



**DPU**

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(DEEMED UNIVERSITY)

**Syllabus**  
**for**  
**PG Medical Specilities**

**2014-15**

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**PAEDIATRICS**

## **GUIDELINES FOR POST GRADUATE TRAINING PROGRAMME**

A PG student after undergoing the required training should be able to deal effectively with a need of the community and should be competent to handle all the problems related to his specialty including the recent advances. He should also acquire skill in teaching of medical / Para-medical students

### **Programme objectives**

#### **Goals:**

- The goal of M.D. (Pediatrics) program is to provide training in pediatrics and Neonatology to produce competent specialists who are able to provide basic and specialty care of the highest order to neonates; children and adolescents at the community level and at primary, secondary and tertiary levels of healthcare, and to act as future trainers, teachers, and researchers in the field of pediatrics and Neonatology
- Recognizes the health needs of infants, children and adolescents and carries out professional obligations in keeping with principles of National Health Policy and professional ethics.
- Has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and at all levels of health system.
- Has acquired skills in effectively communicating with the child, family and the community.
- Is aware of the contemporary advances and developments in medical sciences as related to child health.
- Is oriented to principles of research methodology.
- Has acquired skills in educating medical and paramedical professionals.

### **Specific learning objectives**

At the end of the MD course in pediatrics, the student should be able to:

- Recognize the key importance of child health in the context of the health priority of the country.
- Practice the specialty of pediatrics in keeping with the principles of professional ethics.

- Identify social, economic, environmental, biological and emotional determinates of child and adolescent health, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to children.
- Recognize the importance of growth and development as the foundation of Pediatrics; and help each child realize her/ his optimal potential in this regard.
- Take detailed history, perform full physical examination including neurodevelopment and behavioral assessment and anthropometric measurements in the child and make clinical diagnosis.
- Perform relevant investigative and therapeutic procedures for the pediatrics patient.
- Interpret important imaging and laboratory results.
- Diagnose illness in children based on the analysis of history, physical examination and investigate work up.
- Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy.
- Plan and advice measures for the prevention of childhood disease and disability.
- Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs.
- Manage childhood emergencies efficiently.
- Provide comprehensive care to normal, 'at risk' and sick neonates.
- Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation.
- Recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them.
- Demonstrate empathy and human approach towards patients and their families and keep their sensibilities in high esteem.
- Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities.
- Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and

critically analyze relevant published literature in order to practice evidence - based pediatrics.

- Demonstrate competence in basic concepts of research methodology and Epidemiology.
- Facilitate learning of medical/ nursing students, practicing physicians, paramedical health workers and other providers as a teacher-trainer.
- Play the assigned role in the implementation of national health programs, effectively and responsibly.
- Organize and supervise the desired managerial and leadership skills.
- Function as a productive member of a team engaged in health care, research and education.

#### Integration of Teaching

- Postgraduate Medical Education in broad specialities shall be of three years duration in the case of degree course and two years in the case of Diploma course after MBBS and in the of super specialities the duration shall be of 3 years after MD and 2 years for DCh
- Postgraduate curriculum shall be competency based.
- Learning in postgraduate programme shall be essentially autonomous and self-directed.
- A modular approach to the course curriculum is essential for achieving a systemic exposure to the various sub-specialties concerned with a discipline.
- Outreach and community services and training will be incorporated for the better understanding of the grass root problems.
- Basic understanding of the allied subjects and superpecialities through postings.

### **Skills**

- History taking
- Examination.
- Bed side procedures
- Monitoring Skills:
- Therapeutic and investigative skills :
- Diagnostic
  - Bed side investigations
  - Interpretation of plain X-ray chest, abdomen, bone, head ; ECG , ABG report CT scan.
- Understanding of common EEG patterns, audiograms, Ultrasonographic abnormalities and isotope studies.

### **Postgraduate teaching programme**

Formal Teaching sessions:

- In addition to bedside teaching rounds, in patients and out patient's management, at least 5 hours of formal teaching per week are a must. The departments may select a mix of the following sessions:
  - Journal Club/Medical and perinatal Audit - Once a week
  - Seminar/Lecture - Once a week
  - Case Discussion - Twice a week
  - progress of dissertation
  - Problem based learning
  - Micro teaching
  - Interdepartmental case/seminar - Once a week
  - (Cardiology, Pediatrics, Surgery etc)
  - Attend accredited scientific meetings (CME, symposia, and conferences)
  - Clinicopathological conferences
  - Clinicoradiological conferences
  - Mortality Review meetings
  - Guest lectures
  - Conferences
  - Participation in workshops
  - Presentation of papers
  - Teaching undergraduate students
  - Teaching postgraduate students and paramedical staff

- Use and maintenance of biomedical equipments and gadgets
- Counseling regarding performance of procedures, disease process and prognostication
- Assisting in diagnostic and therapeutic procedures
- Performing diagnostic and therapeutic procedures
- Patient/ Health education

**Rotations**

- The postgraduate student should rotate through all the clinical units in the department. In addition, following special rotations should be undertaken:

**Must**

Neonatology - 6 months (maximum 9 months) (including perinatology)

Intensive care/Emergency - 3 months

**Desirable**

- Posting in Out Patient Services of the following specialties is recommended for the duration indicated below:
- Skin
- Pediatric surgery
- physical Medicine and Rehabilitation Community
- Pulmonology & radiology
- Note: in addition the candidates may be sent to allied specialties such as cardiology, neurology etc.

