



KRISHNA VISHWA VIDHYAPEETH

Deemed to be University
Knowledge Innovation Excellence

Accredited by NAAC with 'A+' Grade

DEPARTMENT OF PAEDIATRICS

Curriculum implemented by statutory body (MCI/NMC)
For M.D. Paediatrics

Krishna Institute of Medical Sciences, Karad

Syllabus

Name of the program with code

Programme Code- 1208

Programme Name- MD Pediatrics

Course name- MD Pediatrics

Paper I- Course Code -1208-11

Paper II -1208-12

Paper III - 1208-13

Paper IV - 1208-14

| Sr no | course name | Title of the topic | Page nos |
|--------------|--------------------|--|-----------------|
| 1 | MD Pediatrics | Preamble of the program | 4 |
| | | Program outcomes | 5 |
| 2 | | Course name: (course code) | 6 |
| 3 | | Course objectives | 7- 8 |
| | | Course outcome | 9 |
| 4 | | Complete syllabi with exam pattern and assessment scheme | 10-106 |

Index

| Sr no | course name | Title of the topic | Page nos |
|--------------|--------------------|--|-----------------|
| 1 | MD Pediatrics | Preamble of the program | 4 |
| | | Program outcomes | 5 |
| 2 | | Course name: (course code) | 6 |
| 3 | | Course objectives | 7- 8 |
| | | Course outcome | 9 |
| 4 | | Complete syllabi with exam pattern and assessment scheme | 10-106 |
| Sr no | course name | Title of the topic | Page nos |
| 1 | MD Pediatrics | Preamble of the program | 4 |
| | | Program outcomes | 5 |
| 2 | | Course name: (course code) | 6 |
| 3 | | Course objectives | 7- 8 |
| | | Course outcome | 9 |
| 4 | | Complete syllabi with exam pattern and assessment scheme | 10-106 |

| Sr no | course name | Title of the topic | Page nos |
|--------------|--------------------|---|-----------------|
| 1 | MD Pediatrics | Paper I: Basic Sciences as related to the subject | |
| 2 | | Paper II: General Paediatrics | |
| 3 | | Paper III: Systemic Paediatrics | |
| 4 | | Paper IV: Recent Advances | |

Preamble of the program

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training.

A post graduate student after undergoing the required training should be able to deal effectively with the needs of the community and should be competent to handle the problems related to his specialty including recent advances. S/He should also acquire skills in teaching of medical/para-medical students.

The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject-content specialists. The Reconciliation Board of the Academic Committee has attempted to render uniformity without compromise to purpose and content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of “domains of learning” under the heading “competencies”.

Program outcomes

AFTER POST GRADUATION

Post graduates must possess detailed knowledge of bodily functions and disease processes.

They should be able to perform thorough history taking, complete physical examination and ability to arrive at probable diagnosis.

They must be able to quickly perform triage on arrival of patient – address patients on priority basis, identify critically ill patients, refer patients to higher centre if required.

They must have the ability to initiate emergency treatment and stabilise patient followed by definitive treatment.

They must be well versed with skilled performance of emergency and planned procedures – i.v. cannula insertion, intubation, intercostal drainage, central line insertions, biopsy, etc.

They must be certified in neonatal and paediatric resuscitation. In Neonatology, they must know about care of preterm, breast feeding awareness and counselling.

They should possess skills for identification and sound management of pediatric emergencies—status epilepticus, status asthmatics, cardiac failure, shock, intoxications, poisonings etc.

They should be able to diagnose malnutrition, plot Growth charts, and treat with dietary management and counselling

They must follow protocols for rational use of antibiotics and other drugs

They must be accustomed to good communication with patient and relatives especially in situations like explaining bad prognosis, declaring death etc.

They should be up to date with latest guidelines, protocols and advancements

They should continue academic activity – research, CME participation, etc.

I) Course objectives

The goal of the MD Paediatrics post-graduate course on successful completion, is to mould the individual into a qualified Pediatrician who is a specialist doctor with the ability (competence) to assess the state of health; promote health; and diagnose as well as manage disease (acute or chronic, emergency or routine) in children of all ages from newborn to the adolescent.

Their expertise includes dealing with medical and surgical conditions of varied degrees of complexities providing a spectrum of care from prevention, promotion, resuscitation, emergency care, acute care, chronic care and procedures (diagnostic and therapeutic) including providing palliative care. Unlike in most adults, children go through changes in growth and development leading to anatomical, behavioral, and developmental changes that emphasizes that the Specialist incorporates this dynamic requirement into screening, assessments, diagnostic and therapeutic decisions. They will continue to play an important part in the health of the family and community especially through education and support of prevention of disease and health promotion since Paediatrics is child-centered and family-focused given the relationships and social structures of families. Pediatricians will also continue to provide consultative services to many other physicians across the specialties including Emergency, Burns, Plastic Surgery, Anesthesiologist, Surgeons, Infectious Disease, Community and Family Medicine.

SUBJECT SPECIFIC OBJECTIVES

The objectives of the postgraduate course (MD) in Paediatrics are to produce a competent pediatrician who:

- ☐ Acquires competencies relevant to all aspects of Paediatrics (newborn to adolescent) that are essential to function as a clinical expert in providing newborn and pediatric health services for the community at all levels.
- ☐ Recognizes the holistic health needs of healthy neonates, infants, children, and adolescents
- ☐ Performs responsibilities of the provision of clinical care in keeping with principles of the National Health Policy.
- ☐ Performs responsibilities in a professional and ethical manner.
- ☐ Acquires skills in effectively communicating not only with the health team but with the child, family, and the community
- ☐ Is actively involved in keeping oneself up to date with scientific advances in Pediatrics and Medico legal aspects of practice.
- ☐ Is oriented to principles of research methodology enabling critical appreciation of published scientific evidence and contributing through scholarship
- ☐ Acquires skills to enable education of all stakeholders including health team members
- ☐ Acquires skills and understanding of dealing with health team members

enabling optimizing system-based practice.

II) Course outcomes

Post graduates must possess detailed knowledge of bodily functions and disease processes. They should be able to perform thorough history taking, complete physical examination and ability to arrive at probable diagnosis. They must be able to quickly perform triage on arrival of patient – address patients on priority basis, identify critically ill patients, refer patients to higher centre if required.

They must have the ability to initiate emergency treatment and stabilise patient followed by definitive treatment.

They must be well versed with skilled performance of emergency and planned procedures – i.v. cannula insertion, intubation, intercostal drainage, central line insertions, biopsy, etc.

They must be certified in neonatal and paediatric resuscitation. In Neonatology, they must know about care of preterm, breast feeding awareness and counselling.

They should possess skills for identification and sound management of pediatric emergencies— status epilepticus, status asthmatics, cardiac failure, shock, intoxications, poisonings etc.

They should be able to diagnose malnutrition, plot Growth charts, and treat with dietary management and counselling

They must follow protocols for rational use of antibiotics and other drugs

They must be accustomed to good communication with patient and relatives especially in situations like explaining bad prognosis, declaring death etc.

They should be up to date with latest guidelines, protocols and advancements

They should continue academic activity – research, CME participation, etc.

Complete syllabus with exam pattern and assessment scheme

SUBJECT SPECIFIC COMPETENCIES

Towards achieving suitable outcomes certain Competencies are essential to be achieved, assessed that will enable the qualified professional to perform the role of a Paediatric Specialist.

Aligned with the NMC's existing Undergraduate CBME, the following are refined and identified as themes or roles mandatory to perform the responsibility as a Pediatric Specialist in the community after acquiring an MD Paediatric post-graduation:

1. Clinical Expert
2. Communicator
3. Professional
4. Scholar
5. Team Member

Core Competencies

(The term 'children' is hereby used to include all age groups from birth to 18 years - newborn, neonates, infants, toddlers, children and adolescents)

To perform each of these above roles as a Paediatrician, every role determines competencies which in turn requires Specific Learning Objectives covering all the domains of learning.

By the end of the MD Paediatric course, the postgraduate student should be able to:

1. Clinical Expert

1.1. Appreciate and recognize maternal and child health needs in the context of the health priority of the country at all levels ie. Individual, Community, Local, Regional, and National.

1.2. Apply an understanding of the determinants of child health at individual, community, and population levels in practice of disease prevention, health promotion and clinical care of all children.

1.3. Understand the existing inequities in accessibility to child friendly health, economics of child health and existing status of child health across gender, communities, region, and nation (eg. NHFS survey).

1.4. Participate in population/community efforts towards prevention, promotion, and disease control relevant and with implications for child health (ie. National Health Programs).

1.5. Appreciate and recognize the importance of nurturing care for the early growth and development as the very foundation of Paediatrics and help each child realize her/his optimal growth and development potential.

1.6. Actively support the optimization of quality of growth, development, and holistic health of children in care through education enhancing the promotive, preventive, and curative measures.

1.7. Provide continuum of care and rehabilitation for children afflicted by chronic disease.

1.8. Scientific Knowledge and Evidence

1.8.1. Apply an understanding of scientific basis, concepts, principles, and advances as the basis of health and disease in the screening, diagnosis, and management of all children including growth and development.

1.9. Clinical History/Examination

1.9.1. Demonstrate appropriate proficiency in basic clinical skills appropriate for children, ie. History, Physical Examination and Assessments of Growth/ Development/ Behavior, in arriving at the most likely clinical differential; in identifying precipitating or predisposing factors; prioritizing high risk versus low-risk conditions; and, those in need of emergency versus routine care.

1.9.2. Organize and analyze an authentic history and relevant examination towards a valid clinical assessment of health of all children including growth, development, and behavioral assessments.

1.10. Investigations

1.10.1. Order rational Investigations and interpret results keeping in mind cost effectiveness and purpose in child health (ie., confirming diagnosis that impacts management decisions).

1.11. Procedures/Interventions

1.11.1. Order, perform with safety and interpret results of procedures/ interventions that are cost-effective for diagnostic and therapeutic purposes in child health.

1.12. Critical Thinking

1.12.1. Demonstrate a logical clinical approach to diagnose children in health and disease in all settings.

1.12.2. Manage using appropriate resources all children in health and disease in settings not less than secondary level facilities

1.12.3.Demonstrate clinical reasoning at every step from gathering, organization, prioritization, analysis and creating logical diagnostic hypothesis from clinical data relevant to childhood (history to examination to investigations)

1.12.4. Formulate rational, judicious, and cost-effective plans (Investigation, Therapeutic and Counseling/Education plans) for all children in health and disease (acute and chronic) taking into consideration individual/ family circumstances, interpersonal dynamics, socioeconomic status, vulnerabilities, epidemiology, and population health factors.

1.12.5.Choose investigations and prescribes medications/interventions that are rational and cost-effective balancing benefits and costs in child health in the context of family status.

1.12.6.Critically appreciate scientific literature especially relevant to children under their care.

1.13. Responsiveness

1.13.1.Rapidly assess/screen, recognize and manage critically ill sick children prioritized for immediate attention.

1.13.2.Demonstrate sensitivity and appreciate the emotional and behavioral characteristics and needs of children while dealing with them

1.14. Quality of Care

1.14.1.Demonstrate practices that maximize child safety

1.14.2.Optimize safe working practices in child health delivery settings

1.14.3.Participate in incident reporting of adverse events and errors enabling quality improvement of child health

1.14.4.Participate in continuous Child Health Care related Quality Improvement measures especially patient related audits, recognition of gaps and implementation of interventions to improve quality

1.15. Advocacy

1.15.1.Responding to a Child's health needs by advocating for them

1.16. Documentation

1.16.1.Maintain Child health records of relevant demographic details clinical details, progress, interpretations, educational, monitoring and management decisions accurately and neatly organized

1.16.2.Provide relevant concise summaries and certification in completeness to authorized legal guardians of children

1.16.3.Maintain childhood morbidity and mortality data for audit purposes.

2. Communicator

2.1. Effective Communication

2.1.1. Demonstrate all aspects of effective and empathetic communication during most encounters with children and parents/guardians (listening skills, culturally appropriate verbal and non-verbal cues, simple understandable

language, allow questions, clarify answers and concise written communications for prescriptions and patient education)

2.1.2. Demonstrate mutually respectful communications with children/parents/guardians (verbal, telephonic, electronic and written) that is collaborative and effective between health system colleagues of all levels.

2.2. Effective Counselling

2.2.1. Provide professional assistance and guidance in assisting children/parents/ authorized legal guardians determine their autonomous decisions regarding their own health (especially related Diagnostic Interventions and Therapeutic options).

3. Professional

3.1. Responsibility

3.1.1. Demonstrate responsibility for all aspects of the conduct of child care, academic tasks and research in children undertaken.

3.1.2. Demonstrate social accountability consistent with community and professional expectations through active participation in child health relevant Community Outreach programs

3.1.3. Demonstrate an understanding of one's own limits and seeks assistance appropriately in dealing with children in health and disease.

3.2. Integrity

3.2.1. Demonstrate commitment with honesty for consistent and uncompromising adherence to moral and ethical principles and values in protecting child rights and wellbeing during care, academics, and research.

3.3. Compassion and empathy

3.3.1. Demonstrate the ability to understand and share the feelings of children and families while dealing with them as care providers.

3.3.2. Demonstrate the ability to understand and share the feelings of health team members while working with them for the good of children.

3.4. Stigma and Discrimination

3.4.1. Demonstrate ability to comprehend the differences in values and beliefs while respectfully continuing child health care without discrimination

3.5. Ethical principles

3.5.1. Recognize ethical conflicts specific for child health between principles of ethics and justifies options/decisions while discussing within health care team discussions.

3.5.2. Demonstrate respect for confidentiality in issues related to child health.

3.5.3. Demonstrate ability to honor the doctor-child/parent/legal guardian relationship in all dealings with respect ensuring due care especially avoiding all inappropriate behavior and activities that lead to conflicts of interest.

3.5.4. Demonstrate mutual respect for all members on the child health team and behaves equitably and collaboratively while dealing with them.

3.5.5. Demonstrate prioritization of child's welfare and community benefits over self when appropriate.

3.6. Medicolegal Law and Code of Ethics

3.6.1. Practice within the NMC's standards as prescribed by the Code of Ethics especially in dealings with children.

3.6.2. Practice within the Law of the land fulfilling legal requirements during the provision of care especially relevant to children.

