

DPU

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(DEEMED UNIVERSITY)

SYLLABUS
for
III - MBBS
(Part - II)

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PEDIATRICS

Pediatric including Neonatology

The course includes systematic instructions in growth and development, nutritional needs of a child, immunization schedules, management of common diseases of infancy and childhood, scope of Social Pediatrics and Counseling.

1. GOAL

The broad goal of the teaching of undergraduate students in Pediatrics is to acquire adequate knowledge and appropriate skills for optimally dealing with major health problems of children to ensure their optimal growth and development. To do promotive preventive & curative services.

2. OBJECTIVES

a. Knowledge

At the end of the course, the student shall be able to:

- Describe the normal growth and development during fetal life, neonatal period, childhood and adolescence and outline deviations thereof;
- Describe the common pediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation;
- State age related requirements of calories, nutrients, fluids, drugs, etc. in health and disease;
- Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse;
- Outline national programs relating to child health including immunization programs.

b. Skills

At the end of the course, the student shall be able to:

- Take a detailed pediatric history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigations and plan and institute therapy;
- Take anthropometric measurements, resuscitate newborn infants with bag and mask at birth, prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national programs, start an intravenous line and provide nasogastric feeding, observe venesection and intraosseous infusion, if possible;
- Conduct diagnostic procedures such as lumbar puncture, bone marrow aspiration, pleural tap and ascitic tap; observe liver and kidney biopsy;
- Distinguish between normal newborn babies and those requiring special care and institute early care to all newborn babies including care of preterm and low birth weight babies, provide correct guidance and counseling in breastfeeding;
- Provide ambulatory care to sick children, identify indications for specialized/inpatient care and ensure timely referral of those who require hospitalization.

c. Integration

- The training in Pediatrics should be done in an integrated manner with other disciplines, such as Anatomy, Physiology, Forensic Medicine, Community Medicine, Obstetrics and Physical Medicine and Rehabilitation, to prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and at hospital as part of a team.

d. Other Areas

- IMNCI / FBNC / FIMNCI
- Problem based learning
- Orientation to research activity
- Communication skills

Guidelines on Pediatric Teaching Schedule

1. Training schedule

❖ Clinical training During 4th Semester

Learning Objective

- Cognitive: Normal child, growth, development, feeding, immunization, normal new born.
- Specific Learning Objective (Skills)
 - Take a detailed Pediatric history & draw a pedigree chart
 - Understand normal growth and development.
 - Conduct physical examination of children.
 - Perform anthropometry and interpret growth.
 - Developmental assessment of a child.
 - Medical conduct during patient examination.

❖ Clinical training in 6th Semester

I. Specific Learning Objectives (Skills)

- Take a detailed Pediatric history.
- Conduct physical examination of children.
- Perform anthropometry and interpret growth of the child.
- Developmental assessment of a child.

- Distinguish between normal newborn babies and those requiring special care (including low birth weight and preterms).
- Care of newborn at birth and lying in ward.
- Counseling for breastfeeding/infant feeding.

II. Clinical Posting (10.00 am to 1.00 pm)

Clinical demonstration - newborn (for 1 week)

- Neonatal history taking
- Newborn — nomenclature and assessment of gestational age.
- Care of normal newborn at birth
- Examination of newborn.
- Breastfeeding.
- Identification of sick newborn (common danger signs).
- Low birth weight including temperature regulation and asepsis.

* One day of the posting should be for immunization related services

- Pediatrics Case discussion — History taking and examination for 3 weeks in wards.
- Assessment (End of Posting): Emphasis on detailed history, physical examination, interpretation and correlation of abnormal physical findings and normal newborn.

❖ Clinical Training in 8th and 9th Semesters

I. Specific Learning Objectives (Skills)

- Take detailed pediatric history, conduct an appropriate physical and developmental examination of children including neonates, make clinical diagnosis, conduct common bedside procedures (peripheral smear, hemoglobin, urine and stool examination, CSF

examination by microscope), interpret common laboratory investigations and plan and institute therapy.