**Postgraduate Examination**

- The post graduate examination shall be in three parts:-
- Thesis, to be submitted by each candidate at least 6 months before the date of commencement of the theory examination.
- Theory: There shall be four theory papers for M.D
  - & three papers for DCH

**Practicals**

FOR M.D-

- Case I
- Case II (Newborn)
- Case III
- Case IV (Ambulatory/ Emergency Care)
- Viva on defined areas by each examiner separately



### **For DCH**

- Case 1
- Case II (Newborn)
- Case III
- Viva on defined areas by each examiner separately

### **Paper I**

Basic Sciences Chromosomal disorders, single gene disorders, multi/actor disorders/ polygenic, genetic diagnosis, and prenatal diagnosis. Embryogenesis of different organ system especially heart, genitourinary system, gastrointestinal tract, applied anatomy of different organs, functions of kidney, liver, lungs, heart and endocrinal glands. Physiology of micturition and defecation, placental physiology, fetal and neonatal circulation, regulation of temperature (esp. newborn), blood pressure, acid base balance, fluid electrolyte balance, calcium metabolism, vitamins and their functions, hematopoiesis, hemostasis, bilirubin metabolism, growth and development at different ages, puberty and its regulation, nutrition, normal requirements of various nutrients, basic immunology, bio- statistics, clinical epidemiology, ethical and medico-legal issues, teaching methodology and managerial skills. Pharmacokinetics of commonly used drugs, microbial agents and their epidemiology.

### **Paper II**

#### **Neonatology and Community Paediatrics.**

Neonatology: The fetus and neonatal infant

High - risk pregnancy, Assessment of fetal growth, well - being and maturity, Fetal distress: Manifestation, identification and management. Maternal diseases and their effects on the fetus and newborn, Assessment of fetal wellbeing, High-risk infant-identification and management, Delivery room emergencies, resuscitation of newborn and care of normal new born. Birth injuries. Adaptation of newborn. Examination of newborn and

assessment of maturity. Etiology, clinical features, pathophysiology, pathogenesis and management of various diseases of newborn. Neonatal transport. Development assessment and early intervention programmes for infants at high risk for developmental delay. Care of newborn in the community. Planning and organization of level I and level II Neonatal care centers. Effects of maternal therapy on fetus and in neonate. Secretion of drugs in the breast milk .

### **Preventive pediatrics**

National health programs relevant to pediatrics and child care. Epidemiology of common health problems and diseases. Vital statistics: Maternal Mortality Rate, perinatal Mortality Rate, Neonatal status, Determinants, interventions aimed at reduction of rates. National immunization programs and policies. Other vaccines not included in national immunization program.

### **Social paediatrics**

Child labour, child abuse, child neglect, failure to thrive, social issues relevant to pediatrics. Media and children. Children at special risk. Adoption. Environmental health hazards.

## **Paper III**

### **General Pediatrics including advances in Pediatrics Nutrition**

Understanding of energy balance in humans. Basic biochemistry of proteins, carbohydrates and fats. Proximate principles, vitamins, Minerals and Micronutrients :Biochemistry Physiological Functions, Daily Requirements, Manifestations and Management of deficiency and excess states. Normal requirements of protein, fat, carbohydrate for newborns, children adolescents and pregnant and lactating women. Nutritional values of common Indian foods. Breastfeeding and lactation

management. Infant feeding and weaning foods.

Balanced diet. Assessment of nutritional status. Nutritional disorders- Etiology, clinical features, patho-physiology, pathogenesis and management.

Pathological features of various nutritional disorders. Planning of diet during illness .

### **Growth and development**

Normal pattern and factors affecting growth and development. Recognition of normal variants of growth and development. Development assessment in infancy and childhood. Physiological changes during adolescence and problems facing adolescents. Assessment of growth. Deviations from normal patterns of growth and development: Recognition, prevention, early intervention and management. Tools for assessment of growth and development at various ages including Indian adaptations.

### **Infectious diseases and immunization**

Clinical features, management of viral, bacterial, fungal, spirochete, rickettsial, parasitic, protozoal and other infections. Prevention and management of nosocomial infections. Infection control and preventive measures. Immunization against infectious diseases. Fever Laboratory techniques for diagnosis of infectious diseases. Infections in immunocompromized host. Clinical syndromes caused by various infections agents.

### **Genetics**

Principles and molecular basis of genetic disorders. Clinical features and management of genetic and chromosomal disorders. Prenatal diagnostic techniques and neonatal screening tests. Effects of teratogenic agents. Genetic counselling

### **Immunological system and its disorders**

Components of immune system and their functions. Disorders of immune system- Etiology, clinical features, pathophysiology, pathogenesis and management. Pharmacotherapy. Transplantation medicine. Allergic diseases-etiology, clinical features, pathophysiology, pathogenesis and management. Relevant diagnostic and therapeutic modalities in various immunological and allergic disorders.

