Post Graduate (M.D. Paed):

1. Aims and Objectives:

The aims and objectives of M D course in Paediatrics is to produce a competent paediatrician who:

(1) 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;

(2) Has acquired the competencies pertaining to paediatrics that are required to be practiced in the community and at all levels of health care system;

(3) Has acquired skills in effectively communicating with the child, family and the community;

(4) Is aware of the contemporary advances and developments in medical sciences as related to child health;

(5) Is oriented to principles of research methodology; and

(6) Has acquired skills in educating medical and paramedical professionals.

(7) Recognize the key importance of child health in the context of the health priority of the country;

(8) Practice the specialty of Paediatrics in keeping with the principles of professional ethics;

(9) Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, rehabilitative, preventive and promotive measures to provide holistic care to children;

(10) Recognize the importance of growth and development as the foundation of Paediatrics; and help each child realize her/his optimal potential in this regard;

(11) Take detailed history; perform full physical examination including neuro-development and behavioural assessment and anthropometric measurements of the child and make clinical diagnosis;

(12) Perform relevant investigative and therapeutic procedures for the pediatric patient;

(13) Interpret important imaging and laboratory results;

Curriculum

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

(1) Diagnose illness in children based on the analysis of history, physical examination and investigative work up;

(2) Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy;

(3) Plan and advise measures for the prevention of childhood disease and disability;

(4) Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs;

(5) Manage childhood emergencies efficiently;

(6) Provide comprehensive care to normal, 'at risk' and sick neonates;

(7) Recognize the emotional and behavioural characteristics of children, and keep these fundamental attributes in focus while dealing with them;

(8) Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities;

(9) Demonstrate communication skills of a high order in explaining management and prognosis, providing counselling and giving health education messages to patients, families and communities;

(10) Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyse relevant published literature in order to practice evidence based paediatrics;

(11) Demonstrate competence in basic concepts of research methodology and epidemiology;

(12) Facilitate learning of medical/nursing students, practicing physicians, para-medical health workers and other providers as a teacher-trainer;

(13) Play the assigned role in the implementation of national health programs, effectively and responsibly;

(14) Organize and supervise the desired managerial and leadership skills;

(15) Function as a productive member of a team engaged in health care, research and education.

SYLLABUS

General Guidelines – during the training period effort must always be made that adequate time is spent in discussing child health problems of public health importance in the country or a particular region.

1 Topic:

1.1 Growth and development:

- principles of growth and development ,normal growth and development,
- sexual maturation and its disturbances
- failure to thrive and short stature.

1.2 Neonatology:

- perinatal care
- low birth weight
- care in the labor room and resuscitation
- prematurity
- respiratory distress
- common transient phenomena, apnea
- infections ,anemia and bleeding disorders
- jaundice ,gastrointestinal disorders
- neurologic disorders
- renal disorders
- understanding of perinatal medicine
- thermoregulation and its disorders

1.3 Nutrition:

- maternal nutritional disorders
- nutrition for the low birth weight
- impact on fetal outcome
- breast feeding
- infant feeding including vitamin and mineral deficiencies
- complementary feeding
- protein energy malnutrition ,obesity
- adolescent nutrition
- parenternal and enteral nutrition in nutritional management of systemic neonates and children illness (celiac disease, hepatobiliary disorders, nephrotic syndrome)

1.4 Cardiovascular:

- congenital heart diseases
- rheumatic fever and rheumatic heart (cyanotic and acyanotic) disease
- infective endocarditis ,arrhythmia
- disease of myocardium ,diseases of pericardium (cardiomyopathy, myocarditis)
- systemic hypertension
- hyperlipidemia in children

1.5 Respiratory:

- congenital and acquired disorders of nose ,infections of upper respiratory tract,tonsils and adenoids ,obstructive sleep apnea

- congenital anomalies of lower respiratory tract, acute inflammatory upper airway, foreign body in larynx trachea & bronchus obstruction
- trauma to larynx ,subglottic stenosis (acute and neoplasm of larynx and trachea chronic)
- bronchitis, bronchiolitis
- aspiration pneumonia
- acute pneumnia, recurrent and interstitial suppurative lung disease pneumonia
- atelectasis,lung cysts
- emphysema and hyper-inflation, bronchial asthma, pulmonary edema, bronchiectasis
- pleural effusion, pulmonary leaks
- mediastinal mass