- Recognize emergencies including neonatal resuscitation and CPR and care to be instituted and relevant procedures performed.
- Prepare oral rehydration solution, perform tuberculin test and administer vaccines.
- Observation of diagnostic and therapeutic procedures such as intravenous access, nasogastric feeding, venesection, pleural tap, ascitic tap, bone marrow aspiration, lumbar puncture, liver and kidney biopsy.

II. Clinical Posting

III. Assessment (End of Posting).

Course Content

➤ Vital statistics

Must know

- Definition and overview of Pediatrics with special reference to age-related disorders. Population structure, pattern of morbidity and mortality in children.
- Maternal, perinatal, neonatal, infant and preschool mortality rates. Definition, causes, present status and measures for attainment of goals.
- Current National programs such as ICDS, RCH, Vitamin A prophylaxis, UIP, Pulse polio, ARI, Diarrhea Control Program, etc.

Desirable to know

- Other National programs

➤ **Growth and Development**

Must know

- Normal growth from conception to maturity.
- Anthropometry — measurement and interpretation of weight, length/height, head circumference, mid-arm circumference. Use of weighing machines, infantometer.
- Interpretation of Growth Charts: Road to Health card and percentile growth curves
- Abnormal growth patterns-failure to thrive, short stature.
- Growth patterns of different organ systems such as lymphoid, brain and sex organs.
- Normal pattern of teeth eruption.
- Principles of normal development.
- Important milestones in infancy and early childhood in the areas of gross motor, fine motor, language and personal-social development. 3-4 milestones in each of the developmental fields, age of normal appearance and the upper age of normal.
- Preventable causes and assessment of developmental retardation.
- Psychological and behavioral problems.
- Desirable to know
- Measurement and interpretation of sitting height, US:LS ratio and arm span.
- Age-independent anthropometric measurement-principles and application.
- Sexual maturity rating.

➤ Nutrition

Must know

- Normal requirements of protein, carbohydrates, fat, minerals and vitamins for newborn, children and pregnant and lactating mother. Common food sources.
- Breastfeeding–physiology of lactation, composition of breast milk, colostrum, initiation and technique of feeding. Exclusive breastfeeding - Definition and benefits. Characteristics and advantages of breast milk. Hazards and demerits of prelacteal feed, top milk and bottle feeding. Feeding of LBW babies.
- Infant feeding/weaning foods, method of weaning.
- Assessment of nutritional status of a child based on history and physical examination.
- Protein energy malnutrition - Definition, classification according to IAP/Wellcome Trust, acute versus chronic malnutrition. Clinical features of marasmus and kwashiorkor. Causes and management of PEM including that of complications. Planning a diet for PEM.
- Vitamins-Recognition of vitamin deficiencies (A, D, K, C, B-Complex). Etiopatho-genesis, clinical features, biochemical and radiological findings, differential diagnosis and management of nutritional rickets and scurvy. Hypervitaminosis A and D.

Desirable to know

- Characteristics of transitional and mature milk (foremilk and hind milk). Prevention and management of lactation failure and feeding problems.
- Definition, causes and management of obesity.

➤ **Immunization**

Must know

- National Immunization Programme.
- Principles of Immunization. Vaccine preservation and cold-chain.
- Types, contents, efficacy storage, dose, site, route, contra-indications and adverse reactions of vaccines — BCG, DPT, OPV, Measles, MMR, and Typhoid: Rationale and methodology of Pulse Polio Immunization.
- Investigation and reporting of vaccine preventable diseases. AFP (Acute Flaccid Paralysis) surveillance.

Desirable to know

- Special vaccines like Hepatitis B, H. influenzae b, Pneumococcal, Hepatitis A, Chicken pox, Meningococcal, Rabies.

