



YENEPOYA UNIVERSITY

Deralakatte, Mangalore - 575018

**REGULATIONS AND CURRICULUM GOVERNING
POSTGRADUATE PROGRAM (MD) IN
PAEDIATRICS**

(CURRICULUM - EFFECTIVE FROM 2010-11)

ATTESTED
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15.10.2010

NOTIFICATION

Sub: Curriculum and Syllabus governing the Postgraduate course in the
Speciality of MD, Paediatrics

Ref: Resolution of the Academic Council at its 5th Academic Council
meeting held on 11.10.2010, vide agenda - 8

The Academic Council at its 5th meeting held on 11.10.2010 and subsequently the 12th Board of Management at its meeting held on 12.10.2010 have resolved to approve the curriculum and syllabus governing the Postgraduate course in the speciality of MD, Paediatrics.

This notification is issued for implementation with effect from the academic year 2010-2011.



REGISTRAR

To:

The Principal - YMC

Copy to:

1. Controller of Examinations
2. Academic Section

M. D. Pediatrics

Goals

The goals of postgraduate training in Pediatrics 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.

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 health care.
 - 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 health care 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 Pediatrics.

Course Contents

Knowledge

Must Know

The Field of Pediatrics

1. Evaluating Medical Literature
Critical Appreciation of Journal articles
2. Overview of Child Health
3. The Normal Child
4. Preventive and Social Pediatrics
5. Epidemiology, Statistics and
Research Methodology including
Dissertation
6. Ethical Issues in Pediatrics

Growth and Development

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

Knowledge

Desirable to know

1. History of Pediatrics
 2. Tradition and Cultural Issues
pertaining to Child Care
-
1. IQ assessment

Knowledge

Must Know

Psychological Disorders

1. Assessment and Interviewing
2. Vegetative Disorders-Rumination, Pica, Enuresis. Encopresis, Sleep
3. Habit Disorders
4. Anxiety Disorders
5. Suicide
6. ADHD
7. Autism
8. Poor Scholastic in school age child
9. Psychosomatic Illness

Social Issues

1. Adoption
2. Street Child
3. ChildCare
4. Separation, death
5. Abuse and Neglect
6. Child Labor
7. Media (TV, Movies) and its effect on the child

Children with Special Needs

1. Failure To Thrive - Problems, Approach and Evaluation
2. Developmental disabilities, Chronic Illness
3. Mental Retardation - Problems, Approach and Evaluation

Knowledge

Desirable to know

1. Psychiatric consideration's of CNS injury
2. Mood Disorders
3. Disruptive Behavioral disorders
4. Sexual behavior variations
5. Psychosis
6. Psychological treatment
7. Neurodevelopment dysfunction in school age child
8. Learning Disorders
1. Effects of a mobile society
2. Impact of Violence
3. Street Child
4. Single parent child
5. Foster care

Knowledge

Must Know

4. Care of Child with fatal illness

Nutrition

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

Knowledge

Desirable to know

4. Runaway Children

1. Athletic Diet

Knowledge

Must Know

Acutely ill child

1. Evaluation in Emergency
2. Injury Control
3. Emergency Medical Services
4. Paediatric Critical Care

Respiratory Failure, Ventilation

Circulatory Failure and Shock

Acute Neurological Dysfunction Resuscitation

Basic and Advanced, NALS/PALS Post

Resuscitation stabilization Cold/Heat Injury

5. Transportation of Sick Child/neonate
6. Post-operative supportive care

Emergencies/ Critical Care Pediatrics

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. GI Bleeds - Hematemesis, Melena, Hematochezia
13. Adrenal Crisis
14. Metabolic problems - hyperammonemia, lactic acidosis, acid base abnormalities, Hypoglycemia

Knowledge

Desirable to know

1. Pediatric Anesthesia
2. Organization of a PICU/NICU
3. Equipment for Intensive care

Knowledge

Must Know

15. Septicemic shock, Viral infections and shock
16. Pneumothorax, empyema, pleural effusion, ascites
17. Severe Anemia, Bleeding child. Neutropenia
18. Pain management, Drug therapy
19. ARDS
20. Respiratory Failure
21. Burns/ electrocution
22. Animal Bites
23. Pre-anesthetic check up PAC
24. Sickle cell crisis, severe complicated malaria
25. Acute severe asthma, Bronchiolitis
26. Status epilepticus
27. Febrile seizure
28. Coma. Increased intra-cranial pressure
29. Cardiopulmonary resuscitation
30. Shock
31. Upper airway obstruction
32. Near drowning
33. Poisoning
34. Snake bite
35. Scorpion sting
36. Physical abuse
37. Sexual abuse