4. Scholar

4.1. Research

4.1.1. Refer to evidence-based guidelines in the decision-making process for child care justifying limitations.

4.1.2. Understand research methodology and the creation of a research studies for child health.

4.1.3. Demonstrate the ability to critically appreciate the quality and implications of scientific literature justifying its application in the delivery of child health care.

4.1.4. Demonstrate an ability to identify pertinent research questions relevant to child health through active participation and involvement in research.

4.2. Academics

4.2.1. Demonstrate features of active adult learning through enthusiasm and displaying a positive attitude in the educational process while participating in educational activities to build child health care capacities (Intra- and inter- institutional).

4.2.2. Use appropriate educational techniques to promote health education amongst children/parents/legal guardians/community

4.2.3. Use appropriate educational techniques to facilitate learning of other child health care team members including undergraduates, nurses, paraclinical staff and peers

4.2.4. Maintain competency by keeping up to date with child health guidelines through continued medical education with scientific knowledge and skills to enable quality practice

4.3. Application

4.3.1. Apply child health expertise in an area of study that is published in academic journals

4.3.2. Apply child health expertise while participating in health education and community efforts

5. Team Member

5.1. Teams

5.1.1. Demonstrate an understanding of the roles and competencies of other health care providers dealing with child health.

5.1.2. Demonstrate the ability to engage and collaborate with all child health care team members keeping the patient at the center of all such collaboration.

5.1.3. Recognize and discuss in a non-judgmental way the roles of informal stakeholders as extended teams especially in child care planning (especially mature adolescent, extended family, alternative medicine practitioners, support networks, etc.)

5.1.4. Demonstrate knowledge of health care financing, implications for management and its application in assisting patient to access the best possible care through extended team networking while dealing with child health.

5.1.5. Maintain personal health and wellbeing not only of self but of team members.

5.2. Leaders

5.2.1. Demonstrate leadership and management skills enabling effective working as a child health team

5.2.2. Lead, manage, and participate as a member of an effective and efficient child health care team while collaborating respectfully either as leader or member.

5.2.3. Facilitate child health team capacity building of competencies by leading through conduct of effective education sessions for members of the health team learning.

5.2.4. Manage time and human resources efficiently and effectively to deliver optimal child health care.

SYLLABUS

Syllabus gives an outline and summary of topics to be covered in the MD Paediatric Course.

In Competency Based Education, outcomes are required to be defined, taught, learnt, and assessed that determines competence at the end of the course. Defined Outcomes should focus on what is expected practically in the “real world” by the professional performing roles of the expert

physician. This syllabus is focused on all age group of children from neonates to toddlers to children to adolescents as per existing practice. The syllabus thus stresses on “real world presentation of symptoms and signs” and is categorized under the following:

- A. Cognitive Domain
 - a. Basic Sciences
 - b. Approaches/Management of common symptoms/signs inclusive of analysis, interpretation, and application of investigations
 - c. Specific Topics classified as per traditional systems
- B. Psychomotor Domain
- C. Affective Domain
- D. Pedagogic and Research Skills

A) Predominant in Cognitive (Knowledge) Domain

- a. Basic Sciences
 - Should be able to justify and apply in the practice of Paediatrics, an understanding of the fundamentals of basic sciences as listed below:

- 1. Applied Anatomy
 - 1.1. Embryogenesis of all organ systems
 - 1.2. Central Nervous System
 - 1.2.1. Structures, Functions, Clinical considerations
 - 1.2.1.1. Cerebral Cortex
 - 1.2.1.2. Corticospinal tracts
 - 1.2.1.3. Extrapyramidal tracts
 - 1.2.1.4. Cerebellar connections
 - 1.2.1.5. Sensory tracts
 - 1.2.1.6. Ventricles
 - 1.3. Spinal Cord, Peripheral Nerves
 - 1.3.1. Structures, Functions, Clinical considerations
 - 1.3.1.1. Lower Motor Neuron
 - 1.4. Bladder and Bowel control
 - 1.5. Vascular supply – Principal arteries and veins

- 1.6. Extremities, Abdomen, Thorax, Head and Neck
- 1.7. Fetal circulation
- 2. Physiological basis and Pathophysiology in Health and Disease
 - 2.1. Physical Growth
 - 2.2. Temperature regulation
 - 2.3. Acid Base Balance
 - 2.4. Fluid Balance
 - 2.5. Hematopoiesis
 - 2.6. Hemostasis
 - 2.7. Electrolyte balance
 - 2.8. Bone mineralization: Calcium-Phosphate balance
 - 2.9. Puberty
 - 2.10. Renal function
 - 2.11. Hepatic function
 - 2.11.1. Bilirubin
 - 2.11.2. Drug metabolism
 - 2.12. Respiratory function
 - 2.13. Cardiac function
 - 2.14. Gastrointestinal
 - 2.15. Endocrine functions
 - 2.16. Developmental Milestones
 - 2.17. Adolescence
 - 2.18. Placenta functions
 - 2.19. Fetal to Infant Transitions (Cardio-respiratory)
 - 2.20. Nutrition
 - 2.21. Allergy
- 3. Biochemical basis of health and disease
 - 3.1. Cell biology
 - 3.1.1. Cell cycle
 - 3.1.2. Cell signaling
 - 3.2. CHO metabolism
 - 3.3. Lipid metabolism
 - 3.4. Protein metabolism
 - 3.5. TCA Cycle

- 3.6. Hemoglobin
- 3.7. Clinical Chemistry
 - 3.7.1. Vitamins
 - 3.7.2. Minerals
- 3.8. Plasma Proteins
- 3.9. Coagulation Pathway
- 4. Genetics and Molecular Medicine
 - 4.1. Human Genome
 - 4.2. Nucleic acids
 - 4.2.1. Protein synthesis
 - 4.3. Recombinant DNA Technology
 - 4.3.1. Basic techniques
 - 4.3.2. Applications
 - 4.4. Chromosomal abnormalities
 - 4.4.1. Pedigree charting
 - 4.5. Prenatal/Postnatal diagnosis
 - 4.6. Immunogenetics
 - 4.6.1. HLA
- 5. Clinical Microbiology
 - 5.1. Virology
 - 5.1.1. Classifications
 - 5.1.2. Diagnostics
 - 5.1.3. Therapeutics
 - 5.1.4. Resistance
 - 5.2. Bacteriology
 - 5.2.1. Classification
 - 5.2.2. Endo/Exotoxins
 - 5.2.3. Diagnostics
 - 5.2.4. Therapeutics
 - 5.2.5. Resistance
 - 5.2.6. Antibiotic Stewardship
 - 5.3. Mycology
 - 5.3.1. Classification

- 5.3.2. Diagnostics
- 5.3.3. Therapeutics
- 5.3.4. Resistance
- 5.4. Parasitology (Protozoology and Helminthology)
 - 5.4.1. Classification
 - 5.4.2. Diagnostics
 - 5.4.3. Therapeutics
 - 5.4.4. Resistance
- 5.5. Waste disposal, sterilization, disinfection
 - 5.5.1. Infection Control
- 6. Immunology
 - 6.1. Immune response system
 - 6.1.1. Innate, Adaptive
 - 6.1.2. Cellular
 - 6.1.3. Antibodies
 - 6.1.4. Cytokines
 - 6.1.5. Clinical considerations
 - 6.2. Immunoglobulins
 - 6.2.1. Types
 - 6.2.2. Clinical considerations
 - 6.3. Complement
 - 6.3.1. Components
 - 6.3.2. Pathways
 - 6.3.3. Deficiencies
 - 6.3.4. Clinical considerations
 - 6.4. Hypersensitivity reactions
 - 6.5. Blood group Immunology
 - 6.5.1. ABO
 - 6.5.2. Rh
 - 6.5.3. Minor groups
 - 6.6. Immunological assays
 - 6.7. Science of Vaccinology
 - 6.7.1. Vaccines

- 6.7.2. Classification
- 6.7.3. Schedule
- 6.7.4. Indications, contraindications
- 6.7.5. Adverse effects
- 6.7.6. Catch up doses
- 6.8. Immunodeficiency
 - 6.8.1. Primary
 - 6.8.2. Secondary
- 6.9. Autoimmune disease
 - 6.9.1. Basis
 - 6.9.2. Autoantibodies
 - 6.9.3. Clinical considerations
- 6.10. Transplant Immunology
 - 6.10.1. Stem cell
 - 6.10.2. GVH disease
 - 6.10.3. Solid organ transplant
- 6.11. Cancer Immunology
- 7. Pharmacology
 - 7.1. Pharmacokinetics – common medications
 - 7.2. Antimicrobials
 - 7.3. Analgesia, sedation
 - 7.4. Drug interactions
 - 7.5. Adverse effects
 - 7.6. Antidotes for poisons
 - 7.7. Drug induced disease
- 8. Epidemiology
 - 8.1. Rates
 - 8.2. Principles of study design
 - 8.3. Measures of effects
 - 8.4. Association and causation
 - 8.5. Diagnostic tests
- 9. Statistics
 - 9.1. Distribution of data

- 9.2. Measures of Central tendency
- 9.3. Measures of dispersion
- 9.4. Probability distributions
- 9.5. Sampling
- 9.6. Statistical significance
- 10. Professionalism and Ethics
 - 10.1. Professionalism
 - 10.1.1. Clinical competencies
 - 10.1.2. Effective communication
 - 10.1.3. Understanding of Ethics
 - 10.1.4. Accountability
 - 10.1.5. Altruism
 - 10.1.6. Excellence
 - 10.1.7. Humanism
 - 10.2. Ethics
 - 10.2.1. Code of ethics
 - 10.2.2. Principles of Ethics
 - 10.2.3. Ethical workup
 - 10.2.4. Doctor-Patient relationship
 - 10.2.5. Confidentiality and privacy
 - 10.2.6. Doctor-Doctor relationship
 - 10.3. Medico-legal essentials
 - 10.3.1. POSCO
 - 10.3.2. Certifications
 - 10.3.3. Documentation
 - 10.3.4. Informed consent
 - 10.3.5. MLC formalities
- 11. Pedagogy
 - 11.1. How adults learn
 - 11.2. Competencies and Specific Learning Objectives
 - 11.3. Teaching Learning Methodologies
 - 11.4. T-L Media including Power Point Presentations
 - 11.5. Assessments- Formative and Summative
- 12. Management

- 12.1. Time Management
- 12.2. Conflict Management
- 12.3. Communication especially Listening
- 12.4. How to study – Lectures? Wards? Journal club?
- 12.5. Fundamentals of Counselling
- 12.6. Stress Management
- 12.7. Teamwork
- 12.8. Leadership

b. Approaches/Management of common symptoms/signsinclusive of analysis, interpretation, and application of investigations (In every age group from newborn to adolescent)

- Approaches (Clinical and Investigation) of the following clinical symptoms/ signs
Management plans (Investigation, Treatment, Care, Counselling, Education, Follow Up, Rehabilitation Plans) of healthy children (section 1.1) and children with the following clinical symptoms/signs.

- 1.1. Healthy Children
 - 1.1.1. Healthy neonate
 - 1.1.2. Healthy infant
 - 1.1.3. Healthy child
 - 1.1.4. Healthy adolescent
- 1.2. Cardiovascular Symptoms/Signs
 - 1.2.1. Murmurs
 - 1.2.2. Cyanosis
 - 1.2.3. Syncope
 - 1.2.4. Dizziness
 - 1.2.5. Breathlessness
 - 1.2.6. Palpitations
 - 1.2.7. Chest Pain
- 1.3. Development (and Behavioral) Symptoms/ Signs
 - 1.3.1. Normal development

- 1.3.2. Delayed milestones
- 1.3.3. Regression of milestones
- 1.3.4. Unusual behaviors
- 1.3.5. Poor scholastic performance
- 1.3.6. Deviations in sexuality
- 1.3.7. Dysmorphic features
- 1.3.8. Suicide attempt
- 1.3.9. Behavioral issues -disinterest, isolation, poor social interaction
- 1.3.10. Substance abuse
- 1.3.11. Abnormal eating behavior
- 1.3.12. Sleep disturbance
- 1.3.13. Breath holding spells
- 1.3.14. Multiple unexplained unrelated complaints
- 1.3.15. Technology dependence
- 1.3.16. Speech abnormalities

1.4. Dermatology

- 1.4.1. Neonatal skin lesions
- 1.4.2. Infantile skin lesions
- 1.4.3. Acquired skin rashes in childhood
- 1.4.4. Urticaria
- 1.4.5. Neurocutaneous presentations

1.5. Emergencies

- 1.5.1. Dehydration
- 1.5.2. Respiratory distress
- 1.5.3. Hypoxia
- 1.5.4. Shock
- 1.5.5. Incessant crying
- 1.5.6. Sick looking
- 1.5.7. Status epilepticus
- 1.5.8. Acute Severe Asthma
- 1.5.9. Trauma
- 1.5.10. Animal/human bite

- 1.5.11. Abuse
- 1.5.12. Cardio-pulmonary failure
- 1.5.13. Oliguria/Anuria
- 1.5.14. Raised intracranial pressure
- 1.5.15. Coma
- 1.5.16. Traumatic Brain Injury
- 1.5.17. Acute poisoning
- 1.5.18. Envenomation
- 1.5.19. Medico-legal conditions

1.6. Endocrine Symptoms

- 1.6.1. Abnormal stature
- 1.6.2. Hypoglycemia
- 1.6.3. Delayed puberty
- 1.6.4. Precocious puberty
- 1.6.5. Goiter

1.7. Gastrointestinal (and Hepatic) Symptoms

- 1.7.1. Tongue tie
- 1.7.2. Vomiting and regurgitation
- 1.7.3. Diarrhea – Acute
- 1.7.4. Diarrhea – Chronic, persistent, recurrent
- 1.7.5. Abdominal pain – Acute
- 1.7.6. Abdominal Pain - Recurrent
- 1.7.7. Constipation
- 1.7.8. Jaundice
- 1.7.9. Gastrointestinal bleed
- 1.7.10. Hepatomegaly
- 1.7.11. Splenomegaly
- 1.7.12. Hepatosplenomegaly
- 1.7.13. Encopresis
- 1.7.14. Abdominal distention