➤ **Infectious Diseases**

Must know

- Epidemiology, basic pathology, natural history, symptoms, signs, complications, investigations, differential diagnosis, management and prevention of common bacterial, viral and parasitic infections in the region, with special reference to vaccine-preventable diseases: Tuberculosis, poliomyelitis, diphtheria, whooping cough, tetanus including neonatal tetanus, measles, mumps, rubella, typhoid, viral hepatitis, cholera, chickenpox, giardiasis, amebiasis, intestinal helminthiasis, malaria, dengue fever, AIDS.

Desirable to know

- Kala-azar, leprosy, chlamydia infection

➤ **Hematology**

Must know

- Causes of anemia in childhood. Classification based on etiology and morphology.
- Epidemiology, recognition, diagnosis, management and prevention of nutritional anemia-iron deficiency, megaloblastic.
- Clinical approach to a child with anemia with lymphadenopathy and/or hepato-splenomegaly.
- Epidemiology, clinical features, investigations and management of thalassemia.
- Approach to a bleeding child.

- Diagnosis of acute lymphoblastic leukemia and principles of treatment .
- Clinical features and management of hemophilia, purpura.
- Diagnosis and principles of management of lymphomas.
- Desirable to know
- Types, clinical features and management of acute hemolytic anemia.

➤ **Respiratory system**

Must know

- Clinical approach to a child with cyanosis, respiratory distress, wheezing. Significance of recession, retraction.
- Etiopathogenesis, clinical features, complications, investigations, differential diagnosis and management of acute upper respiratory infections, pneumonia with emphasis on bronchopneumonia, bronchio-litis, bronchitis. Acute and chronic otitis media.
- Etiopathogenesis, clinical features, diagnosis, classification and management of bronchial asthma. Treatment of acute severe asthma.
- Pulmonary tuberculosis- infection versus disease, difference between primary and post-primary tuberculosis. Etiopatho-genesis, diagnostic criteria in children versus adults. Diagnostic aids - technique and interpretation of Mantoux test and BCG test. Radiological patterns, chemo-prophylaxis and treatment.
- Diagnosis and management of foreign body aspiration. Differential diagnosis of stridor.

- Pathogenesis, clinical features and management of pneumothorax, pleural effusion and empyema.

Desirable to know

- Multidrug resistant tuberculosis, (MPR/XDR) bronchi-ectasis, pulmonary cysts

➤ **Gastrointestinal tract**

Must know

- Clinical approach to a child with jaundice, vomiting, abdominal pain, bleeding, hepatosplenomegaly.
- Acute diarrhea disease - Etiopathogenesis, clinical differentiation of watery and invasive diarrhea, complications of diarr-heal illness. Assessment of dehydration, treatment at home and in hospital. Fluid and electrolyte management. Oral rehydration, composition of ORS.
- Clinical features and management of acute viral hepatitis, causes and diagnosis of chronic liver disease.
- Common causes of constipation.
- Abdominal tuberculosis

Desirable to know

- Causes, clinical features and management of portal hypertension, Reye's syndrome, Celiac disease.
- Drug induced hepatitis

➤ **Central Nervous System**

Must know

- Clinical approach to a child with coma, convulsions, mental retardation.
- Clinical diagnosis, investigations and treatment of acute pyogenic meningitis, encephalitis and tubercular meningitis.
- Seizure disorders - Causes and types of convulsions at different ages. Diagnosis, categorization and management of epi-lepsy (broad outline). Febrile convulsions - definition, types, management.
- Causes, diagnosis and management of cerebral palsy.
- Acute flaccid paralysis - Differentiation between Polio and Gullain-Barre syndrome.
- Microcephaly, hydrocephalus, chorea

Desirable to know

- Infantile tremor syndrome, infantile hemiplegia

➤ **Cardiovascular system**

Must know

- Clinical features, diagnosis, investigation, treatment and prevention of acute rheumatic fever. Common forms of rheumatic heart disease in childhood. Differentiation between rheumatic and rheumatoid arthritis.
- Recognition of congenital acyanotic and cyanotic heart disease. Hemodynamics, clinical features and

management of VSD, PDA, ASD and Fallot's tetralogy.

