission and motor neuron Abnormalities
6. Metabolic Disorders
7. GB syndrome
8. Motor sensory neuropathy
9. Bell's Palsy
10. Autonomic Disorders
11. Floppy Infant
12. Myasthenia Gravis

Eye

1. Examination of eye
2. Refraction, accommodation
3. Diseases of Eye movement and alignment disorders
4. Vision
5. Diseases of Conjunctiva - Conjunctivitis
6. Pupils and iris

7. Diseases of Lens - Cataracts
8. Lids
9. Diseases of Optic nerve – Papillitis, Neuritis,
10. Papilledema
11. Diseases of Cornea - Clouding
12. Uveal tract
13. Vitamin A deficiency
14. Retina and vitreous
15. Lacrimal problems - Dacrocystitis
16. Glaucoma
17. Retinopathy of Prematurity
18. Orbital abnormalities
19. VER
20. Injuries to eye

Ear

1. Clinical manifestations
2. Congenital malformations
3. Hearing loss
4. Inner ear discharge
5. External Otitis
6. Trauma
7. Otitis media
8. Tumors
9. BAER

Skin

1. Morphology
2. Cutaneous defects
3. Evaluation
4. Hypersensitivity
5. Principles of therapy
6. Epidermis dis
7. Diseases of the neonate
8. Keratinization dis
9. Ectodermal dysplasias
10. Dermis dis
11. Vascular disorders
12. Subcutn dis
13. Cutaneous nevi
14. Sweat glands
15. Pigment Disorders
16. Hyperpigmentation
17. Hair
18. Hypopigmentation
19. Nails
20. Vesiculobullous disease
21. Mucous membranes
22. Eczema

- 23. Tumors
- 24. Cutaneous Infections – Bacterial, Viral, Fungal
- 25. Arthropod bites, infestations
- 26. Acne
- 27. Nutritional diseases
- 28. Drug Reactions

Bone/Joint

- 29. Evaluation
- 30. Sports medicine
- 31. Diseases of Foot, toes
- 32. Pseudoachondroplasia
- 33. Torsional, angular deformities
- 34. Diagnosis, assessment of genetic skeletal disorders
- 35. Leg length discrepancy diastrophic,
- 36. Dysplasias- Thantophoric, camptomelic
- 37. Diseases of Knee
- 38. Ellis van Creveld
- 39. Diseases of Hip
- 40. Osteochondrodysplasia
- 41. Diseases of Spine
- 42. Inherited osteoporosis
- 43. Diseases of Neck
- 44. Upper limb
- 45. Hypophosphatasia
- 46. Arthrogryposis
- 47. Primary Chondrodystrophy
- 48. Common Fractures
- 49. Idiopathic hypercalcemia
- 50. Arthritis – approach, investigations, Management
- 51. Hyperphosphatasia
- 52. Congenital Dislocation of Hip
- 53. Osteomyelitis
- 54. Septic Arthritis
- 55. Rickets – Nutritional and non nutritional

Genetic skeletal disorders

- 1. Lethal and nonlethal bone dysplasias
- 2. Achondroplasia
- 3. Osteopetrosis
- 4. Marfans

Metabolic Bone disease

- 1. Bone and vitamin D
- 2. Familial Hypophosphatemia
- 3. Rickets – Nutritional and non nutritional

Unclassified disease

- 1. SIDS

2. Sarcoidosis
3. Histiocytosis
4. Progeria
5. Cystic fibrosis
6. Chronic fatigue syndrome

Environmental

1. Radiation
2. Lead poisoning
3. Chemical pollutants
4. Envenomation
5. Mercury
6. Mammalian bites
7. Nonbacterial poisoning
8. Common Poisonings – OP, Kerosene, Phenobarbitone, Iron, etc

HEALTH STATISTICS, NATIONAL PROGRAMS

ORGANIZATION OF OFFICE PRACTICE

Equipment, Documentation, Records, Space and functioning

RECENT ADVANCES IN PAEDIATRICS - ALLIED SUBJECTS

Anatomy

Applied Embryology, Development of major organ systems

Physiology

Applied Physiology with regard to major organ systems

Biochemistry

Biochemical basis of diseases in children – Nutritional and metabolic

Pathology

Pathophysiology of diseases in children, Pathogenesis, Basic Histopathology

Microbiology

Clinical Microbiology applied to investigations for diseases in childhood, serology, staining, cultures