1.7.15. Abnormal Liver Function tests

1.8. Genital Symptoms

- 1.8.1. Atypical or ambiguous genitalia
- 1.8.2. Menstrual abnormalities
- 1.8.3. Injuries to genitalia
- 1.8.4. Foreskin, penile problems
- 1.8.5. Labial adhesions

1.9. Growth (and Nutrition related) Symptoms

- 1.9.1. Normal growth
- 1.9.2. Normal diet
- 1.9.3. Poor feeding in Infancy
- 1.9.4. Undernutrition
- 1.9.5. Failure to thrive
- 1.9.6. Overweight and obesity

1.10. Hematological Symptoms

- 1.10.1. Pallor
- 1.10.2. Bleeding manifestations
- 1.10.3. Lymphadenopathy
- 1.10.4. Thrombotic manifestations
- 1.10.5. Abnormal Hematological parameters including Pancytopenia

1.11. Infectious (and Immunological) Symptoms

- 1.11.1. Fever with focus
- 1.11.2. Fever without focus
- 1.11.3. Fever - persistent or recurrent
- 1.11.4. Exanthematous Fever
- 1.11.5. Recurrent infections
- 1.11.6. Hospital acquired infection
- 1.11.7. Vaccination Issues– complete, incomplete

1.12. Metabolic Symptoms

1.12.1. Acidosis – metabolic, respiratory

1.12.2. Alkalosis – metabolic, respiratory

1.12.3. Mixed Acid-Base disturbance

1.12.4. Dyselectrolytemia – Hypo/Hyponatremia, Hypo/Hyperkalemia, Hypo/hypercalcemia

1.12.5. Hyperammoniaemia

1.12.6. Hypoglycemia

1.13. Musculoskeletal Symptoms

1.13.1. Joint pains with or without swelling

1.13.2. Low back pain

1.13.3. Deformities of bone growth

1.13.4. Scoliosis

1.13.5. Growing Pains involving lower limbs

1.14. Neonatology

1.14.1. Term gestation

1.14.2. Prematurity

1.14.3. Low birth weight

1.14.4. Neonatal Jaundice

1.14.5. Ill/Sick

1.14.6. Neonatal seizures

1.14.7. Neonatal respiratory distress

1.14.8. Neonatal Apnea

1.14.9. Neonatal Shock

1.14.10. Metabolic/electrolyte disturbances –Glucose, Sodium, Potassium, Calcium, Bicarbonate, Lactate, Ammonia

1.14.11. Feed Intolerance

1.14.12. Spinal/Cranial abnormalities

1.14.13. Post NICU follow up

1.14.14. HIV-HepB-Syphilis exposure/infection

1.14.15. Inadequate breast milk

1.14.16. Antenatal detected renal abnormalities

1.15. Neurological Symptoms

1.15.1.Seizures

1.15.2.Altered sensorium/Coma

1.15.3.Motor weakness

1.15.4.Incessant Irritability

1.15.5.Headache

1.15.6.Abnormal Head circumference

1.15.7.Sensory abnormalities

1.15.8.Abnormal gait

1.15.9.Ataxia

1.15.10.Facial weakness

1.15.11.Involuntary movements

1.16. Ophthalmological Symptoms

1.16.1.Red eye

1.16.2.Watering of eye

1.16.3.Discharge from eye

1.16.4.Poor vision

1.16.5.White reflex

1.16.6.Deviation of eyes

1.17. Otorhino-laryngology Symptoms

1.17.1.Nasal discharge, Nasal congestion, Sneezing

1.17.2.Sore Throat

1.17.3.Ear Pain/discharge

1.17.4.Tonsillar hypertrophy

1.17.5.Epistaxis

1.17.6.Impaired hearing

,

1.18. Renal and Urological Symptoms

1.18.1.Enuresis

1.18.2.Dysuria

1.18.3.Proteinuria

- 1.18.4.Hematuria
- 1.18.5.Edema
- 1.18.6.Hypertension
- 1.18.7.Dyselectrolytemia
- 1.18.8.Polyuria
- 1.18.9.Scrotal and Inguinal swelling
- 1.18.10.Oliguria/Anuria
- 1.19. Respiratory Symptoms
 - 1.19.1.Cough
 - 1.19.2.Breathlessness
 - 1.19.3.Noisy breathing - snoring, stridor, wheeze
 - 1.19.4.Hemoptysis
- 1.20. Community Situations
 - 1.20.1.Vaccination camps
 - 1.20.2.School Health Checkups
 - 1.20.3.Outbreaks of childhood diseases
- 1.21 Analysis, interpretation, and application of Investigations
 - 1.21.1.Radiology X-rays (Chest AP/PA/Lateral, abdomen, spine, extremities)
 - 1.21.2.Contrast X-rays (Micturating cystourethrogram)
 - 1.21.3.Ultrasound (Lung: Consolidation, Left Heart failure, effusion; Circulation: Intravascular Volume; Neonatal Brain: Hydrocephalus, Intracranial Collections; Central veins: Patency for US guided central lines; Lymphadenopathy: For US guided FNAC aspirations)
 - 1.21.4.CT scan with/without contrast (Brain: Cerebral edema, Midline shift, Meningitis, Encephalitis, ADEM, Hemorrhage, Infarction, SOLS, Hydrocephalus)
 - 1.21.5.MRI scan (Brain: Gross White vs Grey matter degeneration)
 - 1.21.6.HIDA Scan
- 1.22. Microbiology
 - 1.22.1.Grams stain of CSF, Pus, Peritoneal fluid
 - 1.22.2.Ziehl Neilson Stain of Sputum, Pus
 - 1.22.3.Hanging drop for motile cholera
 - 1.22.4.PCR reports for infectious disease diagnosis
 - 1.22.. Culture and sensitivity reports of body fluids
- 1.23. Pathology
 - 1.23.1.Pathology reports of human tissue

1.24. Routine labs

1.24.1.Hematology reports of Blood counts, peripheral smear, Bleeding and Coagulation parameters, basic immunology

1.24.2.Urine routine analysis

1.25. Biochemical

1.25.1.Biochemical routine (Electrolytes, Calcium-Phosphate, Renal, Liver profiles, Arterial/venous Blood Gases)

1.25.2.Inborn error of metabolism newborn screening reports

1.25.3.Endocrine (Glucose related, Thyroid related, Hormonal assays, Lipid profiles)

1.26. Electrophysiological Studies

1.26.1.Electrocardiogram

1.27. Lung Function Tests

1.27.1.Spirometry

C. Specific Topics

Understanding the definition, epidemiology, etiopathogenesis, clinical presentation, investigations, complications, differential diagnosis, treatment, prognosis, prevention, follow up and rehabilitation, if required, of the following, but not limited to:

1. Overview

1.1. History of Paediatrics

1.2. State of Health of Children – Global, Regional and India

1.3. Evidence-based Care in Pediatrics

1.4. WHO's Sustainable Development Goals

1.5. National Programs relevant to Child Health

1.6. Ethics in the Care of Children

1.7. Medico-legal aspects relevant to Paediatrics including:

Documentation (Initial History/Examination/Differential Sheet, Progress (SOAP, Problem Oriented), Death and other Certification, Informed Consent, Wound Certificates, POSCO, Financial Receipts, Outpatient/In Patient Registers)

2. Genetics

2.1. Inheritance Patterns

2.2. Genetic Counseling

2.3. Prevention of Genetic Disorders Management of Genetic Disorders

3. Metabolic Disorders

- 3.1. Approach to Inborn Errors of Metabolism
- 3.2. Approach to Hypoglycemia
- 3.3. Defects of Amino Acid Metabolism
 - 3.3.1. Phenylalanine
 - 3.3.2. Urea Cycle Disorders
- 3.4. Defects of Lipid Metabolism
 - 3.4.1. Organic Acidemias
 - 3.4.2. Fatty Acid Oxidation
 - 3.4.3. Mitochondrial Disorders
 - 3.4.4. Peroxisomal Disorders
 - 3.4.5. Lysosomal Storage Disorders
 - 3.4.6. Gaucher Disease
 - 3.4.7. Niemann-Pick Disease
- 3.5. Defects of Carbohydrate Metabolism
 - 3.5.1. Glycogen Storage Disease
- 3.6. GM1 and GM2 Gangliosidosis
- 3.7. Mucopolysaccharidoses
- 3.8. Porphyrrias
- 3.9. Newborn Screening
- 4. Immunology
 - 4.1. Laboratory Diagnosis of Immune-mediated Diseases
 - 4.2. Primary Immunodeficiency Disorders
 - 4.2.1. Antibodies
 - 4.2.2. Cellular
 - 4.2.3. Multiple types
 - 4.2.3.1. SCID (Severe combined immunodeficiency)
 - 4.3. Phagocytic system
 - 4.3.1. Neutrophils
 - 4.3.2. Leukopenia
 - 4.3.3. Leucocytosis
 - 4.4. Complement pathway
 - 4.4.1. Complement deficiencies
 - 4.5. Intravenous Immunoglobulin

4.6. Multisystem Inflammatory Syndrome of Childhood

5. Allergy

5.1. Basis of Allergy

5.2. Allergic rhinitis

5.3. Atopic dermatitis

5.4. Urticaria, Angioedema

5.5. Anaphylaxis

5.6. Asthma

5.7. Serum sickness

5.8. Drug allergies

5.9. Food allergies

6. Fluid and Electrolytes

6.1. Body Fluids – Composition, Osmolality

6.2. Fluid Therapy - Maintenance, Replacement

6.3. Sodium

6.4. Potassium

6.5. Calcium

6.6. Magnesium

6.7. Phosphorus

6.8. Acid-base Abnormalities

7. Therapeutics

7.1. Principles of Drug Therapy

7.2. Administration of Medications

7.3. Pre-anesthesia Checkup

7.4. Procedural sedation

7.5. Analgesia

8. Acutely Ill

8.1. Assessment and Triage

8.2. Cardiopulmonary Resuscitation

- 8.2.1. Basic Life Support
- 8.2.2. Pediatric Advanced Life Support
- 8.3. Minor Injuries – Abrasions, Lacerations

- 9. Pediatric Intensive Care
 - 9.1. Shock
 - 9.2. Respiratory Failure
 - 9.3. Pediatric Acute Respiratory Distress Syndrome
 - 9.4. Ventilation – Non-Invasive and Invasive
 - 9.5. Sedation, Analgesia and Paralysis
 - 9.6. Nutrition in Intensive Care
 - 9.7. ECMO
 - 9.8. Concepts of Futility, Do not Resuscitate, Withdrawal of Care
 - 9.9. Palliative Care
 - 9.10. Death
- 10. Toxins
 - 10.1. Clinical Approach to a Poisoned Child
 - 10.2. Poisonings by Common Drugs
 - 10.3. Hydrocarbon Poisoning
 - 10.4. Poisoning in the Household
 - 10.5. Corrosive Poisoning
 - 10.6. Snakebite
 - 10.7. Insect Stings including Bee, Wasp, Scorpion Sting

- 11. Injuries
 - 11.1. Poly Trauma: Stabilization, Triage, and Transport
 - 11.2. Drowning/Submersion Injuries
 - 11.3. Animal-related Injuries

 - 11.4. Burn Injuries
 - 11.5. Cold Injuries

- 12. Neonatology
 - 12.1. Neonatal Mortality and Morbidities

- 12.2. Fetal Physiology and Growth
- 12.3. Maternal Influences on Fetus
- 12.4. Transition of the Fetus to Newborn
- 12.5. Intrauterine diagnosis and management of Fetal disease
- 12.6. Organization of Neonatal Care

- 13. Normal Newborn
 - 13.1. Delivery Room Care of the Newborn
 - 13.2. Newborn Resuscitation
 - 13.3. Assessment of the Newborn
 - 13.4. Care of the Normal Newborn
 - 13.5. Maintenance of Temperature
 - 13.6. Breastfeeding and Lactation Management

- 14. Disorders of Weight and Gestation in Neonates
 - 14.1. Low Birthweight
 - 14.1.1. Feeding of Low-birth weight
 - 14.1.2. Intrauterine Growth Restriction
 - 14.2. Prematurity
 - 14.3. Post term
 - 14.4. Large for Gestational Age

- 15. High-risk Newborn
 - 15.1. Recognition of High-risk neonate
 - 15.2. Multiple-gestational pregnancies
 - 15.3. Birth Injuries
 - 15.4. Perinatal Asphyxia
 - 15.5. Jaundice in the newborn
 - 15.6. Infant of Diabetic Mother
 - 15.7. Neonatal Hypoglycemia
 - 15.8. Anemia and Polycythemia
 - 15.9. The Bleeding Neonate
 - 15.10. Hemorrhagic Disease of the

- 15.11. Thrombocytopenia in the Newborn
- 15.12. Cyanosis in the Newborn
- 15.13. Necrotizing Enterocolitis
- 15.14. Retinopathy of Prematurity
- 15.15. Dyselectrolytemia, Hypocalcemia, Hypermagnesemia
- 15.16. Neonatal Transport
- 15.17. Follow-up of the High-risk Neonate
- 16. Neonatal Infections
 - 16.1. Neonatal Sepsis – Early and Late
 - 16.2. Superficial Infections in Neonates
 - 16.3. Neonatal Meningitis
 - 16.4. Deep-seated Infections in Neonates
 - 16.5. Neonatal Tetanus
 - 16.6. Intrauterine Infections
- 17. Neonatal Neurological Problems
 - 17.1. Seizures in the Neonates
 - 17.2. Hypoxic Ischemic Encephalopathy
 - 17.3. Intra-cranial/ventricular Hemorrhage
 - 17.4. Peripheral nerve injuries
- 18. Neonatal Respiratory Problems
 - 18.1. Approach to a Neonate with Respiratory Distress
 - 18.2. Neonatal Apnea Neonatal Ventilation
 - 18.3. Hyaline Membrane Disease
 - 18.4. Transient Tachypnea of the Newborn
 - 18.5. Meconium Aspiration Syndrome
 - 18.6. Pulmonary Air Leaks in the Newborn
 - 18.7. Persistent Pulmonary Hypertension (PPHN)
 - 18.8. Pulmonary Hemorrhage
 - 18.9. Bronchopulmonary Dysplasia
 - 18.10. Extra pulmonary air leaks