- Recognition of congestive cardiac failure in infants and children.
- Hypertension in children-recognition, etiology, referral.

Desirable to know

- Diagnosis and management of bacterial endocarditis, pericardial effusion, myo-carditis.

➤ **Genitourinary system**

Must know

- Etiopathogenesis, clinical features, diagnosis, complications and management of acute post-streptococcal glomerulonephritis and nephrotic syndrome.
- Etiology, clinical features, diagnosis and management of urinary tract infection - related problems.
- Etiology, diagnosis and principles of management of acute renal failure.
- Causes and diagnosis of obstructive uropathy in children.
- Diagnosis and principles of management of chronic renal failure.
- Causes and diagnosis of hematuria.

Desirable to know

- Renal and bladder stones
- Hemolytic-uremic syndrome

➤ **Endocrinology / Hypohthyroidism**

Must know

- Etiology clinical features and diagnosis of diabetes and hypothyroidism, hyper-thyroidism and goiter in children.
- Desirable to know
- Delayed and precocious puberty

➤ **Neonatology**

Must know

- Definition - live birth, neonatal period, classification according to weight and gestation, mortality rates.
- Delivery room management including neonatal resuscitation and temperature control
- Etiology, clinical features, principles of management and prevention of birth asphyxia.
- Birth injuries - causes and their recognition.
- Care of the normal newborn in the first week of life. Normal variations and clinical signs in the neonate.
- Breastfeeding - physiology and its clinical management
- Identification of congenital anomalies at birth with special reference to anorectal anomalies, tracheo-esophageal fistula, diaphragmatic hernia, neural tube defects.
- Neonatal jaundice: causes, diagnosis and principles of management.
- Neonatal infection - etiology, diagnosis, principles of management. Superficial infections, sepsis.

- Low birth weight babies - causes of prematurity and small-for-date baby, clinical features and differentiation. Principles of feeding and temperature regulation. Problems of low birth weight babies.
- Identification of sick newborn (i.e., detection of abnormal signs - cyanosis, jaundice, respiratory distress, bleeding, seizures, refusal to feed, abdominal distension, failure to pass meconium and urine).

Desirable to know

- Recognition and management of specific neonatal problems-hypoglycemia, hypo-calcemia, anemia, seizures, necrotizing enterocolitis, hemorrhage.
- Common intra-uterine infections.
- Transportation of a sick neonate.

➤ **Pediatrics Emergencies**

Must know

- Status intractable seizure
- Status / Acute severe asthma.
- Shock and anaphylaxis.
- Burns.
- Hypertensive emergencies.
- Gastrointestinal bleeding.
- Comatose child.
- Congestive cardiac failure.
- Acute renal failure.
- Dengue haemorrhagic fever.

➤ **Fluid-Electrolyte**

Must know

- Principles of fluid and electrolyte therapy in children
- Pathophysiology of acid-base imbalance and principle of management

➤ **Genetics**

Must know

- Principles of inheritance and diagnosis of genetic disorders
- Down's syndrome.

➤ **Behavioral Problems**

Must know

- Breath holding spells, nocturnal enuresis, temper tantrums, pica.

➤ **Pediatric Surgical Problems / Congenital anomalies**

Must know

- Diagnosis and timing of surgery of cleft lip/palate, hypospadias, undescended testis, tracheo-esophageal fistula, hydro-cephalus, CTEV, umbilical and inguinal hernia, anorectal malformations, hypertrophic pyloric stenosis

- **IMNCI / FIMNCI**
- **Adolescent Medicine.**
- **Therapeutics**

Must know

- Pediatric doses, drug combinations, drug interactions, age specific choice of antibiotics, etc.

Assessment

Exam : **Theory** **40 mark**
 No **MCQ**
 SAQ