Pharmacology

Clinical Pharmacology, Therapeutics of childhood diseases, drug interactions, Rational drug therapy, Adverse Drug Reactions

Community Medicine

Health Care Delivery Systems – structure and function, Health Statistics, National Programs

Pediatric Surgery

Recognition and referral of surgical conditions in Paediatrics

Radiology

Clinical Indications and interpretations of Xray, Ultrasound, CT, MRI

Legal and Ethical Medicine

Rights and protection of children, Consumer Protection Act, Basic Principles of Ethics

MEDICAL ETHICS

Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish this **ethical sensitisation** should be achieved by lectures or discussion on ethical issues, clinical case discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentation, bedside rounds and academic postgraduate programmes.

Course content should include *definition of Medical Ethics*, difference between medical ethics and bio-ethics, major Principles of Medical Ethics, the Hippocratic oath, the Declaration of Helsinki, the WHO Declaration of Geneva, International code of Medical Ethics (1993), Medical Council of India Code of Ethics, *Profession Ethics* (Code of conduct, Contract and confidentiality, Malpractice and Negligence) prolongation of life and euthanasia

Postgraduate skills

Please note code:

PI: Perform Independently PA:

Perform with assistance

List of PI Skills

Clinical History and Physical examination

Human Lactation management (counseling and practical skills)

Neonatal resuscitation

Pediatric resuscitation

Teaching encounters Desirable: writing and presenting a paper. Teaching sessions for nurses and medical workers

Intravenous injections

Intravenous cannulation

Lumbar puncture

Test dose

Infusions

Blood transfusions

Neonatal Exchange transfusions

ABG

Central line, CVP

Intraosseous

Bone marrow aspiration, trephine biopsy

Pleural tap

Paracentesis – diagnostic and therapeutic

Mantoux test

DPT, OPV, Measles vaccination

Sampling for Fluid cultures

Liver biopsy

Neonatal, Pediatric Partial exchange

Respiratory management (All PI)

Nebulization
Inhaler therapy
Oxygen delivery
CPAP
Mechanical ventilation

Critically Ill child (All PI)

Monitoring a sick child
Pulse oximetry
Infant feeding tube/ Ryles tube, stomach wash
Urinary catheterization
Restraining a child for a procedure
ORS and ORT
Prognostication

Laboratory- Diagnostic (All PI)

Urine Protein, sugar, microscopy
Peripheral bloods smear Malarial smear
Ziehl Nielson smear – sputum, gastric aspirate
Grams smear – CSF, pus
Stool pH, reducing substances, microscopy
KOH smear

Neonatal tests (All PI)

Apt test
Shake test

Clinical Assessment skills (All PI) Clinical

History and Physical examination
Anthropometry
Dietary recall, calorie and protein estimation
Nutritional advice
Gestational assessment Neurological examination of newborn
Primitive reflexes
Fundoscopy
Otoscopy

Examination of external genitalia – male and female
Tanner's SMR scales
DST or Baroda scales, TDSC
Amiel Telson's angles
Per rectal examination

Interpretation (All PI)

Clinical History and Physical examination
Blood, Urine, CSF and Fluid investigations – hematology, biochemistry

Chest Xray
ECG

ABG interpretation
Abdominal Xray
Bone and joint Xray
CT scan Brain
Barium studies
IVP, VUR studies
Ultrasound abdomen
Neurosonogram

- i. Interpretation of radio-isotope studies,
audiogram, neurophysiological studies, (BERA,
VER, Electromyography [EMG], Nerve
Conduction Velocity [NCV]), lung function tests

Orientation sessions for PG students joining MD in Paediatrics

This could be spread over 4-5 sessions once or twice a week depending on departmental routine and feasibility.