19. Neonatal Cardiac Problems
 - 19.1. Neonate with a murmur
 - 19.2. Patent ductus arteriosus
 - 19.3. Ductus dependent shunts
20. Hematological disorders in Neonates
 - 20.1. Anemia in Neonate
 - 20.2. Hemolytic Disease
 - 20.3. Polycythemia
 - 20.4. Hemorrhagic Disease
- ,
21. Congenital Malformations
 - 21.1. Esophageal Atresia and Tracheoesophageal Fistula
 - 21.2. Diaphragmatic Hernia and Eventration
 - 21.3. Gastrointestinal and Abdominal Malformation
 - 21.4. Genitourinary Malformations
 - 21.5. CNS Malformations
 - 21.6. Single Umbilical Artery, Polydactyly, Skin Tags
22. Growth: Normal and Abnormal
 - 22.1. Normal Growth
 - 22.2. Factors Affecting Growth
 - 22.3. Assessment of Physical Growth
 - 22.4. Disorders of Growth (Failure to Thrive, Overweight and Obesity)
 - 22.5. Abnormalities of Stature
23. Development and Developmental Delay
 - 23.1. Theories of Development and Behaviour
 - 23.2. Laws of Development
 - 23.3. Factors Affecting Development
 - 23.4. Normal Development
 - 23.5. Screening of Development and Behaviour
 - 23.6. Approach to Diagnosis of Developmental Delay: Developmental Screening and Surveillance

- 23.7. Global Developmental Delay
- 23.8. Specific Developmental Delays
- 23.9. Cerebral Palsy
- 23.10. Intellectual Disability
- 23.11. Learning disabilities
- 23.12. Hearing Impairment
- 23.13. Mental Retardation

- 24. Behavior and Learning
 - 24.1. Evaluation of Mental Well-Being
 - 24.2. Psychosocial assessments
 - 24.3. Technology Dependence
 - 24.4. Bulling
 - 24.5. Common Behavioral Problems
 - 24.6. Tantrums and Breath-Holding
 - 24.7. Enuresis and Encopresis
 - 24.8. Sleep Medicine
 - 24.9. Common Speech, Language, and Communication Disorders
 - 24.10. Learning Disorders
 - 24.11. Dyslexia
 - 24.12. Attention-Deficit Hyperactivity Disorder
 - 24.13. Oppositional Defiant and Conduct Disorders
 - 24.14. Autism Spectrum Disorder
 - 24.15. Rett Syndrome
 - 24.16. Anorexia Nervosa and Bulimia
 - 24.17. Anxiety Disorders
 - 24.18. Suicide
 - 24.19. Management of Psychological Illness

- 25. Nutrition and Nutritional Disorders
 - 25.1. Nutritional Requirements
 - 25.2. Nutritive Values of Indian Foods
 - 25.3. Infant and Young Child Feeding

- 25.4. Adolescent Feeding
- 25.5. Feeding during Childhood and Food Allergy
- 25.6. Undernutrition: Prevalence and Etiology

- 25.7. Pathophysiology of Undernutrition
- 25.8. Malnutrition – Moderate and Severe Acute
- 25.9. Vitamin A
- 25.10. Vitamin B Complex
- 25.11. Vitamin C and Scurvy
- 25.12. Vitamin D, Nutritional Rickets, and Hypervitaminosis D
- 25.13. Iodine Deficiency Disorders
- 25.14. Zinc in Child Health
- 25.15. Trace Elements in Nutrition and Health
- 25.16. Fluorosis
- 25.17. Nutritional Rehabilitation including Diet Prescription
- 25.18. Enteral and Parenteral Nutrition
- 25.19. National Nutrition Programs

- 26. Immunization
- 26.1. Basic Concepts of Vaccination
- 26.2. Vaccine Administration Practices
- 26.3. Scheduling of Vaccines
- 26.4. Vaccine Storage and Cold Chain
- 26.5. Adverse Events following Immunization
- 26.6. BCG Vaccine
- 26.7. Poliovirus Vaccines
- 26.8. Diphtheria, Tetanus, and Pertussis Vaccines
- 26.9. Hepatitis B Vaccine
- 26.10. HaemophilusInfluenzae Type B (HIB) Vaccines
- 26.11. Measles Vaccine
- 26.12. Rubella Vaccines
- 26.13. Mumps Vaccine
- 26.14. Typhoid Fever Vaccines
- 26.15. Japanese Encephalitis Vaccine

- 26.16. Rabies Vaccines
- 26.17. Pneumococcal Vaccines
- 26.18. Rotavirus Vaccines
- 26.19. Cholera Vaccines
- 26.20. Varicella Vaccine
- 26.21. Hepatitis A Vaccine
- 26.22. Meningococcal Vaccine
- 26.23. Seasonal and Pandemic Influenza Vaccines
- 26.24. Human Papillomavirus Vaccines
- 26.25. Dengue Vaccines
- 26.26. Yellow Fever Vaccine
- 26.27. Combination Vaccines
- 26.28. Covid-19 Vaccines
- 26.29. Immunization in Special Situations

27. Adolescence

- 27.1. Gender, Sexual Identity and Sexuality
- 27.2. Psychosocial Development

28. Health Issues in Adolescence

- 28.1. Factors Influencing Adolescent Health
- 28.2. Adolescent Nutrition
- 28.3. Mental Health
- 28.4. Injuries, Violence, and Suicide
- 28.5. Menstrual Disorders
- 28.6. Polycystic Ovary Syndrome
- 28.7. Teenage Pregnancy
- 28.8. Sexually Transmitted Infections
- 28.9. Substance Abuse
 - 28.9.1. Alcohol
 - 28.9.2. Tobacco
 - 28.9.3. Other substances

29. Care of the Adolescents

- 29.1. Adolescent Counseling
- 29.2. Promoting Health of Adolescents
- 29.3. Adolescent Friendly Health Services
- 30. Infectious Diseases
 - 30.1. Epidemiology of Infectious Diseases
 - 30.2. Laboratory Diagnosis of Infection
 - 30.3. Microbiome and Child Health
 - 30.4. Antimicrobial Resistance
 - 30.5. Infection Control and Prevention
- 31. Fever
 - 31.1. Fever: General Principles of Management
 - 31.2. Fever with/without focus
 - 31.3. Fever of Unknown Origin
 - 31.4. Infections in Immunocompromised conditions
- 32. Bacterial Infections
 - 32.1. Natural History of Bacterial Infection
 - 32.2. Principles of Antibiotic Therapy
 - 32.3. Gram Positive Infections
 - 32.3.1. Streptococcal Infections
 - 32.3.1.1. Pneumococcal Infections
 - 32.3.1.2. Streptococcal Group A
 - 32.3.1.3. Streptococcal Group B
 - 32.3.1.4. Streptococcal Non A, Non B
 - 32.3.2. Staphylococcal Infections
 - 32.3.3. Enterococcus
 - 32.3.4. Diphtheria
 - 32.3.5. Nocardiosis
 - 32.3.6. *Listeria monocytogenes*
 - 32.3.7. Actinomycosis
 - 32.4. Gram Negative Infections
 - 32.4.1. *Haemophilus influenzae*
 - 32.4.2. *Neisseria*

- 32.4.3. Pseudomonas
- 32.4.4. Pertussis
- 32.4.5. Salmonella
 - 32.4.5.1. Nontyphoidal Salmonellosis
 - 32.4.5.2. Enteric Fever
- 32.4.6. Shigella
- 32.4.7. Escherichia coli
- 32.4.8. Cholera
- 32.4.9. Campylobacter
- 32.4.10. Yersinia
- 32.4.11. Aeromonas
- 32.4.12. Brucella
- 32.4.13. Moraxella catarrhalis
- 32.4.14. Helicobacter pylori
- 32.5. Anaerobic Bacterial
 - 32.5.1. Clostridium tetani
 - 32.5.2. Clostridium botulinum
 - 32.5.3. Clostridium difficile
- 32.6. Spirochetal Infections
 - 32.6.1. Treponemapallidum
 - 32.6.2. Leptospirosis
 - 32.6.3. Borrelia
 - 32.6.3.1. Lyme
 - 32.6.3.2. Relapsing Fever
- 32.7. Mycoplasma
 - 32.7.1. Mycoplasma pneumoniae
- 32.8. Chlamydia
 - 32.8.1. Chlamydia pneumonia
 - 32.8.2. Chlamydia trachomatis
 - 32.8.3. Psittacosis
- 32.9. Rickettsia
 - 32.9.1. Spotted Fever
 - 32.9.2. Scrub Typhus

32.9.3. Typhus

32.9.4. Ehrlichiosis

32.9.5. Q fever

33. Mycobacterial Infections

33.1. Childhood Tuberculosis: Epidemiology, Pathogenesis, Clinical Features, and Prevention

33.2. Diagnostic Tools for Tuberculosis in Children

33.3. Antitubercular Drugs and RNTCP

33.4. Guidelines for Childhood Tuberculosis

33.5. Drug Resistant Tuberculosis

33.6. Atypical Mycobacterial Infections

33.7. Leprosy

34. Viral Diseases

34.1. Epidemiology of Viral Infections

34.2. Principles of Antiviral Drugs

34.3. Measles

34.4. Mumps

34.5. Rubella

34.6. Roseola

34.7. Epstein-Barr

34.8. Cytomegalovirus

34.9. Influenza

34.10. Parainfluenza

34.11. Respiratory syncytial virus

34.12. Human metapneumovirus

34.13. Rhinovirus

34.14. Adenovirus

34.15. Coronavirus

34.16. Rotavirus

34.17. Human Papillomavirus

34.18. Arbovirus

34.18.1. Japanese Encephalitis

34.18.2. Other Encephalitis

- 34.18.3. Tick-borne Encephalitis
- 34.18.4. Chikungunya
- 34.18.5. Zika
- 34.19. Varicella-zoster
- 34.20. Herpes Simplex
- 34.21. Rabies
- 34.22. Parvovirus Infections
- 34.23. Nonpolio Enteroviral Infections
- 34.24. Poliomyelitis
- 34.25. Viral Hepatitis
- 34.26. HIV
- 34.27. Human Lymphotropic 1 and 2
- 34.28. Dengue
- 34.29. Yellow Fever
- 34.30. Ebola, Hanta
- 34.31. Rabies
- 34.32. Viral Hemorrhagic Fevers
- 34.33. Covid-19

35. Protozoal Disease

- 35.1. Epidemiology of Parasitic Infections
- 35.2. Principles of Antiparasitic therapy
- 35.3. Malaria
- 35.4. Leishmaniasis
- 35.5. Giardiasis
- 35.6. Amebiasis
- 35.7. Filariasis
- 35.8. Cryptosporidiosis
- 35.9. Toxoplasmosis
- 35.10. Helminthiasis
 - 35.10.1. Hookworm Infestation
 - 35.10.2. Ascariasis
 - 35.10.3. Trichuriasis

- 35.10.4. Enterobiasis
- 35.10.5. Strongyloidiasis
- 35.10.6. Tapeworm Diseases
- 35.10.7. Cysticercosis
- 35.10.8. Trichinosis
- 35.10.9. Toxocara
- 35.10.10. Intestinal, Liver, and Lung Flukes
- 35.10.11. Hydatid Disease: Echinococcosis
- 35.10.12. Schistosomiasis

36. Fungal Infections

- 36.1. Fungi
- 36.2. Principles of Antifungal Therapy
- 36.3. Candidiasis
- 36.4. Aspergillosis
- 36.5. Malassezia
- 36.6. Cryptococcosis
- 36.7. Coccidioidomycosis
- 36.8. Blastomycosis
- 36.9. Histoplasmosis
- 36.10. Mucormycosis
- 36.11. Pneumocystis Jirovecii

37. Diarrheal Illnesses

- 37.1. Acute Watery Diarrhea
- 37.2. Dysentery
- 37.3. Cholera
- 37.4. Persistent Diarrhea
- 37.5. Chronic Diarrhea
- 37.6. Antibiotic Associated Diarrhea

38. Gastrointestinal Disorders

- 38.1. Anatomy and Physiology
- 38.2. Common Symptoms of Gastrointestinal Diseases