Human Genetics

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

Knowledge

Desirable to know

Human Genome Project

Knowledge

Must Know

Metabolic Disorders

1. Approach to IEM defects
2. Common amino acid Metabolic defects
3. Porphyria
4. Common Lipid Metabolism
5. Common CHO Metabolism
6. Mucopolysaccharidosis
8. 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

Knowledge

Desirable to know

1. Purine and pyrimidine metabolism
2. Rare Amino acid Metabolic defects
3. Rare Lipid Metabolism
4. Rare CHO Metabolism
5. Mucopolipidosis

**Knowledge
Must Know**

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

**Knowledge
Desirable to know**

Knowledge

Must Know

25. Nutrition and feeding the newborn –
term/preterm,
LBW, IUGR
26. Neonatal transport
27. Surgical problems
 - TEF
 - Anorectal malformations
 - Diaphragmatic Hernia /Eventeration
 - 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

Knowledge

Desirable to know

Knowledge

Must Know

Adolescent Health

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

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. Diagnosis
3. Therapy-principles
4. Allergic Rhinitis
5. Asthma
6. Atopic dermatitis
7. Urticaria, Angioedema
8. Anaphylaxis

Knowledge

Desirable to know

1. Depression
2. Suicide
3. Substance abuse
4. Sleep disorders
5. Skin/Orthopedics

1. Insect allergy
2. Ocular allergy
- 3- Adverse food reaction

Knowledge

Must Know

9. Serum sickness
10. Adverse drug reunions

Rheumatology

1. Autoimmunity
2. Laboratory evaluation
- 3- JRA
- 4- SLE

- 5- Vasculitis
6. Dermatomyositis
- 7- Erythema Nodosum

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

Knowledge

Desirable to know

1. Spondylosis
2. Neonatal lupus
3. Scleroderma
4. Mixed connective Tissue Disease
5. Behcet
6. Sjogren
7. Non rheumatic conditions
8. Pain syndromes, panniculitis, polychondritis, amyloidosis

**Knowledge
Must Know**

**Knowledge
Desirable to know**

14. Parasitic infections

Helminthiasis

15. Protozoal

Malaria

Kala azar

Leishmania

Giardia

Amoeba

16. Antiparasitic drugs

17. Antimicrobials

18. Antivirals drugs, interferon

19. Preventive measures

Health advice for travelling Infection control

20. Immunization

Principles

Schedules

Controversies

Standard and Optional Vaccines

Recent advances in Vaccines

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Digestive system

1. Normal tract-

Physiology, Anatomy, Development

2. Clinical features of Disorders

3. Disorders of Esophagus

4. Disorders of Stomach

5. Disorders of Intestines except Food allergy

6. Disorders of Pancreas

1. Food allergy

Knowledge

Must Know

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. Disorders of Upper Respiratory tract
3. Disorders of Lower respiratory tract
4. Pleural disorders
5. Chronic Respiratory Disease
Interstitial fibrosis, ILD, empyema,
lung abscess, bronchiectasis
6. Recurrent Respiratory Disease
7. Ventilation
8. Pulmonary Function tests
9. Cystic Fibrosis
10. Obstructive sleep apnea
11. Pulmonary Hemosiderosis
12. Neuromuscular skeletal disorders
13. Bronchial Asthma

Knowledge

Desirable to know

1. Congenital disorders of nose
2. Hypoventilation
3. Hypostatic pneumonia
4. Kyphoscoliosis
5. Central hyperventilation

6. Obesity
7. Cough Syncope

Knowledge

Must Know

Cardiovascular System

1. Investigations -Lab, ECG, CXR, ECHO, Cath
2. Physiology and Pathophysiology of Transitional Circulation, Embryology
3. Congenital Heart Disease
 - Epidemiology
 - Approach
 - Cyanotic
 - Acyanotic
4. Cardiac Arrhythmia
5. Acquired heart disease
 - Infective Endocarditis
 - Rheumatic Heart Disease
6. Diseases of the Myocardium
 - Myocarditis, Cardiomyopathy
7. Cardiac Therapeutics

Blood

1. Development of Hematopoietic system
2. Anemias
 - Inadequate production
 - Nutrition -Iron, Folate, B12
 - Bone Marrow failure
 - Hemolytic
 - Congenital and Acquired
3. Constitutional pancytopenia
4. Polycythemia
5. Granulocyte transfusions
6. Pancytopenia