For all PG students

Orientation to the Hospital: Various Departments and facilities available

- Communication skills: Patients and colleagues
- Literature search
- Basic research methodology
- Protocol writing and thesis

Pediatric PGs

Introduction to Residency in Paediatrics

- Universal precautions and appropriate disposal of hospital waste
- Management of shock
- Congestive cardiac failure
- Normal fluid and electrolyte requirement and their disorders
- Interpretation and management of disorders of acid-base balance
- Evaluation of a sick newborn
- Management of seizures, hypothermia and hypoglycemia in the newborn
- Management of seizures and status epilepticus
- Management of comatose patients
- Hospital management of severe PEM
- Acute kidney injury
- Fulminant hepatic failure
- Management of respiratory distress

- Management of acute diarrhea
- Approach to a bleeding child and its management
- Rational antibiotic therapy

Communication skills

All PI:

- Clinical History and Physical examination
- Communicating health, disease
- Communicating about a seriously ill or mentally abnormal child
- Communicating death
- Informed consent
- Empathy with a family
- Referral letters, Replies
- Discharge summaries
- Death Certificates
- Pre-counseling for HIV
- Post counseling for HIV
- Basic Pedagogy sessions – teaching students, adults
Lectures, bedside clinics, discussions
- Medline search, internet, Computer usage

List of Observations:

Genetic counseling

Classification of diseases

List of PA skills:

Sedation

Analgesia

Brain death

Intercostal tube placement with underwater seal

List of PA skills:

Peritoneal dialysis

Subdural, Ventricular tap

5. TEACHING LEARNING ACTIVITIES

Methods suggested for Pediatric Postgraduate Training Programs:

- **Didactic Lectures:** (Faculty lectures)

Objective: To introduce a broad-based concept in an important area of learning to orient the postgraduate student.

Examples: Potential introductory topics to Paediatrics like Fluid and Electrolytes, Early recognition of Shock and Respiratory Failure, DTTU management, Recent advances, Basic Science/ Concepts and ARI program.

Frequency: Three times a week during the introductory orientation phase of the first one-two months of the new postgraduates joining the course.

- **Seminars:**

Objective: To enable a student to study in depth an important area of learning important to the training of the student.

Examples: Examples of potential seminar topics would be Protein Energy Malnutrition, Pediatric Tuberculosis, Pediatric HIV, Bronchial Asthma, Chronic Liver Disease and its complications.

Frequency: Once a week. Topic to be shared among students and to be equally distributed depending upon the number of postgraduate students in the department.

- **Journal Club:**

Objective: To appreciate and enable the critical analysis of scientific literature published in peer reviewed journals – studies, reviews.

Examples: Articles like the study on prophylactic Zidovudine to HIV positive pregnant women in prevention of vertical transmission to the fetus, Digoxin versus Captopril in VSD in CCF, etc.

Frequency: Ideally, once in 1-2 times per month.

- **Undergraduate Teaching Clinics**

Objective: To teach effectively undergraduate and colleagues utilizing simple educational methods.

Methodology: During the third year of MD course, postgraduate students should be given opportunities to teach undergraduates.

Examples: Bedside Clinic, Didactic lecture, skill workshop (e.g. NALS, PALS)

Frequency: During undergraduate postings in the department each postgraduate should have a minimum of 2 opportunities per year after the first year of the postgraduate course is completed.

- **Bedside Clinics**

Objective: To learn bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.

Examples: Child with hemiplegia, hepatosplenomegaly, anemia, jaundice, etc.

Frequency: Once in a week is the minimum as it forms the basis of good clinical training activities.

- **Mortality Review Meeting**

Objective: To analyze, discuss and learn from mortalities.

Frequency: Once in a month preferably in the first week to allow the previous months mortality to be presented for discussion.

- **Grand Rounds**

Objective: To improve on bedside techniques – interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment, communication.

Examples: The child with pyrexia of unknown origin, undiagnosed hepato-splenomegaly, multi-systemic disease.

Frequency: Once in a week

Inter-departmental Meetings

Objective: To experience inter-departmental cooperation and develop a healthy professional respect for each others opinions in addition to the subject learning

experience.

Methodology: Case discussions or students present investigations to members of all faculty. The discussion is a learning experience and improves communications between departments.

Examples: Chest X-rays of a complicated bronchopneumonia progressing to an empyema, CT scans of intra-cranial pathology, Tracheo-esophageal fistulae and supportive care.

Frequency: Once or twice in a month and rotated between departments – Radiology, Pediatric Surgery, Cardiology, Nephrology, Neurology, Clinical Hematology, etc.

- **Clinical Pathological Conference CPC**

Objective: To analyze clinical material to reach a differential diagnosis and correlate with the pathological biopsy findings.