38.3. Oral Cavity disorders

38.3.1. Malocclusion

38.3.2. Dental Caries

38.3.3. Periodontal disease

38.3.4. Common lesions of soft palate

38.3.5. Cleft Lip and Cleft Palate

38.3.6. Diseases of Salivary Glands

38.4. Esophageal atresia, Tracheoesophageal Fistula

38.5. Disorders of Esophageal Motility

38.6. Gastroesophageal Reflux

38.7. Esophagitis

38.8. Hiatal Hernia

38.9. Ingestions

38.9.1. Foreign Body

38.9.2. Caustic

38.10. Infantile Hypertrophic Pyloric Stenosis, Volvulus, Duplication

38.11. Duodenal Obstruction

38.12. Malrotation

38.13. Intestinal duplication

38.14. Meckel Diverticulum

38.15. Chronic obstructive pseudoobstruction

38.16. Chronic Abdominal Pain—Functional Abdominal Pain

38.17. Acid Peptic Disease

38.18. Pancreas – Function, Tests

38.18.1. Pancreatitis

38.18.2. Treatment of Pancreatic insufficiency

38.19. Constipation

38.20. Hirschsprung Disease

38.21. Malabsorption Disorders

38.21.1. Assessment

38.21.2. Celiac

38.21.3. Enzyme Deficiencies

38.22. Inflammatory Bowel Disease

38.23. Intestinal Obstruction

38.24. Intussusception

38.25. Appendicitis

38.26. Abdominal Tuberculosis

38.27. Ascites

38.28. Umbilical Hernia

38.29. Inguinal Hernia

38.30. Testicular Torsion

38.31. Anorectal Disorders

38.31.1. Anal Fissure

38.31.2. Hemorrhoids

38.31.3. Prolapse

38.31.4. Pilonidal sinus

38.31.5. Anorectal malformations

38.32. Cyclic vomiting

39. Hepatobiliary Diseases

39.1. Liver Function Tests

39.2. Neonatal Cholestasis

39.3. Portal Hypertension

39.4. Gastrointestinal Bleeding

39.5. Metabolic Liver disease

39.5.1. Wilson

39.5.2. Others

39.6. Liver Abscess

39.7. Viral Hepatitis

39.8. Chronic Liver Disease

39.9. Acute Liver Failure

39.10. Autoimmune Hepatitis

39.11. Drug induced Hepatitis

39.12. Cystic disease of Liver

39.13. Liver transplantation

- 39.14. Liver Tumors
- 39.15. Peritoneum
 - 39.15.1. Ascites
 - 39.15.2. Peritonitis
- 39.16. Epigastric hernia
- 40. Disorders of Hematopoietic System
 - 40.1. The Hematopoietic System
 - 40.2. Anemia: Etiology and Classification
 - 40.3. Inadequate Production
 - 40.3.1. Physiological anemia of infancy
 - 40.3.2. Congenital Bone Marrow Failure
 - 40.3.3. Aplastic Anemia
 - 40.3.4. Iron Deficiency Anemia
 - 40.3.5. Megaloblastic Anemia
 - 40.3.6. Anemia of Chronic disease
 - 40.3.7. Congenital dyserythropoietic anemia
 - 40.4. Hemolytic Anemia
 - 40.4.1. Hemoglobinopathies
 - 40.4.1.1. Sickle Cell Disease
 - 40.4.1.2. Thalassemia
 - 40.4.2. RBC Membrane Defects
 - 40.4.3. Red Blood Cell Enzyme Defects
 - 40.4.4. Immune Hemolytic Anemia
 - 40.5. Polycythemia
 - 40.6. Hemorrhagic and Thrombotic disorders
 - 40.6.1. Coagulation Disorders
 - 40.6.2. Hemophilia
 - 40.6.3. Other Clotting Factor Deficiencies
 - 40.6.4. Von Willebrand Disease
 - 40.6.5. Thrombotic disorders
 - 40.6.6. Disseminated Intravascular Coagulation
 - 40.7. Platelet
 - 40.7.1. Immune Thrombocytopenia

- 40.7.2. Hemolytic Uremic Syndrome
- 40.7.3. Thrombotic Thrombocytopenic Purpura
- 40.7.4. Kasabach- Merritt Syndrome
- 40.7.5. Platelet Function Defects
- 40.8. Blood Component Therapy
- 40.9. Spleen
 - 40.9.1. Splenomegaly
 - 40.9.2. Splenectomy
- 40.10. Lymphatics
 - 40.10.1. Lymphadenopathy
- 41. Respiratory Diseases
 - 41.1. Congenital Malformations of the Upper Respiratory Tract
 - 41.2. Epistaxis
 - 41.3. Nasal Polyps
 - 41.4. Allergic Rhinitis
 - 41.5. Otitis Media
 - 41.6. Common Cold
 - 41.7. Acute Pharyngitis
 - 41.8. Retropharyngeal abscess
 - 41.9. Sinusitis
 - 41.10. Tonsils and Adenoids
 - 41.11. Community Acquired Pneumonia
 - 41.12. Pleural effusion, Empyema
 - 41.13. Bronchiectasis
 - 41.14. Pneumothorax, Pneumomediastinum, Pyopneumothorax
 - 41.15. Skeletal deformities of Chest
 - 41.16. Obstructive Sleep Apnea
 - 41.17. Congenital Malformations of the Respiratory Tract
 - 41.18. Congenital disorders of Lung
 - 41.19. Croup, Epiglottitis, Laryngitis, Tracheitis
 - 41.20. Bronchiolitis

- 41.21. Alpha-1 Antitrypsin Deficiency
- 41.22. Aspiration Syndromes
- 41.23. Preschool Wheeze and Bronchial Asthma
- 41.24. Aerosol Therapy
- 41.25. Pneumonia
- 41.26. Parapneumonic Effusion and Empyema
- 41.27. Pneumothorax and Air Leaks
- 41.28. Persistent and Recurrent Pneumonia
- 41.29. Interstitial Lung Disease
- 41.30. Hemoptysis and Alveolar Bleeds
- 41.31. Primary Ciliary Dyskinesia
- 41.32. Cystic Fibrosis
- 41.33. Bronchiectasis
- 41.34. Lung Abscess
- 41.35. Foreign Body Aspiration
- 41.36. Central Hypoventilation
- 41.37. Acute Respiratory Distress Syndrome
- 41.38. SIDS
- 42. Cardiovascular Disorders
 - 42.1. Genetic Basis of Heart Diseases
 - 42.2. Chest Skiagram in Heart Disease
 - 42.3. Electrocardiogram
 - 42.4. Echocardiography
 - 42.5. Congestive Heart Failure
 - 42.6. Cardiac Malposition
 - 42.7. Acyanotic Congenital Heart Disease, Left to Right shunt
 - 42.7.1. Ventricular Septal Defects
 - 42.7.2. Patent Ductus Arteriosus
 - 42.7.3. Atrial Septal Defects
 - 42.7.4. PAPVC
 - 42.7.5. Atrioventricular Septal Defects
 - 42.8. Acyanotic Congenital Heart Disease, Obstructive

- 42.8.1. Pulmonary Valve Stenosis
- 42.8.2. Coarctation of Aorta
- 42.8.3. Pulmonary Venous Hypertension

- 42.9. Acyanotic Congenital Heart Disease, Regurgitation
 - 42.9.1. Mitral Valve Prolapse
- 42.10. Cyanotic Congenital Heart Disease, reduced Pulmonary flow
 - 42.10.1. Tetralogy of Fallot and Variants
 - 42.10.2. Tricuspid Atresia
 - 42.10.3. Double outlet Right Ventricle
 - 42.10.4. Ebstein Anomaly
- 42.11. Cyanotic Congenital Heart Disease, Increased Pulmonary flow
- 42.12. Others
 - 42.11.1. Transposition of Great Arteries and variants
 - 42.11.2. Truncus Arteriosus
 - 42.11.3. TAPVC
 - 42.11.4. Hypoplastic Left Heart Syndrome
- 42.12.1. Anomalies of the Aortic Arch
- 42.12.2. Pulmonary Arterial Hypertension
- 42.13. Acquired Heart Disease
 - 42.13.1. Acute Rheumatic Fever
 - 42.13.2. Rheumatic Heart Disease
 - 42.13.3. Infective Endocarditis
 - 42.13.4. Myocardial Diseases: Myocarditis and Cardiomyopathies
 - 42.13.5. Diseases of the Pericardium
 - 42.13.6. Kawasaki disease
- 42.14. Cardiac Arrhythmias
- 42.15. Cardiac Emergencies
- 42.16. Heart Failure
- 42.17. Systemic Hypertension

- 43. Disorders of the Kidney and Urinary Tract
 - 43.1. Investigations for Kidneys and Urinary Tract

43.2. Congenital Anomalies of Kidneys and Urinary Tract

43.2.1.Cystic Kidney Diseases

43.3. Glomerular Disease

43.3.1.Glomerulonephritis

43.3.1.1.Acute Poststreptococcal Glomerulonephritis

43.3.1.2.Membranous Nephropathy

43.3.1.3.Membranoproliferative Glomerulonephritis

43.3.1.4.RapidlyProgressive Glomerulonephritis

43.3.2.IgA nephropathy

43.3.3.Alport syndrome

43.4. Systemic Vasculitis and Lupus Nephritis

43.5. Goodpasture Disease

43.6. Henoch-SchonleinPurpura Nephritis

43.7. Hemolytic Uremic Syndrome

43.8. Toxic Nephropathy

43.9. Tubulointerstitial Disease

43.9.1.Pyelonephritis

43.9.2.Tubulointerstitial nephritis

43.9.3.Papillary necrosis

43.9.4.Acute Tubular Necrosis

43.10. Vascular Disease

43.10.1. Renal vein Thrombosis

43.10.2. Hypercalciuria

43.10.3. Nephrocalcinosis

43.11. Infections

43.11.1. Urinary Tract Infection

43.11.2. Cystitis

43.11.3. Urethritis

- 43.11.4. Hemorrhagic cystitis
- 43.11.5. Pyelonephritis
- 43.12. Proteinuria
 - 43.12.1. Transient, Orthostatic
 - 43.12.2. Nephrotic Syndrome
- 43.13. Tubular Disorders
 - 43.13.1. Renal Tubular Disorders
 - 43.13.2. Nephrogenic Diabetes Insipidus
 - 43.13.3. Bartter Syndrome
 - 43.13.4. Gitelman Syndrome
- 43.14. Renal Failure
 - 43.14.1. Acute Kidney Injury
 - 43.14.2. Chronic Kidney disease
 - 43.14.3. End-stage renal disease
 - 43.14.4. Renal Replacement Therapy
 - 43.14.5. Renal Transplantation
- 43.15. Renal Calculi
- 43.16. Refractory Rickets
- 43.17. Hypertension
- 43.18. Vesicoureteral Reflux
- 43.19. Voiding Disorders
- 43.20. Penile anomalies
- 44. Gynecological Issues
 - 44.1. Vaginal bleeding in prepubertal children
 - 44.2. Breast concerns
 - 44.3. Female genital mutilation
- 45. Neurological Disorders
 - 45.1. Approach to Neurological Disorders including localization
 - 45.2. Cerebrospinal Fluid and Neurophysiology
 - 45.3. Neuroimaging
 - 45.4. Congenital Anomalies
 - 45.4.1. Neural Tube Defects and Spinal Cord Malformations
 - 45.5. Seizures

45.4.2. Microcephaly

45.4.3. Brain Malformations

45.4.4. Hydrocephalus

45.4.5. Craniosynostosis

45.5.1. Febrile Seizures

45.5.2. Unprovoked Seizures and Epilepsy

45.5.2.1. Generalized

45.5.2.2. Focal

45.5.2.3. Reflex Seizures

45.5.3. Treatment of Seizures

45.5.4. Status Epilepticus

45.5.5. Nonepileptic Paroxysmal Disorders

45.6. Headaches

45.6.1. Migraine

45.6.2. Tension Headache

45.6.3. Secondary Headaches

45.7. Neurocutaneous Syndromes

45.8. Movement Disorders

45.9. Encephalopathies

45.9.1. Cerebral Palsy

45.9.2. Autoimmune

45.9.3. Mitochondrial

45.10. Neurodegenerative Disorders

45.10.1. Grey versus White Matter

45.10.2. Sphingolipidosis

45.10.3. Neuronal CeroidLipofuscinoses

45.10.4. Adrenoleucodystrophy

45.11. Demyelinating Disorders

- 45.11.1. Acute Disseminated Encephalomyelitis
- 45.11.2. Optic Neuritis
- 45.11.3. Transverse Myelitis
- 45.11.4. Multiple Sclerosis
- 45.11.5. Autoimmune and Paraneoplastic
- 45.12. Stroke
- 45.12.1. Arterial versus Venous
- 45.13. CNS Vasculitis
- 45.14. CNS Infections
- 45.14.1. Acute Pyogenic Meningitis
- 45.14.2. Tuberculosis of the Central Nervous System
- 45.14.3. Viral Meningoencephalitis
- 45.14.4. Neurocysticercosis
- 45.14.5. Brain Abscess
- 45.15. Pseudotumor Cerebri
- 45.16. Coma and Raised Intracranial Pressure
- 45.17. Brain Death
- 45.18. Infantile Tremor Syndrome
- 45.19. Neurometabolic Disorders
- 45.20. Spinal Cord Disorders
- 45.21. Traumatic Brain Injury
- 45.22. Neuro-Rehabilitation
- 45.22.1. Traumatic Brain Injury
- 45.22.2. Spinal cord Injury
- 45.22.3. Spasticity
- 45.22.4. Brachial plexus injury
- 45.22.5. Meningomyelocele
- 45.22.6. Disabled Child
- 46. Neuromuscular Disorders
- 46.1. Approach to Diagnosis of Neuromuscular Disorders
- 46.2. Floppy Infant
- 46.3. Congenital Muscle Disorders

46.3.1. Congenital Myopathies

46.3.2. Arthrogryposis

46.4. Muscular Dystrophies

46.4.1. Duchenne and Becker Muscular Dystrophy

46.4.2. Myotonic Muscular Dystrophy

46.4.3. Limb Girdle Muscular Dystrophy

46.4.4. Fascio-scapulo-humeral Muscular

Dystrophy

46.5. Endocrine/Toxic Myopathies

46.6. Metabolic Myopathies

46.6.1. Periodic Paralysis

46.6.2. Glucogenoses

46.6.3. Mitochondrial

46.6.4. Lipid

46.7. Neuromuscular Transmission Disorders

46.7.1. Myasthenia Gravis

46.7.2. Spinal Muscular Atrophy

46.7.3. Motor Neuron Disease

46.8. Hereditary Motor Sensory Neuropathies

46.8.1. Peroneal Muscular Atrophy

46.8.2. Refsum Disease

46.8.3. Fabry Disease

46.8.4. Leukodystrophy

46.8.5. Acute Flaccid Paralysis

46.9. Toxic Neuropathies

46.10. Autonomic Neuropathy

46.11. Guillain-Barré Syndrome

46.12. Bell Palsy

47. Disorders of the Endocrine System

47.1. Physiology of Neuroendocrinology

47.2. Hypopituitarism

47.2.1. Growth Hormone Deficiency and Resistance

47.2.2. Polyuria, Diabetes Insipidus and Syndrome of Inappropriate Secretion of ADH

- 47.3. Thyroid Disorders
 - 47.3.1. Thyroid Hormone Physiology
 - 47.3.2. Hypothyroidism
 - 47.3.3. Thyroiditis
 - 47.3.4. Hyperthyroidism
 - 47.3.5. Goiter and Thyroid Nodules
 - 47.3.6. Newborn Screening for Congenital Hypothyroidism
- 47.4. Parathyroid Disorders
 - 47.4.1. Bone Mineral and Hormone Physiology
 - 47.4.2. Calcium Disorders
 - 47.4.3. Metabolic Rickets
 - 47.4.4. Disorders with Bone Fragility
 - 47.4.5. Hypoparathyroidism
 - 47.4.6. Pseudo hypothyroidism
 - 47.4.7. Hyperparathyroidism
- 47.5. Pubertal Development
 - 47.5.1. Normal Puberty
 - 47.5.2. Delayed Puberty
 - 47.5.3. Precocious Puberty
- 47.6. Adrenal Gland Disorders
 - 47.6.1. Normal Development and Physiology of the Adrenal Gland
 - 47.6.2. Congenital Adrenal Hyperplasia
 - 47.6.3. Adrenal Insufficiency
 - 47.6.4. Cushing Syndrome
 - 47.6.5. Primary Aldosteronism
 - 47.6.6. Pheochromocytoma
- 47.7. Gonad Disorders
 - 47.7.1. Testicular Hypofunction
 - 47.7.2. Ovarian Hypofunction
 - 47.7.3. Gynecomastia
 - 47.7.4. Disorders of Sex Development
 - 47.7.5. Cryptorchidism and Micropenis
- 47.8. Glucocorticoid Use and Withdrawal