Knowledge

Desirable to know

1. Sick Sinus Circulation
2. Tumors of Heart
3. Heart Lung, Heart Transplants
4. Aneurysms and fistulae

1. Elliptocytosis
2. Stomatocytosis

3. Other membrane defects
4. Lymphatic vessel Disorders

Knowledge

Must Know

7. Blood and component transfusions
8. Thrombotic disorders
9. Hemorrhagic disorders-acquired and congenital
 Physiology Bleeding
 disorders Coagulation
 disorders
10. Hyposplenism, trauma, splenectomy
11. Physiology and Disorders of the Spleen
12. Lymphatics

Neoplasms

1. Principles of diagnosis
2. Principles of treatment
3. Leukemia
4. Lymphomas

5. Neuroblastomas
6. Liver neoplasm
7. Kidney tumors
8. Bone Neoplasms
9. Retinoblastoma

Nephrology

1. Structure and function of kidney
2. Hematuria and conditions
3. HUS
4. Evaluation
5. Proteinuria
6. Nephrotic syndrome
7. Acute Glomerulonephritis

Desirable to know

1. Epidemiology
2. Molecular pathogenesis
3. Soft tissue sarcomas
4. Gonadal, germ cell
 tumors
5. GI neoplasm
6. Carcinomas
7. Skin Cancer
8. Benign tumours

1. Membranous GN
2. Lupus nephritis
3. Membranous Prolif GN
4. Chronic infection GN
5. Goodpasture
6. Interstitial nephritis
7. Cortical Necrosis

Knowledge

Must Know

8. Tubular disorders
 - Function
 - RTA
9. Renal Failure
10. RPGN
11. Renal Replacement therapy
12. Banter syndrome
13. Investigations
14. Toxic nephropathy

Urological disorders

1. UTI
2. Congenital anomalies, dysgenesis kidney
3. Vesicoureteral reflux
4. Bladder anomalies
5. Obstructions
6. Penis, urethra anomalies
7. Voiding dysfunction
8. Scrotal anomalies
9. Genitourinary trauma
10. Urinary lithiasis
11. Investigations - imaging, renal function tests
12. Neurogenic bladder

Gynecological problems

1. Menstrual Problems
2. Vulvovaginitis
3. Developmental anomalies

Desirable to know

1. Neoplasms
2. Breast Disorders
3. Hirsutism, polycystic Ovaries

Knowledge

Must Know

4. A child with special gyneac needs

Endocrine

1. Hypothalamus and pituitary
 - Hyperpituitarism
 - Hypopituitarism, Growth hormone
 - DI
 - ADH
 - Physiology of Puberty
 - Disorders of puberty
 - Precocious Puberty Delayed puberty
2. Thyroid
 - Thyroid studies
 - Hypothyroidism
 - Thyroiditis
 - Goiter
 - Hyperthyroidism
3. Parathyroid and disorders
- 4 Diabetes mellitus
5. Adrenal Disorders
 - CAH
 - Cushing
 - Addisons
 - Excess mineral corticoids
 - Feminizing adrenal tumors
 - Pheochromocytoma

Desirable to know

4. Gyne imaging -
5. Athletic problems

1. Carcinoma of thyroid

2. Tumours of testis/ovary

3. Multiple Endocrine Disorders

Knowledge

Must Know

CNS

1. Examination, Localization of lesions
2. Congenital anomalies
3. Seizures
4. Headaches
5. Neurocutaneous disorders
6. Coma
7. Brain death
8. Head Injury
9. Neurodegenerative disorders
Approach, Grey/white
10. Acute Stroke
11. Brain abscess
12. Tumors
13. Spinal cord disorders
14. Investigations
15. Antiepileptic drugs
16. SSPE
17. Rabies Vaccine Encephalomyelitis,
18. Acute Demyelinating Encephalomyelitis
19. Approach investigations of UMN/LMN
Extrapyramidal cerebellar lesions
20. Cerebral palsy
21. Neuroinfections
22. Encephalopathies

Knowledge

Desirable to know

1. Movement disorders

Knowledge

Must Know

Neuromuscular

1. Evaluation, investigations
2. Muscular Dystrophies, Congenital Myopathy, Myositis
3. Neuromuscular transmission and motor neuron abnormalities
4. GB syndrome
5. Bell's Palsy
6. Floppy Infant
7. Myasthenia Gravis