Frequency: Once in two months. All are encouraged to participate.

- **Records Round**

Objective: To appreciate the importance of documentation of facts and record keeping.

Methodology: Faculty in the presence of the team scrutinizes random case records. History sheets, doctor order sheets, progress sheets and discharge summaries are discussed.

Frequency: Once a week with the entire team present at the session.

6. STRUCTURED TRAINING PROGRAM

I Year Postings

Paediatric Medical ward	- 8 Months
New born posting	- 1 Month
Emergency Department	- 1 Month
Intensive care Unit	- 1 Month
PHC / PPC/ School Health	- 15 Days
Pediatric Psychiatry	15 Days

II Year Postings

Newborn	- 2 Months
Paediatric Ward	- 3 Months
Intensive care unit	- 1 month
Dermatology	- 15 days
Emergency department	-1 month

Recommended Special postings

Hemato-oncology	- 1 Month
Cardiology	- 1 Month
Gastroenterology / ORT Centre	- 15 days
Nephrology	- 1 Month
Pulmonology	-15 days
Pediatric surgery	-15 days

III Year Postings

Medical Newborn postings	- 2 Months
Endocrine	- 15 Days
Pediatric Intensive Care Unit	1 month
Paediatric Medical Ward	6 months
Pediatric Neurology	1 Month
Emergency medicine	1 month
Genetics	- 15 Days

MD Paediatrics 2 Years Course (Post DCH) 2017-18

I Year Postings

Paediatric Medical Ward	- 6 Months
Emergency Medicine Department	- 1 Month
Intensive Care Unit	- 1 Month
Medical Newborn	- 2 Months
Pulmonology	- 15 Days
PHC /PPC / School Health	- 15 Days
Dermatology/	- 15 days
Child Psychiatry	- 15 days

II Year Postings

Medical Newborn	2 Month
Emergency Medicine	1 month
Pediatric Intensive Care Unit	1 month
HIV Clinic (ART) Centre	15 Days
Paediatrics surgery	15 Days
General Paediatrics	3 Months

If any speciality is not available in the parent institution the postgraduate may be posted in the general pediatric ward during that period.

Recommended Special postings

Neurology	- 1 Month
Cardiology	- 15 Days
Haematoncology	- 1 month
Gastroenterology / ORT Centre	- 15 days
Nephrology	- 15days
Medical genetics	- 15 days

During IInd year, the Students are encouraged to undergo special postings for learning new advanced techniques / procedure / skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

- 7 Evaluation of the candidates in both theory and practical aspects will help the candidate in improvement of his/her knowledge, skills and attitude.

Theory Exams and Practical exams will have to be conducted once in 6 months

8 COMPETENCY ASSESSMENT:

1 OVERALL:

- | | | |
|--|----|-----------|
| a) Communication / commitment / Contribution / | () | |
| Compassion towards patients and Innovation | () | - 5 Marks |
| b) Implementation of newly learnt techniques /Skills | () | |

- 2 Number of cases presented in Clinical Meetings/Journal clubs/seminars - 5 marks

- 3 Number of Posters/Papers presented in Conferences/ Publications and Research Projects - 5 marks

- 4 No. of Medals / Certificates won in the conference / Quiz competitions and other academic meetings with details. - 5 marks

Total	20 Marks
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PG CLINICAL COURSES

VIVA including Competency Assessment - 80 Marks (60 + 20)

Log Book - 20 marks

ASSESSMENT SCHEDULE IS AS FOLLOWS

Year of study	Period				Total Max.20 marks
I year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
II year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
III year	Upto Oct	10 marks	Upto Feb	10 marks	20 Marks
	AVERAGE				20 Marks

9. DISSERTATION AND UNIVERSITY JOURNAL OF MEDICAL SCIENCES:

As per the 49th SAB Resolution under Point No. 2 and in the 52nd SAB it was reiterated regarding the topic for dissertation

The topic for the dissertation should be registered and sent to the University after Ethics Committee approval before 31st of December of the first Post Graduate Year. Only one change of topic with proper justification from the Head of the Department is permitted before 31st March of the first Post Graduate Year. The change of dissertation title will not be permitted after 31st March of the First Post Graduate Year. This modification in regulation will be scrupulously followed from the academic year 2015-16 admission onwards.