- 47.9. Diabetes Mellitus
 - 47.9.1. Classification of Diabetes Mellitus
 - 47.9.2. Type 1 Diabetes Mellitus
 - 47.9.3. Type 2 Diabetes Mellitus
 - 47.9.4. Acute and Chronic Complications of Diabetes Mellitus
- 47.10. Monogenic Obesity
- 47.11. Hyperlipidemia
- 47.12. Endocrine Consequences of Thalassemia Major
- 47.13. Endocrine Effects of Radiation and Cancer Chemotherapy
- 47.14. Adult Consequences of IUGR and Preterm Birth
- 48. Malignancies in Children
 - 48.1. Epidemiology and Biology of Cancers
 - 48.2. Principles of Diagnosis and Therapy of Cancer
 - 48.3. Leukemias
 - 48.3.1. Acute Lymphoblastic Leukemia
 - 48.3.2. Acute Myelogenous Leukemia
 - 48.3.3. Chronic Myelogenous Leukemia
 - 48.3.4. Infantile Leukemia
 - 48.4. Lymphoma
 - 48.4.1. Hodgkin Lymphoma
 - 48.4.2. Non-Hodgkin Lymphoma
 - 48.5. Brain Tumors
 - 48.6. Neuroblastoma
 - 48.7. Wilms Tumor
 - 48.8. Soft Tissue Tumors
 - 48.9. Bone Tumors
 - 48.10. Retinoblastoma
 - 48.11. Gonadal, Germ cell neoplasms
 - 48.12. Hemangioma
 - 48.13. Lymphangiomas, Cystic Hygromas
 - 48.14. Thyroid Tumours
 - 48.15. Nasopharyngeal Carcinoma
 - 48.16. Adrenal Tumours

- 48.17. Histiocytosis
 - 48.17.1. LCH
 - 48.17.2. HemophagocyticLymphohistiocytosis
- 48.18. Oncological Emergencies and Supportive Care
- 48.19. Hematopoietic Stem Cell Transplant

- 49. Rheumatological Disorders
 - 49.1. Approach to a Child with Rheumatological Disorder
 - 49.2. Laboratory Investigations for Rheumatological Disorders
 - 49.3. Drugs and Principles of Management for Rheumatic Disorders
 - 49.4. Juvenile Idiopathic Arthritis
 - 49.5. Reactive, Post-Infectious Arthritis
 - 49.6. Systemic Lupus Erythematosus: Clinical Features and Diagnostic Criteria
 - 49.7. Management of Systemic Lupus Erythematosus
 - 49.8. Juvenile Dermatomyositis
 - 49.9. Large Vessel Vasculitis: Takayasu Arteritis
 - 49.10. Medium Vessel Vasculitis: Kawasaki Disease and PolyarteritisNodosa
 - 49.11. Small Vessel Vasculitis:Henoch-SchönleinPurpuraand ANCA Associated Vasculitis
 - 49.12. Juvenile Scleroderma
 - 49.13. Antiphospholipid Syndrome
 - 49.14. Growing Pains
- 50. Common Eye Abnormalities
 - 50.1. Common Visual Problems
 - 50.2. Congenital Anomalies
 - 50.3. Refractive Errors
 - 50.4. Cornea and Conjunctiva
 - 50.5. Uveitis
 - 50.6. Cataract and Lens
 - 50.7. Glaucoma
 - 50.8. Optic Nerve and Pupil
 - 50.9. Strabismus and Motility Disorders
 - 50.10. Eyelid, Orbit, and Lacrimal Sac
 - 50.11. Ocular Injuries

- 50.12. Orbital Infections
- 50.13. Ocular Manifestations of Systemic Disorders
- 51. Common ENT Problems
 - 51.1. Hearing Loss
 - 51.2. Congenital malformations of Ear
 - 51.3. External Otitis
 - 51.4. Otitis Media
 - 51.5. Mastoiditis
 - 51.6. Inner Ear
- 52. Common Skin Problems
 - 52.1. Skin of the Newborn: Physiological and Pathological Changes
 - 52.2. Care of Skin in the Newborn
 - 52.3. Infections and Infestations
 - 52.4. Congenital Cutaneous Malformations
 - 52.5. Vitiligo and Other Hypopigmentary Diseases
 - 52.6. Atopic Dermatitis
 - 52.7. Contact Dermatitis
 - 52.8. Urticaria and Mastocytosis
 - 52.9. Psoriasis, Gianotti-Crosti Syndrome
 - 52.10. Acanthosis Nigrans
 - 52.11. Cutaneous Drug Reactions
 - 52.12. Cutaneous Manifestations of Nutritional Deficiency
 - 52.13. Cutaneous Manifestations of Collagen Vascular Diseases
 - 52.14. Neurocutaneous Syndromes
 - 52.15. Vesiculobullous Disorders
 - 52.16. Papulosquamous Disorders
 - 52.17. Ichthyosis
 - 52.18. Genetic Cutaneous Disorders
 - 52.19. Hair Disorders
 - 52.20. Nail Disorders
 - 52.21. Infections of Skin
 - 52.21.1. Impetigo

- 52.21.2. Subcutaneous Infections
- 52.21.3. Staphylococcal Scalded Skin Syndrome
- 52.21.4. Ecthyma
- 52.21.5. Fungal Infections
- 52.21.6. Viral Infections
- 52.21.7. Arthropod bites
- 52.21.8. Scabies
- 52.21.9. Pediculosis
- 52.21.10. Acne

- 53. Disorders of Bones and Joints
 - 53.1. Assessment of the Locomotor System
 - 53.2. Deformities of Foot and Toes
 - 53.2.1. Congenital Talipes Equinovarus
 - 53.3. Torsional deformities of Limb
 - 53.4. Leg Length discrepancies
 - 53.5. Transient Monoarticular synovitis
 - 53.6. Legg-Calvé-Perthes Disease
 - 53.7. Neck Problems
 - 53.7.1. Torticollis
 - 53.7.2. Cervical anomalies
 - 53.8. Scoliosis and Kyphosis
 - 53.9. Developmental Dysplasia of the Hip (DDH)
 - 53.10. Osteomyelitis
 - 53.11. Septic Arthritis
 - 53.12. Osgood-Schlatter Disease
 - 53.13. Arthrogryposis
 - 53.14. Injuries to Bones/Joints
 - 53.15. Skeletal Dysplasia
 - 53.16. Osteogenesis imperfecta
 - 53.17. Marfan Syndrome
 - 53.18. Metabolic Bone Disease
 - 53.18.1. Hypo/Hyperphosphatemia
 - 53.18.2. Osteoporosis

54. Vulnerable Children
 - 54.1. Street Children
 - 54.2. Child Labor
 - 54.3. Child Abuse and Neglect
 - 54.4. Adoption: Medical and Legal Issues
 - 54.5. Rights of the Child
55. Environmental Health
 - 55.1. Climate Change and its impact on Health
 - 55.2. Air Pollution and its impact on Health
 - 55.3. Biomedical Waste Management
56. Community Pediatrics
 - 56.1. Indicators of Child Health
 - 56.2. Environment and Child Health
 - 56.3. Lead Poisoning
 - 56.4. Adoption
 - 56.5. Travel Medicine
 - 56.6. Protection of Children from Sexual Offences ACT 2012
 - 56.7. Rights of People With Disability Act 2016
 - 56.8. National Programs for Child Health as relevant to National Health Mission including RBSK.
 - 56.9. Integrated Management of Neonatal and Childhood Illness- Facility (IMNCI-F)
 - 56.10. Investigation of an Outbreak
57. Quality Assessment and Improvement
 - 57.1.1. Point of Care Quality Improvement
- B. Psychomotor Domain
 - Should be able to perform independently in the practice of Paediatrics, the following diagnostic and therapeutic interventions as listed below:
 1. Physical Examination
 - 1.1. Measurement of Vitals
 - 1.2. Measurement of Anthropometry
 - 1.3. General physical examination
 - 1.4. Physical Examination of Systems
 - 1.5. Development (Screening) Assessment
 - 1.6. Behavioral (Screening) Assessment
 - 1.7. Sexual Maturity Assessment

- 1.8. Newborn Assessment including gestational assessments
- 1.9. Breastfeeding Assessment of Position and Attachment
- 1.10. Motor Disability Assessment
- 1.11. Autism Spectrum Disorder Screening
- 1.12. Fundus examination
- 1.13. Middle ear examination
- 1.14. Throat examination
- 1.15. Triage - Rapid assessment of Airway, Breathing and Circulation
- 1.16. Hand hygiene
- 1.17. Biomedical Waste disposal guidelines
- 2. Non-Invasive Monitoring
 - 2.1. Pulse oximetry
 - 2.2. Electrocardiogram
 - 2.3. Vital Data Monitor
- 3. Procedures – Diagnostic
 - 3.1. Informed Consent
 - 3.2. Aseptic measures for all invasive procedures
 - 3.3. Sampling
 - 3.3.1. Venous blood
 - 3.3.2. Arterial blood
 - 3.3.3. Capillary blood
 - 3.4. Vascular Access and cannulation
 - 3.4.1. Intravenous – Peripheral
 - 3.4.2. Intravenous - Central
 - 3.4.3. Intraosseous
 - 3.4.4. Intraarterial
 - 3.4.5. Umbilical Vein
 - 3.5. Diagnostic Taps
 - 3.5.1. Pleural
 - 3.5.2. Peritoneal
 - 3.5.3. CSF
 - 3.5.4. Pericardial
 - 3.5.5. Joint fluid
 - 3.5.6. Subdural

- 3.5.7. Ventricular
- 3.6. Urinary Catheterization
- 3.7. Urine collection
 - 3.7.1. Mid-stream sampling
 - 3.7.2. Catheter sampling
 - 3.7.3. Suprapubic puncture
- 3.8. Tuberculin Skin Test
- 3.9. Antibiotic Test Dose
- 3.10. Feeding/Ryles Tube
 - 3.10.1. Insertion
 - 3.10.2. Gastric Aspiration
 - 3.10.3. Feeds
 - 3.10.4. Stomach wash
- 3.11. Respiratory
 - 3.11.1. Naso, Pharyngeal and Nasopharyngeal swab collection
- 3.12. Suppository insertion
- 3.13. Per rectal exam
- 3.14. Inspection of Vulva/Vagina
- 3.15. Aspiration/Biopsy
 - 3.15.1. Bone marrow
 - 3.15.2. Liver
 - 3.15.3. Kidney
 - 3.15.4. FNAC Lymph node
- 3.16. Ultrasound – Lung (B line, Effusion), Circulation (IVC Volume), Vascular access (Central venous), Soft Tissue (Pus)
- 3.17. Blood Group/Type
- 3.18. Smears
 - 3.18.1. Malaria Parasite Smear/Rapid Antigen Test
 - 3.18.2. Peripheral Blood Smear
 - 3.18.3. CSF/Pus Grams Stain
 - 3.18.4. Sputum Ziehl Neilson Smear
- 3.19. Urine dipstick
- 3.20. Stool Hanging drop

- 3.21. Glucometer Blood Sugar
- 3.22. Shake test (Newborn gastric aspirate)
- 3.23. Electrocardiogram
- 3.24. Specific Screening/Assessment Tools
 - 3.24.1. Gestation Assessments
 - 3.24.2. Anthropometric measurements and Growth charting
 - 3.24.3. Peak Flow Meter Measurement
 - 3.24.4. HEADSS screening (Adolescence)
 - 3.24.5. DDST screening (Development Assessment)
 - 3.24.6. Assessment of Sexual Maturity using Tanner's
 - 3.24.7. M-CHAT-R screening (Autism Assessment)
 - 3.24.8. GMSCF Assessment of Motor Disability (Cerebral Palsy)
 - 3.24.9. Pain assessment

4. Procedures – Therapeutic

- 4.1. Informed Consent
- 4.2. Prescriptions/Medication Orders
- 4.3. Neonatal Resuscitation Program including intubation
- 4.4. Basic Life Support
- 4.5. Advanced Paediatric Life Support including intubation
- 4.6. Heimlich, Foreign Body Removal
- 4.7. Exchange Transfusion
- 4.8. Stomach wash
- 4.9. Injections
 - 4.9.1. Intravenous
 - 4.9.2. Intramuscular
 - 4.9.3. Subcutaneous
 - 4.9.4. Intradermal
- 4.10. Infusions
 - 4.10.1. IV bolus
 - 4.10.2. Intravenous
 - 4.10.3. Intraosseous
 - 4.10.4. Blood Component Transfusion
- 4.11. Respiratory

- 4.11.1.Meter dose inhalation with or without Spacer/Mask
- 4.11.2.Nebulization
- 4.11.3.Airway Insertion – Nasopharyngeal, Oropharyngeal
- 4.11.4.Needle Cricothyroidotomy
- 4.11.5.Oxygen delivery methods
- 4.11.6.HFNC/CPAP/Non-Invasive Ventilation
- 4.11.7.Ventilation – Conventional
- 4.11.8.Intercostal drainage
- 4.11.9.Surfactant Administration (INSURE)
- 4.12. Spinal infusion/injection
- 4.13. Therapeutic Ascitic Tap
- 4.14. Peritoneal dialysis
- 4.15. Phototherapy
- 4.16. Incision and Drainage
- 4.17. Dressings
- 4.18. Sling
- 4.19. Transport onto and off stretcher
- 4.20. Neonatal Temperature Warm Chain Measures
- 4.20.1.Wrapping up Newborn
- 4.20.2.Kangaroo Mother Care

- 4.21. Immunization Cold Chain Measures
- 4.21.1.Refrigerator
- 4.21.2.Vaccine carrier
- 4.22. Restraining a child
- 4.23. Transporting a child
- 4.24. Early Interventional Therapy
- 4.25. Chest Physiotherapy

Milestones to be achieved on Psychomotor Skills through Year 1 to 3.