Eye

1. Examination of eye
2. Diseases of Eye movement and alignment disorders
3. Diseases of Conjunctiva - Conjunctivitis
4. Diseases of Lens - Cataracts
5. Diseases of Optic nerve – Papillitis, Neuritis, Papilledema
6. Diseases of Cornea - Clouding
7. Vitamin A deficiency
8. Lacrimal problems - Dacryocystitis
9. Retinopathy of Prematurity
10. VER

Knowledge

Desirable to know

1. Development disorders of Muscle
2. Endocrine
3. Metabolic
4. Motor sensory neuropathy
5. Autonomic

1. Refraction, accommodation
2. Vision
3. Pupils and iris
4. Lids
5. Uveal tract
6. Retina and vitreous
7. Glaucoma
8. Orbital abnormalities
9. Injuries to eye

Knowledge

Must Know

Ear

1. Clinical manifestations
2. Hearing loss
3. External Otitis
4. Otitis media
5. BAER

Skin

1. Morphology
2. Evaluation
3. Principles of therapy
4. Diseases of the neonate
5. Ectodermal dysplasias
6. Vascular disorders
7. Cutaneous nevi
8. Pigment Disorders
 - Hypeipigmentation
 - Hypopigmentation
9. Vesiculobullous dis
10. Eczema
11. Cutaneous Infections - Bacterial, Viral Fungal
12. Arthropod bites, infestations
13. Acne
14. Nutritional diseases
15. Drug Reactions

Bone/Joint

1. Evaluation
2. Diseases of Foot, toes
3. Torsional, angular deformities
4. Leg length discrepancy

Knowledge

Desirable to know

1. Congenital malformations
2. Inner ear disease
3. Trauma
4. Tumors

1. Cutaneous defects
2. Hypersensitivity
3. Epidermis dis
4. Keratinization dis
5. Dermis dis
6. Subcutn dis
7. Sweat glands
8. Hair

9. Nails
10. Mucous membranes
11. Tumors

1. Sports medicine
2. Pseudoachondroplasia
3. Diagnosis, assessment of genetic skeletal disorders
4. Dysplasias - Thantophoric diastrophic, camptomelic

Knowledge

Must Know

5. Diseases of Knee
6. Diseases of Hip
7. Diseases of Spine
8. Diseases of Neck .
9. Upper limb
10. Arthrogryposis
11. Common Fractures
12. Arthritis - approach, investigations, Management
12. Congenital Dislocation of Hip
13. Osteomyelitis
14. Septic Arthritis
15. Rickets- Nutritional and non nutritional

Genetic skeleton

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

Metabolic Bone disease

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

Unclassified disease

1. SIDS
2. Histiocytosis
3. Cystic fibrosis

Knowledge

Desirable to know

5. Ellis van Creveld
6. Osteochondrodysplasia
7. Inherited osteoporosis
8. Hypophosphatasia
9. Primary Chondrodystrophy
10. Idiopathic hypercalcemia
11. Hyperphosphatasia

1. Sarcoidosis
2. Progeria
3. Chronic fatigue syndrome

**Knowledge
Must Know**

**Knowledge
Desirable to know**

Environmental

1. Lead poisoning
2. Envenomation
3. Mammalian bites
4. Common Poisonings - OP. Kerosene.
Phenobarbitone,
Iron, etc

1. Radiation
2. Chemical pollutants
3. Mercury
4. Nonbacterial poisoning

PEDAGOGY

Principles of learning, objectives, teaching learning methods, evaluation

HEALTH STATISTICS. NATIONAL PROGRAMS

ORGANIZATION OF OFFICE PRACTICE

Equipment, Documentation, Records. Space and functioning

RECENT ADVANCES IN PEDIATRICS

DURATION 5 years.

ALLIED SUBJECTS

Anatomy

Applied Embryology, Development of major organ systems

Physiology

Applied Physiology with regard to major organ systems

Biochemistry

Biochemical basis or 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, and 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 Pediatrics

Radiology

Clinical Indications and interpretations of X-ray, Ultrasound, CT, MRI

Legal and Ethical Medicine

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

I. Postgraduate skills

Please note code:

PI: Perform Independently

PA: Perform with assistance

O: Observe

Number at end of item indicates minimum number of supervised and documented skills.