As per Medical Council of India Post Graduate Medical Education Regulations 2000 (amended upto 10th August 2016) clause 13.9 A Postgraduate student of a Postgraduate degree Course in broad specialties/Super Specialties would be required to present one poster presentation to read one paper at a National/State conference and to present one Research paper which should be published/accepted for publication/sent for publication during the period of his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination.

As per MCI Clause 14 (4)(a), thesis shall be submitted atleast 6 Months before the Theory and Clinical/Practical Examination.

A candidate shall be allowed to appear for the Theory and Practical/Clinical Examination only after the acceptance of the Thesis by the Examiners.

The periodical evaluation of dissertation/log book should be done by the guide / HOD once in every six months. The HOD should ensure about the submission of dissertation within the stipulated time.

Regarding submission of articles to the University Journal of Medical Sciences for all the PG Degree/Diploma courses, it is mandatory that the students have to submit at-least one research paper. Case Reports are not considered as Research Paper

10. Theory Examination:

- | | | |
|-----------|---|--|
| Paper I | : | Basic Sciences as applied to Paediatrics |
| Paper II | : | Neonatology and community Paediatrics |
| Paper III | : | General Paediatrics including advances in Paediatrics relating to Cluster I Specialties |
| Paper IV | : | Paediatric Medicine including advances in Paediatrics relating to Cluster II specialties |

Cluster I : Nutrition, Growth and Development, Immunization, Infectious diseases, Genetics, Immunology, Rheumatology, Psychiatry, and Behavioral Sciences, Skin, Eye, ENT, Adolescent Health, Critical care, Accidents and Poisoning.

Cluster II: Neurology and Disabilities, Nephrology, Hematology and Oncology, Endocrinology, Gastroenterology and Hepatology, Respiratory and Cardiovascular disorders.

Question paper Pattern:

Paper I : Write notes on

Anatomy	4 x 5 = 20
Physiology	4 x 5 = 20
Biochemistry	3 x 5 = 15
Pharmacology	3 x 5 = 15
Pathology	3 x 5 = 15
Microbiology	3 x 5 = 15

Total = 100 marks

Paper II, III & IV :

Elaborate on :	2 x 15 = 30
Write notes on	10 x 7 = 70

Total = 100 marks

11. Clinical Examination:

MD Paediatrics	
CLINICALS	
CASE I - (1 X 30 MIN) - (1 X 80 MARKS)	80 MARKS
CASE II (NEWBORN) (1 X 30 MIN) - (1X 80 MARKS)	80 MARKS
CASE III (1 X 30 MIN) (1X 80 MARKS)	80 MARKS
OSCE (DRUGS, LAB DATA, EMERGENCY, IMNCI 4 STATIONS X 10 MARKS	40 MARKS
DISSERTATION / THESIS	20 MARKS
TOTAL	300 MARKS (A)
VIVA VOCE (4 X 5 MIN) (4 X 20 MARKS) (NUTRITION, IMAGING, COUNSELLING, PROCEDURES, INSTRUMENTS, RECENTADVANCES, ADOLESCENCE	80 MARKS (B)

LOG BOOK	20 MARKS (C)
AGGREGATE (CLINICAL + VIVA) TOTAL	400 MARKS (A+B+C)
MINIMUM REQUIRED FOR PASS (50%)	200 MARKS

12. Log book:

The post graduate students shall maintain a record(log)book of the work carried out by them and the training program undergone during the period of training.

Periodic review of Log book and Dissertation have to be done in the Department by guide/HOD once in every 6 months.

13. Viva including competency assessment

VIVA including Competency Assessment - 80 Marks (60 + 20)

Case reports, charts, gross specimens, pathology slides, instruments, X- rays, ultrasound, CT scan images, for interpretation. It includes discussion on dissertation also.