O-Observe PS-Perform under supervision PI-Perform ndependently

Milestones 1st Year 2nd Year 3rd Year

1. Physical Examination

- 1.1. Measurement of Vitals PI
- 1.2. Measurement of Anthropometry PI
- 1.3. General physical examination PI
- 1.4. Physical Examination of Systems PI
- 1.5. Development (Screening) Assessment O, PS PI
- 1.6. Behavioral (Screening) Assessment O PS PI
- 1.7. Sexual Maturity Assessment O, PS PI
- 1.8. Newborn Assessment including gestational assessments PI
- 1.9. Breastfeeding Assessment PI
- 1.10. Motor Disability Assessment O PS PI
- 1.11. Autism Spectrum Disorder Screening O PS PI
- 1.12. Fundus examination PI
- 1.13. Middle ear examination PI
- 1.14. Throat examination PI
- 1.15. Triage - Rapid assessment of ABC PI
- 1.16. Hand hygiene PI
- 1.17. Biomedical Waste disposal guidelines PI
2. Non-Invasive Monitoring
 - 2.1. Pulse oximetry PI
 - 2.2. Electrocardiogram PI
 - 2.3. Vital Data Monitor PI
3. Procedures – Diagnostic
 - 3.1. Informed Consent PI
 - 3.2. Aseptic measures for all procedures PI
 - 3.3. Sampling
 - 3.3.1. Venous blood PI
 - 3.3.2. Arterial blood PI
 - 3.3.3. Capillary blood PI
 - 3.4. Vascular Access and cannulation
 - 3.4.1. Intravenous – Peripheral PI
 - 3.4.2. Intravenous - Central O PS PI
 - 3.4.3. Intraosseous PI

| | | | |
|---|-------|----|----|
| 3.4.4. Intraarterial | O | PS | PI |
| 3.4.5. Umbilical Vein | PI | | |
| 3.5. Diagnostic Taps | | | |
| 3.5.1. Pleural | PS | PI | |
| 3.5.2. Peritoneal | PI | | |
| 3.5.3. CSF | PI | | |
| 3.5.4. Pericardial | O | PS | PI |
| 3.5.5. Joint fluid | O | PS | PI |
| 3.5.6. Subdural | O, PS | PI | |
| 3.5.7. Ventricular | O | PS | PI |
| 3.6. Urinary Catheterization | PI | | |
| 3.7. Urine collection | | | |
| 3.7.1. Mid-stream sampling | PI | | |
| 3.7.2. Catheter sampling | PI | | |
| 3.7.3. Suprapubic puncture | PI | | |
| 3.8. Tuberculin Skin Test | PI | | |
| 3.9. Antibiotic Test Dose | PI | | |
| 3.10. Feeding/Ryles Tube | | | |
| 3.10.1. Insertion | PI | | |
| 3.10.2. Gastric Aspiration | PI | | |
| 3.10.3. Feeds | PI | | |
| 3.10.4. Stomach wash | PI | | |
| 3.11. Respiratory | | | |
| 3.11.1. Naso, Pharyngeal, NP swab collection | PI | | |
| 3.12. Suppository insertion | PI | | |
| 3.13. Per rectal exam | O | PS | PI |
| 3.14. Inspection of Vulva/Vagina | PI | | |
| 3.15. Aspiration/Biopsy | | | |
| 3.15.1. Bone marrow | O, PS | PI | |
| 3.15.2. Liver | O | PS | PI |

- 3.15.3. Kidney O PS PI
- 3.15.4. FNAC Lymph node O PS PI
- 3.16. Ultrasound – Lung (B line, Effusion), Circulation (IVC Volume), Vascular access (Central venous), Soft Tissue
(Pus) O O, PS PS
- 3.17. Blood Group/Type O, PS PI
- 3.18. Smears
- 3.18.1. Malaria Parasite Smear/Rapid
Antigen Test O, PS PI
- 3.18.2. Peripheral Blood Smear O, PS PI
- 3.18.3. CSF/Pus Grams Stain O, PS PI
- 3.18.4. Sputum Ziehl Neilson Smear O, PS PI
- 3.19. Urine dipstick PI
- 3.20. Stool Hanging drop O, PS PI
- 3.21. Glucometer Blood Sugar PI
- 3.22. Shake test (Neon gastric aspirate) PI
- 3.23. Electrocardiogram PI
- 3.24. Specific Screening/Assessment Tools
- 3.24.1. Gestation Assessments PI
- 3.24.2. Anthropometric measurements
and Growth charting PI
- 3.24.3. Peak Flow Meter Measurement PI
- 3.24.4. HEADSS screening
(Adolescence) O, PS PI
- 3.24.5. DDST screening (Development
Assessment) O, PS PI
- 3.24.6. Assessment of Sexual Maturity using Tanner's O, PS PI
- 3.24.7. M-CHAT-R screening (Autism
Assessment) O PS PI
- 3.24.8. GMSCF Assessment of Motor
Disability (Cerebral Palsy) O PS PI
- 3.24.9. Pain assessment PI
4. Procedures – Therapeutic

- 4.1. Informed Consent PI
- 4.2. Prescriptions/Medication Orders PI
- 4.3. Neonatal Resuscitation Program including ET PI (BVM) PI (ET)
- 4.4. Basic Life Support PI
- 4.5. Advanced Paediatric Life Support
including ET PI (BVM) PI (ET)
- 4.6. Heimlich, Foreign Body Removal PI
- 4.7. Exchange Transfusion O PS PI
- 4.8. Stomach wash PI
- 4.9. Injections
 - 4.9.1. Intravenous PI
 - 4.9.2. Intramuscular PI
 - 4.9.3. Subcutaneous PI
 - 4.9.4. Intradermal PI
- 4.10. Infusions
 - 4.10.1. IV bolus PI
 - 4.10.2. Intravenous PI
 - 4.10.3. Intraosseous PI
 - 4.10.4. Blood Component Transfusion PI
- 4.11. Respiratory
 - 4.11.1. Meter dose inhalation with or
without Spacer/Mask PI
 - 4.11.2. Nebulization PI
 - 4.11.3. Airway Insertion – Nasophary,
Orophary PI
 - 4.11.4. Needle Cricothyroidotomy O PS PI
 - 4.11.5. Oxygen delivery methods PI
 - 4.11.6. HFNC/CPAP/Non-Invasive
Ventilation O, PS PI
 - 4.11.7. Ventilation – Conventional, High Freq (HFV) O PS PI (Not HFV)
 - 4.11.8. Intercostal drainage O, PS PI
 - 4.11.9. Surfactant Administration O, PS PI

(INSURE)

- 4.12. Spinal infusion/injection O PS PI
- 4.13. Therapeutic Ascitic Tap O, PS PI
- 4.14. Peritoneal dialysis O PS PI
- 4.15. Phototherapy PI
- 4.16. Incision and Drainage O PS PI
- 4.17. Dressings PI
- 4.18. Sling PI
- 4.19. Transport onto and off stretcher PI
- 4.20. Neonatal Temperature Warm Chain PI
- 4.20.1. Wrapping up Newborn PI
- 4.20.2. Kangaroo Mother Care PI
- 4.21. Immunization Cold Chain Measures
- 4.21.1. Refrigerator PI
- 4.21.2. Vaccine carrier PI
- 4.22. Restraining a child O, PS PI
- 4.23. Transporting a child O, PS PI
- 4.24. Early Interventional Therapy O PS PI
- 4.25. Chest Physiotherapy O, PS PI

C. Predominant in Affective Domain

Should be able to effectively and empathetically.....

- 1. Communication – Child/Attender/Guardian
 - 1.1. Elicit a relevant and appropriate history from an attender/child including family and support systems
 - 1.2. Engage and explain in appropriate language the plan (diagnostic and management including economics of plans) to an attender/child
 - 1.3. Explain the prognosis of the child's condition
 - 1.4. Educate a Parent, an attendant/guardian/child with regards disease/, cultural, and spiritual understanding associated with health care delivery complication prevention, health promotion, and management keeping illustrating ethical ?
 - 1.5. Counsel towards an Informed Consent/Assent

- 1.6. Communicate disturbing/bad news including death
- 1.7. Demonstrates communication skills to appropriately word reports, professional opinions, patient education and counseling with regards
 - 1.7.1. Health and Disease condition with management plan
 - 1.7.2. Nutrition - Breastfeeding, complimentary feeding and nutrition using a Growth chart
 - 1.7.3. Immunization – On schedule, catch up including costs and advantages/disadvantages
 - 1.7.4. Lifestyle
 - 1.7.4.1. Dietary
 - 1.7.4.2. Habits
 - 1.7.5. Genetic risks of relevant inherited conditions
 - 1.7.6. Options for management and future approach in care with advantages and disadvantages
 - 1.7.7. Rights and responsibilities
- 1.8. Demonstrates knowledge or applies an understanding of psychological, social, and economic factors which are pertinent to the delivery of health care.
- 1.9. Demonstrates and effectively engages the patient and / or family in all communication.
- 1.10. Demonstrates ability to provide patient, family and community education through written material especially simple patient information leaflets
Should be able to effectively and respectfully.....
2. Communication – Health Team members
 - 2.1. Communicate with all members of the health care team
 - 2.2. Communicate with other members of the profession
 - 2.3. Communicate with allied professionals associated with Health care
Should be able to
3. Professionalism and Ethical Behaviour
 - 3.1. Demonstrates Professional Conduct in patient care and research
 - 3.1.1. Demonstrate respect for the Doctor-Patient relationship
 - 3.1.2. Demonstrate respect for the Doctor-Health Care Team Member relationship
 - 3.1.3. Demonstrate adherence to confidentiality and patient privacy in all communications in and outside the place of work.

3.1.4. Demonstrate respect of a patient's rights and decisions including the right to information and second opinion.

3.1.5. Demonstrate behaviour aligned with MCI/NMC code of ethics in all related dealings

3.1.6. Demonstrates personal and social responsibility/accountability in the provision of health care at an individual, community and population level

3.1.7. Demonstrate an awareness of economic costs of health care in all dealings with patients.

3.1.8. Demonstrate adherence to research ethics guidelines in the conduct of patient related research.

3.1.9. Demonstrates work ethics while working in a health care team.

3.1.10. Demonstrates truthfulness, honesty and integrity in all interactions.

3.1.11. Provides care that surpasses personal beliefs and prejudices

3.1.12. Demonstrates appropriate etiquette in dealings with patients, relatives and other health personnel

3.2. Demonstrates behavior that is Ethical and bound by the Law of the land

3.2.1. Recognizes Ethical conflicts and dilemmas seeking solutions to reduce conflicts and do the right thing.

3.2.2. Complies with legal requirements while dealing with child health and includes issues dealing with the Industry Conflict, MTP Act, PCPNDT act, Child Abuse, Child labour, Legal adoption, Consent and Assent.

D. Pedagogic and Research Skills

Should be able to effectively

1. Pedagogic Skills

1.1. Conduct a small group learning session (Theory and Practical) using appropriate tools

1.2. Create and use an effective Powerpoint Presentation

1.3. Present to a large group

Should be able to effectively

2. Research Skills

2.1. Search scientific literature and critically appraise the evidence using standard study design checklists enabling application to clinical care.

2.2. Justify the application of the findings of a research study in clinical practice (Diagnostic and Therapeutic Studies)

- 2.3. Develop a research hypothesis supported by scientific literature review, design an appropriate study, implement the methodology, generate results by analyzing data, and draw appropriate conclusions.
- 2.4. Should be able to present or/and publish a paper based on the conducted research.

TEACHING AND LEARNING METHODS

General principles

Acquisition of competencies being the keystone of doctoral medical education, such training should be skills oriented. Learning in the program, essentially autonomous and self-directed, and emanating from academic and clinical work, shall also include assisted learning. The formal sessions are meant to supplement this core effort.

All students joining the postgraduate (PG) courses shall work as full-time (junior) residents during the period of training, attending not less than 80% of the training activity during the calendar year, and participating in all assignments and facets of the educational process. They shall maintain a logbook for recording the training they have undergone, and details of the procedures done during laboratory and clinical postings in real time.

Teaching-Learning methods

This should include a judicious mix of demonstrations, symposia, journal clubs, clinical meetings, seminars, small group discussion, bed-side teaching, case-based learning, simulation-based teaching, self-directed learning, integrated learning, interdepartmental meetings and any other collaborative activity with the allied departments. Methods with exposure to the applied aspects of the subject relevant to basic/clinical sciences should also be used. The suggested examples of teaching-learning methods are given below but are not limited to these.

A. Lectures: Didactic lectures should be used sparingly. A maximum of 10 lectures per year in the concerned PG department is suggested. All postgraduate trainees are encouraged to attend such lectures. Lectures can cover topics such as:

1. Subject-related important topics as per Paediatric requirements
2. Recent advances
3. Research methodology and biostatistics
4. Undergraduate/Postgraduate medical curriculum

5. Teaching and assessment methodology.

Topic numbers 3, 4, 5 can be done during research methodology/biostatistics and medical education workshops in the institute.

B. Journal club: Minimum of once in 1- 2 weeks is suggested.

Topics will include presentation and critical appraisal of original research papers published in peer reviewed indexed journals. The presenter(s) shall be assessed by faculty and grades recorded in the logbook.