Psychomotor skills

Procedural

Procedures: List of PI Skills

- Clinical History and Physical examination
- Human Lactation management (counseling and practical skills) 20
- Neonatal resuscitation 30
- Pediatric resuscitation 30
- Teaching encounters 5
- Intravenous injections 50
- Intravenous cannulation 50
- Lumbar puncture 50
- Test dose 10
- Infusions 10
- Blood transfusions 10
- Neonatal Exchange transfusion 10

- ABG 10
- Central line, CVP 10
- Intraosseous 10
- Bone marrow aspiration, Trepine biopsy 10
- Pleural tap 10
- Paracentesis - diagnostic and therapeutic 10
- Mantoux test 10
- DPT, OPV, Measles vaccination 10
- Sampling for Fluid cultures 10
- Liver biopsy 10
- Neonatal, Pediatric Partial exchange 5

Respiratory management (All PI)

- Nebulization 50
- Inhaler therapy 10
- Oxygen delivery 50

Critically Ill child (All PI)

- Monitoring a sick child 50
- Pulse oximetry 10
- Infant feeding tube/Ryles tube, stomach wash 10
- Urinary catheterization 10
- Restraining a child for a procedure 10
- ORS and ORT 10
- Prognostication 10

Laboratory- Diagnostic (All PI)

- Urine Protein, sugar, microscopy 10

- Peripheral blood smear 10
- Malarial smear 10
- Ziehl Nielson smear - sputum, gastric aspirate 10
- Grams smear-CSF, pus 10
- Stool pH, reducing substances, microscopy 10
- KOH smear 2

Neonatal tests (All PI)

- Apt test 5
- Shake test 5

Clinical Assessment skills (All PI)

- Clinical history and physical examination -
- Anthropometry 50
- Dietary recall, calorie and protein estimation 50
- Nutritional advice 50
- Gestational assessment 10
- Neurological examination of newborn 10
- Primitive reflexes 10
- Fundoscopy 10
- Otoscopy 10
- Examination of external genitalia-male and female 10
- Tanner's SMR scales 5
- DDST or Baroda scales, TDS 5
- Amiel Telson's angles 5
- Per rectal examination 2

Interpretation (All PI)

- Clinical History and Physical examination

• Blood, Urine, CSF and Fluid investigations - hematology, biochemistry	50
• Chest Xray	50
• ECG	20
• ABG interpretation	20
• Abdominal Xray	20
• Bone and joint Xray	20
• CT scan Brain	20
• Barium studies	10
• IVP, VUR studies	10
• Ultrasound abdomen	10
• Neurosonogram	10

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

2

- Classification of diseases 2

List of PA skills:

- Sedation 10
- Analgesia 10
- Brain death 10
- Intercostal tube placement with underwater seal 5

List of PA skills:

- Peritoneal dialysis 2
- 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.

Frequency: Three times a week during the introductory phase of the first one-two months of the new postgraduates joining the course. Following this period of orientation, it does not serve a purpose of self-directed learning and is best avoided as a regular activity except as an exceptional guest lecture.

• **Seminars:**

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

Frequency: Three times a month. Topics to rotate once every 2 years

Topic to be shared among 2-3 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.

Frequency: Ideally, once in 1-2 months MDs get the first opportunity and juniors begin after their first year in the course.

- **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.

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.

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.

Frequency: Once in a week presuming the Head of Unit or Department does not daily interfere with the day to day management of the ward except in special circumstances.

- **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 both faculty. The discussion is a learning experience and improves communications between departments. 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. First choice is a senior MD student. 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.

Dissertation

1. Every candidate pursuing degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.
2. The dissertation is aimed to train a post graduate student in research methods and techniques, it includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.
3. Every candidate shall submit to the Registrar (Academic), Yenepoya University, in the prescribed proforma, a synopsis containing particulars of proposed dissertation work six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.
4. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

5. The dissertation should be written under the following headings:
 - i. Introduction
 - ii. Aims or Objectives of study
 - iii. Review of Literature
 - iv. Material and Methods
 - v. Results
 - vi. Discussion
 - vii. Conclusion
 - viii. Summary
 - ix. References (Vancouver style)
 - x. Tables
 - xi. Annexures
6. The written text of dissertation shall be not less than 50pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution..
7. Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination on or before the dates notified by the University.
8. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

Rotation Postings .