14. OSCE/OSPE:

- DRUGS,
- LAB DATA,
- EMERGENCY,
- IMNCI
- CLINICAL SIGN DEMONSTRATION (MANNED STATION) / COUNSELING

15. Recommended Books and Journals

Texts: Essential

1. Nelson's Textbook of Paediatrics, Harcourt Asia Saunders
2. Cloherty's Manual of Neonatal Care
3. Meharban Singh's Care of the Newborn
4. Harriat Lane
5. Manual of Pediatric Therapeutics, Little Brown's Children's Hospital, Boston.
6. O.P. Ghai's Textbook of Paediatrics

Reference

1. Rudolf's Paediatrics, Appelton and Lange
2. Forfar and Arneil's Textbook of Paediatrics, ELBS
3. Frank Oski's Principles and Practice of Paediatrics
4. Avery's Disease of the Newborn
5. Robertson's Textbook of Neonatology

6. Illingworth's The normal child
7. Guha's Textbook of Neonatology
8. IAP Textbook of Paediatrics
9. Nadas' Pediatric Cardiology
10. Perloff's Approach to Congenital Heart Disease
11. Moss and Adam's Heart Disease in Infants, children and Adolescent
12. Miller's Blood Diseases of Infancy and Childhood
13. DeGruchy's Clinical Hematology in Medical Practice
14. Barret and Holiday's Pediatric Nephrology
15. Caffey's Pediatric X-Ray diagnosis
16. Alleyne's Protein Energy Malnutrition
17. Miller, Tuberculosis
18. Vimlesh Seth, Tuberculosis
19. Swanson's Pediatric Surgery
20. Cherry and Feigen's Pediatric Infectious Diseases
21. Fenichel's Pediatric Neurology
22. Kendig's Respiratory Diseases in Paediatrics
23. Alex Mowat's Liver Disease in Children
24. Roger's Pediatric Critical Care
25. H.P.S. Sachdev's Principles of Pediatric and Neonatology Emergencies
26. Smith's Recognition patterns of Human Malformations

16. Indexed Journals

1. Indian Paediatrics
2. Indian Journal of Paediatrics
3. Pediatric Clinics of North America
4. New England Journal of Medicine
5. Lancet
6. British Medical Journal
7. Journal of Paediatrics
8. Archives Disease of Childhood and Adolescence
9. Paediatrics
10. Perinatal Clinics of North America
11. Indian Journal of Practical Paediatrics

Reference Series

1. Suraj Gupta's Recent Advances in Paediatrics
2. David's Recent Advances in Paediatrics

3. Advances in Paediatrics
4. Year Book of Paediatrics

ADDITIONAL READING

1. Indian Council of Medical Research, "Ethical Guidelines for Biomedical Research on Human Subjects", I.C.M.R, New Delhi, 2000.
2. Code of Medical Ethics framed under section 33 of the Indian Medical Council Act, 1956. Medical Council of India, Kotla Road, New Delhi.
3. Francis C M, Medical Ethics, J P Publications, Bangalore, 1993.
4. Indian National Science Academy, Guidelines for care and use of animals in Scientific Research, New Delhi, 1994.
5. Internal National Committee of Medical Journal Editors, Uniform requirements for manuscripts submitted to biomedical journals, N Engl J Med 1991; 424-8
6. Kirkwood B R, Essentials of Medical Statistics , 1st Ed., Oxford: Blackwell Scientific Publications 1988.
7. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers, 1989.
8. Compendium of recommendations of various committees on Health and Development (1943-1975). DGHS, 1985 Central Bureau of Health Intelligence, Directorate General of Health Services, min. of Health and Family Welfare, Govt. of India, Nirman Bhawan, New Delhi. P - 335.
9. National Health Policy, Min. of Health & Family Welfare, Nirman Bhawan, New Delhi, 1983
10. Srinivasa D K et al, Medical Education Principles and Practice, 1995. National Teacher Training Centre, JIPMER, Pondicherry

**** Note :** The editions are as applicable and the latest editions shall be the part of the syllabi.

LOG BOOK

Table 1 : Academic activities attended

Name:

Admission Year:

College:

Date	Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching	Particulars

LOG BOOK

Table 2 : Academic presentations made by the student

Name:

Admission Year:

College:

Date	Topic	Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching etc.

LOG BOOK

Table 3 : Diagnostic and Therapeutic Procedures Performed

Name:

Admission Year:

College:

Date	Name	ID No.	Diagnostic and Therapeutic Procedure	Category O, A, PA, PI*

* **Key:** O - Washed up and observed
 A - Assisted a more senior faculty
 PA - Performed procedure under the direct supervision of a senior faculty
 PI - performed independently