1.6 Gastrointestinal and liver disease:

- disease of mouth, oral cavity and tongue
- disorders of deglution and esophagus , peptic ulcer disease
- H. pylori infection, foreign body
- congenital pyloric stenosis ,intestinal obstruction
- malabsorption syndrome ,acute and chronic diarrhea
- irritable bowel syndrome , ulcerative colitis
- hirschsprung's disease ,anorectal malformations
- hepatitis, hepatic failure
- chronic liver disease ,Wilson's disease
- Budd-Chiari syndrome , metabolic diseases of liver
- cirrhosis and portal hypertension

1.7 Nephrologic & Urologic disorders:

- acute and chronic glomerulonephritis ,nephrotic syndrome
- hemolytic uremic syndrome ,urinary tract infection
- VUR and renal scarring
- renal involvement in systemic renal tubular disorders diseases
- congenital and hereditary renal disorders , renal and bladder stones
- posterior urethral valves, hydronephrosis, voiding dysfunction
- undescended testis
- Wilm's tumor

1.8 Neurologic disorders:

- seizure and non-seizure paroxysmal events ,epilepsy and epileptic syndromes
- meningitis of childhood
- brain abscess ,coma
- acute encephalitis and febrile encephalopathies , Guillain-Barre syndrome
- neurocysticercosis and other neuroinfestations , HIV encephalopathy
- SSPE , cerebral palsy
- neurometabolic disorders , neurodegenerative disorders
- neuromuscular disorders , mental retardation
- learning disabilities , muscular dystrophies
- acute flaccid paralysis and AFP surveillance , ataxia
- movement disorders of childhood , CNS tumors
- malformations

1.9 Haematology & Oncology:

- deficiency anemias, hemolytic anemias

- aplastic anemia, pancytopenia, disorders of thrombocytopenia, hemostasis
- blood component therapy, transfusion related infections
- bone marrow transplant/stem cell transplant , acute and chronic leukemia
- myelodysplastic syndrome ,Hodgkin disease
- non-Hodgkin's lymphoma , neuroblastoma
- hypercoagulable states

1.10 Endocrinology:

- hypopituitarism/hyperpituitarism , diabetes insipidus
- pubertal disorders , hypo- and hyper-thyroidism
- adrenal insufficiency ,Cushing's syndrome
- adrenogenital syndromes ,diabetes mellitus
- hypoglycemia , short stature
- gonadal dysfunction and intersexuality , obesity

1.11 Infections:

- bacterial, viral
- fungal , parasitic
- rickettssial , mycoplasma
- protozoal infection , tuberculosis
- protozoal and parasitic , nosocomial infections
- HIV , monitory for nosoconial infections
- control of epidemics and infection prevention ,safe disposal of infective material

1.12 Emergency & Critical care:

- emergency care of shock , cardio-respiratory arrest
- respiratory failure , acute renal failure
- status epilepticus , acute severe asthma
- fluid and electrolyte disturbances and its therapy , acid-base disturbances
- poisoning , accidents
- scorpion and snake bites

1.13 Immunology & Rheumatology:

- arthritis (acute and chronic) ,connective tissue disorders
- T and B cell disorders , immuno-deficiency syndromes

3.1.14 ENT:

- acute and chronic otitis media ,conductive/sensorineural hearing
- post-diphtheritic palatal palsy loss
- acute/chronic tonsillitis/adenoids , allergic rhinitis/sinusitis
- foreign body

1.15 Skin Diseases:

- exanthematous illnesses, vascular lesions
- pigment disorders , vesicobullous disorders
- infections: pyogenic , fungal and parasitic
- Steven-Johnson syndrome , eczema
- seborrheic dermatitis , drug rash
- urticaria , alopecia
- icthyosis

1.16 Eye problems:

- refraction and accommodation , partial/total loss of vision cataract
- night blindness , chorioretinitis
- strabismus , conjunctival and corneal disorders
- retinopathy of prematurity , retinoblastoma
- optic atrophy , pailledema

1.17 Behavioural & Developmental disorders:

- rumination , pica
- enuresis , encopresis
- sleep disorders , habit disorders
- breath holding spells , anxiety disorders
- mood disorders , temper tantrums
- attention deficit hyperactivity disorders , autism

1.18 Social paediatrics:

- national health programs related to child health , child abuse and neglect
- child labor , adoption
- disability and rehabilitation , rights of the child
- national policy of child health and population , juvenile delinquency

1.19 Genetics:

- principles of inheritance , pedigree drawing
- chromosomal disorders , single gene disorders
- multifactorial/polygenic disorders , genetic diagnosis
- prenatal diagnosis

1.20 Orthopaedics:

- major congenital orthopedic deformities ,bone and joint infections: pyogenic,tubercular
- common bone tumors