Core

Pediatrics	-	18 - 23 months
Neonatology	-	6-8 months
Intensive Care/Emergency	-	2-3 months
Optional Specialties (optional subject to availability) *	-	6 months

Oncology

Neurology

Pediatric Surgery

Nephrology

Cardiology

Clinical Hematology

Dermatology

Pulmonology

Gastroenterology

Clinical Microbiology

Paediatric & Neonatal intensive care

*maximum of 2months of external posting in optional specialities & Intensive care outside Yenepoya University is permitted.

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects.

The learning out comes to be assessed should included: (1) Person attitudes (ii) Acquisition of Knowledge, (iii) Clinical and operative skills, (iv) Teaching skills and (v) Dissertation.

i) **Personal Attitudes.** The essential items are:

- Caring altitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

ii) **Acquisition of Knowledge:** The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

Journal Review Meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist.

Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist.

Clinico-pathological conferences: This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

iii) Clinical skills

Day to Day work: skills in outpatient and ward work should be assessed periodically.

The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills.

Clinical meetings: Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list.

Clinical and Procedural skills: The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book.

iv) Teaching skills: Candidates should be encouraged to teach undergraduate medical students and paramedical students. if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students.

v) Dissertation in the Department: Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for Registration, again before finalization for critical evaluation and another before final submission of the completed work

vi) Periodic tests: The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practicals / clinicals and viva voce.

vii) Work diary / Log Book- Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

viii) Records: Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

Log book

The log book is a record of the important activities of the candidates during his training, -Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Procedure for defaulters: department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Scheme of Examination

a) Theory

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers.

Details of distribution of topics for each paper will be as follows.

Paper I : Fetal and newborn

Paper II : General Pediatrics I

General Paediatrics includes: - Growth & development, behavioral, Learning & Psychiatric disorders, Nutrition, fluids & drug therapy, human genetics ,immunology & immunization , Allergic disorder, infections, children with special needs

Paper III : General Paediatrics II

Includes: Systems – GIT, CVS, RS, CNS, etc.

Subspecialties – Nephrology, Urology, Hemato oncology , Endocrinology, Eye, Ear, Bone & joints, Dermatology Paediatric Surgery, Adolescent health, Collagen Vascular, Miscellaneous

Paper IV : Ambulatory (OPD) Pediatrics, Community and Social Pediatrics, Emergency and Critical Care Pediatrics

Basic Sciences and Recent Advances as applied to clinical paediatric disorders should be incorporated into relevant and appropriate question papers covering the respective areas.

Note: The distributions of chapters / topics shown against the papers are suggestive only.

b) Clinical Examination -

	No. of Cases	Marks
Long case	1	80
Short Case	1	45
OPD case	1	25
Emergency case	1	25
Newborn	1	25

Total	5	200

c) Viva-voice: 100 marks

1) Viva-Voce Examination: (80 Marks)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may also be given case reports, charts, gross specimens, pathology slides, instruments, X- rays, ultrasound, CT scan images, for interpretation. It includes Discussion on dissertation also.

2) Pedagogy Exercise: (20 Marks)

A topic be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes.

Maximum marks for M.D. degree course	Theory	Practical	Viva	Grand Total
	400	200	100	700

D. Criteria for declaring as pass : A candidate shall secure not less than 50% marks in each head of passing which shall include

(1) Theory, (2) clinical (3) viva voice examination

E. Examiners: at least 4 examiners 2 internals & 2 externals. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical council of India.

Recommended Books and Journals (Recent editions)

Texts

Essential

1. Nelson's Textbook of pediatrics, Harcourt Asia saunders
2. Clohertys manual of neonatal care
3. Meharban singh care of the newborn
4. Harriat Lane
5. Manual of pediatric therapeuties little brown children hospital boston
6. O.P Ghai textbook of pediatrics

Reference

1. Rudolf pediatrics appelton and lange
2. Forfar and ameils textbook of pediatrics ELBS
3. Frank oskis principles and practice of pediatrics
4. Avery disease of the newborn
5. Robertson textbook of neomatology
6. Illingworth's The normal child
7. Guha's Textbook of Neonatology
8. IAP Textbook of Pediatrics
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. Vimiesh 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 Pediatrics

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

Index journals

1. Indian Pediatrics
2. Indian Journal of Pediatrics
3. Pediatric Clinics of North America
4. New England Journal of Medicine
5. Lancet
6. British Medical Journal
7. Journal of pediatrics
8. Archives Disease of Childhood and adolescence
9. Pediatrics
10. Perinatal clinics of north America

Reference

1. Suraj guptha recent advances in pediarics
2. David recent advances in pediatrics
3. Advances in pediatrics
4. Year Book of pediatrics