### **Psychological Behavioral manifestations disorders.**

Identification and assessment of psychological behavioral disorders. Intervention management strategies for psychological and behavioral disorders.

### **Rheumatic diseases and connective tissue disorder or childhood:**

Etiology, pathogenesis, manifestation, laboratory diagnosis and management of Rheumatic diseases in childhood and adolescents. Congenital and acquired disorders of eye, ear, nose, throat, skin, bones and joints.

### **Development of diagnostic approach for and interpretation of symptomatology and clinical signs in adolescents.**

## **Paper IV**

### **General Pediatrics including Recent Advances:**

#### **Neurology: Central and peripheral Nervous System-**

Development of the brain, spinal cord and peripheral nervous system and their anomalies. Neurological evaluation of newborns, infants and children. Etiology, pathophysiology, pathogenesis, clinical features and management of various diseases affecting central nervous system and peripheral nervous system. Seizures in childhood. Neuromuscular diseases - etiology, clinical features, pathophysiology and management.

### **Nephrology and genitourinary tract**

Development and development anomalies of the kidneys and the genitourinary tract. Physiology of urine formation and metabolic functions of the kidney. Etiology, pathophysiology, pathogenesis, clinical features and management of various disorders of the kidney and the genitourinary tract. Pathological features of diseases of the kidney and genitourinary tract. Relevant diagnostic and therapeutic modalities for diseases of the kidney and the genitourinary tract. Pharmacotherapy of renal and genitourinary disorders. Management of end stage renal disease.

### **Hematology and Neoplastic diseases**

Physiology of erythropoiesis, leucopoiesis and physiology of hemostasis. Etiology, pathophysiology, pathogenesis, clinical features and management of haematological and oncological diseases. Laboratory diagnosis and other relevant diagnostic and therapeutic modalities in hematological and oncological disorders. Pharmacotherapy of Hematological and Oncological diseases. Component therapy in Pediatric Practice.

### **Endocrine system**

Synthesis, physiology functions and pharmacological actions of various hormones. Disorders of the endocrine glands. Pubertal development and its disorders.

### **Gastrointestinal tract**

Development of gastrointestinal tract, hepatobiliary system and their abnormalities. Physiology of digestion. Etiology, pathophysiology pathogenesis, clinical features and management of various gastrointestinal and other abdominal diseases.

Pathological features of gastrointestinal hepatobiliary and pancreatic disorders. Surgical emergencies in gastrointestinal tract diseases.

**Respiratory system:**

Development of respiratory system, congenital anomalies. Physiology of respiration and mechanics of ventilation. Etiology, clinical features, pathophysiology, pathogenesis and management of various respiratory diseases. Pathological features of various respiratory diseases. Relevant diagnostic and therapeutic modalities in respiratory diseases. Pharmacotherapy of respiratory diseases.

**Cardiovascular system:**

Embryology of heart and vascular system. Adaptations of cardiovascular system at and after birth, Etiology, pathophysiology, pathogenesis, clinical features and management of congenital and acquired heart and vascular diseases and rheumatic heart disease. Rheumatic fever epidemiology, clinical features, pathophysiology, pathogenesis, prevention and management. Relevant diagnostic and therapeutic modalities in heart diseases in children. Congestive cardiac failure - etiology, pathophysiology pathogenesis, clinical features and management. Pharmacotherapy of cardiovascular diseases.

**Research**

All the postgraduate students will be exposed to Research Methodologies through their participation in the Journal Club & research projects

**Assessment**

- During the course all the PG students are required to maintain a detailed logbook.
- Day to day activities like professionalism, communication skills and counseling abilities are observed and feedback is given to the students.

- Six monthly examinations are conducted and the papers of the students are evaluated. Papers are discussed in detail.
  - Six monthly progress report is maintained.
  - Dissertations are assessed periodically and feedback given.
  - Preliminary Examination is conducted 3 months before the final examination.
  - Final examination is conducted and overall performance of the student is assessed.
  - For MD
 

Paper-I	Basic Sciences & Embryology	3 Hrs.	100 Marks
Paper-II	Neonatology and Community Pediatrics	3 Hrs	100 Marks
Paper-III	Systemic Pediatrics	3 Hrs	100 Marks
Paper-IV	Recent advance and allied	3 Hrs	100 Marks
Total Marks			400 Marks
- (Questions should be self explanatory & exhaustive)

For DCH Examination, Paper I, II and III are similar to M.D. except for the fact that allied subjects are included in Paper III.

**Pattern of Theory Papers : for (M.D. & DCH)**

a) Section 1 : 2 LAQ	25 x 2 = 50
b) Section 2 : 5 Short Questions	10 x 5 = 50
Total	100

**Practical :**

**For MD**

Clinical Cases :

Structured long case	1	150 Marks
Short case	3	50 Marks each = 150
Table Viva	4	25 Marks each = 100
Total		400 Marks

**For DCH**

Structured long case	1	100 Marks
Short case	2	50 Marks each = 100
Table Viva	4	25 Marks each = 100
	Total	300 Marks