2. Approaches to Important Clinical Problems

2.1 Growth and development:

- precocious and delayed puberty , developmental delay
- impaired learning

2.2 Neonatology:

- normal newborn, low birth weight newborn
- sick newborn

2.3 Nutrition:

- lactation management and complementary , protein energy malnutrition feeding (underweight, wasting, stunting)
- failure to thrive and micronutrient deficiencies

2.4 Cardiovascular:

- murmur, cyanosis
- congestive heart failure , systemic hypertension

- arrhythmia, shock

2.5 GIT and liver:

- Acute diarrhea , persistent and chronic diarrhea
- abdominal pain and distension , ascites
- vomiting , constipation
- gastrointestinal bleeding , jaundice
- hepatosplenomegaly , hepatic failure and encephalopathy

2.6 Respiratory:

- Cough/chronic cough , noisy breathing
- wheezy child , respiratory distress
- hemoptysis

2.7 Infections:

- acute onset pyrexia , prolonged pyrexia with and
- recurrent infections , without localizing signs
- nosocomial infections

2.8 Renal:

- Hematuria/dysuria , bladder/bowel incontinence
- voiding dysfunctions , renal failure (acute and chronic)

2.9 Hematoncology:

- lymphadenopathy , anemia
- bleeding

2.10 Neurology:

- limping child , convulsions
- abnormality of gait , paraplegia, quadriplegia
- macrocephaly & microcephaly , floppy infant
- acute flaccid paralysis , cerebral palsy and other
- headache neuromotor disability

2.11 Endocrine:

- thyroid swelling , ambiguous genitalia
- obesity , short stature
- precocious &delayed puberty

2.12 Skin/Eye/ENT:

- skin rash , pigmentary lesions
- pain/discharge from ear , hearing loss
- epistaxis , refractory errors
- blindness , cataract
- eye discharge , redness
- squint , proptosis

2.13 Miscellaneous:

- habit disorders , hyperactivity and attention deficit

- arthralgia syndrome
- arthritis , multiple congenital anomalies

3. Skills

3.1 History and examination:

- history taking including psychosocial history , physical examination including
- newborn examination, including gestation fundus examination
- assessment of growth
- nutritional anthropometry and its assessment , use of growth chart
- SMR rating , developmental evaluation
- full systemic examination , health functionaries and social
- communication with children parents support groups
- genetic counseling

3.2 Bedside procedures:

Therapeutic skills:

- nasogastric feeding
- endotracheal intubation , cardiopulmonary resuscitation
- administration of oxygen (pediatric and neonatal)
- venepuncture and establishment of vascular , administration of fluids, blood
- access blood components
- parenteral nutrition , intraosseous fluid administration

Investigative skills:

- blood sampling ,venous and arterial , lumbar puncture
- ventricular tap , bone marrow aspiration and biopsy
- peritoneal, pericardial and subdural tap , kidney biopsy
- liver biopsy
- collection of urine for culture, urethral
- catheterization suprapubic aspiration

Bedside investigations:

- hemoglobin, TLC, ESR, peripheral smear staining and
- urine: routine and microscopic examination examination
- stool microscopy including hanging drop , examination of CSF and other
- preparation body fluids
- Gram stain , ZN stain

3.3 Interpretation:

- interpretation of X-rays of chest, abdomen, bone and skull
- ECG, ABG findings, ultrasound and
- common EEG patterns, CT scan
- audiograms , ultrasonographic abnormalities and isotope studies

3.4 Understanding of Basic Sciences:

- embryogenesis of different organ systems especially heart, genitourinary system, gastrointestinal tract
- applied anatomy of different organs functions of kidney, liver, lungs,
- Physiology of micturition and defecation heart and endocrine glands
- placental physiology, fetal and neonatal circulation

- regulation of temperature (especially newborn) , blood pressure acid base balance , fluid electrolyte balance
- calcium metabolism , vitamins and their functions
- hematopoiesis, hemostasis , bilirubin metabolism
- growth and development at puberty and its regulation
- normal requirements of various nutrients teaching methodology and and
- principles of basic immunology, bio-statistics clinical epidemiology
- managerial skills , microbial agents and their
- pharmacokinetics of commonly used drugs epidemiology
- basics of genetics and molecular biology

3.5 Community and Social Paediatrics

- national health nutrition programs , nutrition screening of community
- prevention of blindness , school health programs
- prevention of sexually transmitted diseases , contraception
- health legislation , national policy on children
- adoption, child labor
- juvenile delinquency, government and non-government
- investigation of adverse events following support services for children
- immunization in the community
- general principles of prevention and control of infections including food borne , waterborne,soil born and vector born diseases , investigation of an outbreak in a community