C. Student Seminar: Minimum of once in 1-2 weeks is suggested.

Important topics should be selected as per subject requirements and allotted for in-depth study by a postgraduate student. A teacher should be allocated for each seminar as faculty moderator to help the student prepare the topic well. It should aim at comprehensive complete evidence-based review of the topic. The student should be graded by the faculty and peers. Symposium, Colloquium and Seminars may overlap to enhance involvement and active participation of postgraduates.

D. Student Symposium: Minimum of once every 3 months.

A broad topic of significance should be selected, and each part shall be dealt by one postgraduate student. A teacher moderator should be allocated for each symposium and moderator should track the growth of students. The symposium should aim at an evidence- based exhaustive review of the topic. All participating postgraduates should be graded by the faculty and peers. Symposium, Colloquium and Seminars may overlap to enhance involvement and active participation of postgraduates.

E. Bedside clinics: Minimum - once a week.

Clinics/bedside teaching should be coordinated and guided by faculty from the department. Various methods like DOAP (Demonstrate, Observe, Assist, Perform), simulations in skill lab, and case-based discussions etc. are to be used. Faculty from the department should participate in moderating the teaching-learning sessions during clinical rounds.

F. Interdepartmental colloquium

Faculty and students must attend monthly meetings between the main Department and other department/s on topics of current/common interest or clinical cases. Symposium, Colloquium and Seminars may overlap to enhance involvement and active participation of postgraduates.

G. a. Rotational clinical / community / institutional postings

Final decision that determines “external” postings outside the primary department will differ according to department needs, feasibility, sub-speciality availability and accessibility. Apart for mandatory postings, ‘external’ postings listed below are highly recommended (desirable) to expose

postgraduates to allied Pediatric sub-specialities given existing trends in practice. Specific Learning Outcomes need to be defined for each of these postings even assessed keeping in mind the Competency based curriculum and their future professional roles as Pediatricians.

Rotations are listed below:

Mandatory Postings

- Paediatric emergency (minimum 1 month a year)
- Neonatology (NICU) (minimum 3 months a year)
- Intensive Care (PICU) (minimum 2 months a year)
- District Residency Programme with participation in Community Outreach Child Health Programs (at least 3 months over the entire course; 3rd or 4th or 5th semester; See Section G-b below).

Desirable postings based on need, availability, accessibility, and feasibility and may be innovatively integrated into schedule of posting to optimize learning experiences.

- Subspecialities Outpatient Clinics / observing- assisting in emergency

o Clinical

- ☐ Child Psychiatry
- ☐ Pediatric Surgery
- ☐ Developmental Pediatrics
- ☐ Pediatric Nephrology
- ☐ Pediatric Hemato-oncology
- ☐ Pediatric Cardiology
- ☐ Pediatric Gastroenterology
- ☐ Pediatric Rheumatology/Immunology/Allergy
- ☐ Genetic
- ☐ Pediatric Pulmonology
- ☐ Pediatric Dermatology
- ☐ Pediatric Endocrinology
- ☐ Adolescent Health

- ☐ DOTS, PPTCT, ART center with pediatric exposure
- ☐ Microbiology diagnostic Lab
- ☐ Radiology including CT/MRI
- ☐ Forensic Medicine especially Child related
- ☐ Neuro-rehabilitation (PMR, Physiotherapy, Occupational Therapy)

G b. Posting under “District Residency Programme” (DRP):

All postgraduate students pursuing MD/MS in broad specialties in all Medical Colleges/Institutions shall undergo a compulsory rotation of three months in District Hospitals/District Health System as a part of the course curriculum, as per the Postgraduate Medical Education (Amendment) Regulations (2020). Such rotation shall take place in the 3rd or 4th or 5th semester of the Postgraduate programme and the rotation shall be termed as “District Residency Programme” and the PG medical student undergoing training shall be termed as “District Resident”.

Every posting should have its defined learning objectives. It is recommended that the departments draw up objectives and guidelines for every posting offered in conjunction with the collaborating department/s or unit/s. This will ensure that students acquire expected competencies and are not considered as an additional helping hand for the department / unit in which they are posted. The PG student must be tagged along with those of other relevant departments for bedside case discussion/basic science exercises as needed, under the guidance of an assigned faculty.

H. Teaching research skills

Writing a thesis should be used for inculcating research knowledge and skills. All postgraduate students shall conduct a research project of sufficient depth to be presented to the University as a postgraduate thesis under the supervision of an eligible faculty member of the department as guide and one or more co-guides who may be from the same or other departments.

In addition to the thesis project, every postgraduate trainee shall participate in at least one additional research project that may be started or already ongoing in the department. It is preferable that this project will be in an area different from the thesis work. For instance, if a clinical research project is taken up as thesis work, the additional project may deal with community/field/laboratory work. Diversity of knowledge and skills can thereby be

reinforced. There should be periodic department review of the thesis work, as per following schedule:

- End of 6 months Submission of protocol
- During 2nd year Mid-term presentation
- 6 months prior to examination Final presentation; submission

I. Training in teaching skills

MEU/DOME should train PG students in education methodologies and assessment techniques. The PG students shall conduct UG classes in various courses and a faculty shall observe and provide feedback on the teaching skills of the student.

J. Log book

During the training period, the postgraduate student should maintain a Log Book indicating the duration of the postings/work done in Wards, OPDs, Casualty and other areas of posting. This should indicate the procedures assisted and performed and the teaching sessions attended. The logbook entries must be done in real time. The logbook is thus a record of various activities by the student like: (1) Overall participation & performance, (2) attendance, (3) participation in sessions, (4) record of completion of pre- determined activities, and (5) acquisition of selected competencies.

- The purpose of the Log book is to:
 - a) help maintain a record of the work done during training,
 - b) enable Faculty/Consultants to have direct information about the work done and intervene, if necessary,
 - c) provide feedback and assess the progress of learning with experience gained periodically.

The Logbook should be used in the internal assessment of the student, should be checked and assessed periodically by the faculty members imparting the training. The PG students will be required to produce completed logbook in original at the time of final practical examination. It should be signed by the Head of the Department. A proficiency certificate from the Head of Department regarding the clinical competence and skillful performance of procedures by the student will be submitted by the PG student at the time of the examination.

The PG students shall be trained to reflect and record their reflections in logbook particularly of the critical incidents. Components of good teaching practices must be assessed in all academic activity conducted by the PG student and at least two sessions dedicated for assessment of teaching skills must be conducted every year of the PG program. The teaching faculty are referred to the MCI Logbook Guidelines uploaded on the Website.

K. Course in Research Methodology: All postgraduate students shall complete an NMC recognized course in Research Methodology within six months of the commencement of the batch and generate the online certificate on successful completion of the course.

Other aspects

- The Postgraduate trainees must participate in the teaching and training program of undergraduate students and interns attending the department.

- Trainees shall attend accredited scientific meetings (CME, symposia, and conferences) at least once a year.
- Department shall encourage e-learning activities.
- The Postgraduate trainees should undergo training in Basic Cardiac Life Support (BCLS), Neonatal Resuscitation, Advanced Pediatric Life Support and Adult Advanced Cardiac Life Support (ACLS).
- The Postgraduate trainees must undergo training in information technology and use of computers.

During the training program, patient safety is of paramount importance; therefore, relevant clinical skills are to be learnt initially on the models, later to be performed under supervision followed by independent performance. For this purpose, provision of skills laboratories in medical colleges is mandatory.

5. ASSESSMENT

FORMATIVE ASSESSMENT ie., assessment to improve learning

Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self- directed learning and ability to practice in the system.

General Principles

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills.

The Internal Assessment should be conducted in theory and practical/clinical examination, should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills.

Quarterly assessment during the MD training should be based on:

- Case presentation, case work up,
case handling/management : once a week
- Laboratory performance : twice a week
- Journal club : once a week
- Seminar : once a fortnight
- Case discussions : once a fortnight/month

- Interdepartmental case or seminar : once a month

Note: These sessions may be organized and recorded as an institutional activity for all postgraduates.

- Attendance at Scientific meetings, CME programmes (at least 02 each)

For Knowledge Assessments, Patient case scenario presentations and discussions including interdepartmental sessions remain the cornerstone of Paediatric learning focused on critical thinking and clinical reasoning. This is also ideally achieved during teaching at the bedside on rounds and in ambulatory settings such as outpatient clinics if not emergency. Clinical Pathologic Case discussions, Mortality-Morbidity discussions and Prescription-Medication Order Audits are of great value and are encouraged to improve quality of care as well teaching-learning preferably scheduled every month to routine educational program.

For Psychomotor and Affective/Communication Assessments, consider the use of OSCEs, DOPs and even mini-CEX that one may strengthen Formative Feedback/Assessments.

The student to be assessed periodically as per categories listed in appropriate (non- clinical/clinical) postgraduate student appraisal form (Annexure I).

SUMMATIVE ASSESSMENT ie., assessment at the end of training Essential pre-requisites for appearing for examination include:

1. Log book of work done during the training period including rotation postings, departmental presentations, and internal assessment reports should be submitted.
2. At least one if not two presentation(s) at national/state level conference. If not presented at national level, alternatively, one research paper should be published / accepted in an indexed journal. (It is suggested that the local or University Review committee assess the work sent for publication).

The summative examination would be carried out as per the Rules given in the latest POSTGRADUATE MEDICAL EDUCATION REGULATIONS. The theory examination shall be held in advance before the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the commencement of the clinical/Practical and Oral examination.

The postgraduate examination shall be in three parts:

1. Thesis

Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical examination. A post graduate student in broad specialty shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. Theory examination

The examinations shall be organized based on 'Grading' or 'Marking system' to evaluate and to certify post graduate student's level of knowledge, skill and competence at the end of the training, as given in the latest POSTGRADUATE MEDICAL EDUCATION REGULATIONS. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination. The examination for M.D./ M.S shall be held at the end of 3rd academic year.

There shall be 4 theory papers (as per PG Regulations).

Paper I: Basic Sciences as related to the subject

Paper II: General Paediatrics Paper III: Systemic Paediatrics Paper IV: Recent Advances

3. Practical/clinical and Oral/viva voce examination Practical examination

Practical examination should be as per concerned university regulation.

Oral/Viva voce examination shall be comprehensive enough to test the post graduate student's overall knowledge of the subject focusing on psychomotor and affective domain.

The final clinical examination in broad specialty clinical subjects should include:

- Cases pertaining to major systems (eg. one long case and three short cases)
- OSCE Stations to cover clinical, procedural and communication skills
- Logbook Records and reports of day-to-day observation during the training
- It is emphasized that Oral/viva voce examination shall be comprehensive enough to test the post graduate student's overall knowledge of the subject.

Internal Examination

| | Theory | Practical with OSCE |
|--|-----------|---------------------|
| 1 st year Post Graduates Students | 100 Marks | 100 Marks |
| 2 nd year Post Graduates Students | 100 Marks | 100 Marks |
| 3 rd year Post Graduates Students | 400 Marks | 400 Marks |

- Theory Examination Pattern for final examination for PG (CBME)
Theory paper

| Papers | Marks | Content |
|-----------|-------|--|
| Paper I | 100 | Basic Sciences as related to the subject |
| Paper II | 100 | General Pediatrics |
| Paper III | 100 | Systemic Pediatrics |
| Paper IV | 100 | Recent Advances |
| Total | 400 | |

• Practical Examination Pattern

| | |
|--|-----------|
| 1 Long case – | 100 Marks |
| 2 short case - (100 Marks each) | |
| Short case - 1 | 30 marks |
| Short case- 2 | 30 marks |
| Short case-3 | 30 marks |
| Logbook | 10 marks |
| 3. OSCE (4 station & each station 25 marks) | 100 marks |
| 4. Table viva- 100 Marks (4 table & Each table 25 marks) | 100 marks |
| 400 Marks | |

RECOMMENDED READING:

Books (latest edition)

- 1.Nelson Textbook of Pediatrics, Ed: Kliegman RM, St. Geme J. Elsevier.
- 2.PG Textbook of Pediatrics, Ed: Gupta P, Menon PSN, Ramji S, Lodha R. Jaypee
- 3.Rudolph's Pediatrics, Ed: Kline MW, McGraw Hill.
- 4.Textbook of Clinical Neonatology (IAP/NNF), Ed: Pejavar RK, Thakre R. Paras.
- 5.Cloherly and Stark's Manual of Neonatal Care. Ed: Eichenwald EC, Hansen AR, Martin CR, Stark AR. Wolters Kluwer.
- 6.Principles of Pediatric & Neonatal Emergencies (IAP). Ed: Gupta P, Bagga A, Ramji S, Chugh K, Lodha R, Dewan P, Kaushik JS, Shah D. Shah. Jaypee.
- 7.Clinical Methods in Pediatrics. Gupta P. CBS Publisher.
- 8.The Harriet Lane Handbook. Hughes HK, Kahl LK, Elsevier.
- 9.Nutrition and Child Development. Elizabeth KE. Paras Medical Publisher.
- 10.Illingworth's Development of The Infant and The Young Child. Au: Illingworth RS; Elsevier Health.
- 11.Fenichel's Clinical Pediatric Neurology. Au: Piña-Garza JE, James KC. Elsevier.

12. Park's Pediatric Cardiology for Practitioners. Myung Park M, Salamat M. Elsevier.
13. Lanzkowsky's Manual of Pediatric Hematology and Oncology. Fish J, Lipton J, Lanzkowsky P. Elsevier.
14. Essential Paediatric Pulmonology. Lodha R, Kabra SK. Jaypee.
15. Textbook of Pediatric Rheumatology. Petty RE, Laxer R, Lindsley C, Wedderburn L, Fuhlbrigge RC, Mellins ED. Elsevier.

Journals

03-05 international Journals and 02 national (all indexed) journals.

Online Resources

- a. IAP <https://www.iapindia.org/> <https://diapindia.org/>
- b. GOI MOHFW and IIPS. <http://rchiips.org/nfhs/>
- c. Pubmed. <https://pubmed.ncbi.nlm.nih.gov/>
- d. Google Scholar. <https://scholar.google.co.in/>
- e. Cochrane. <https://www.cochranelibrary.com/>
- f. Uptodate. <https://www.uptodate.com/login>
- g. Clinical Key. <https://www.clinicalkey.com/#!/login>
- h. Medscape. <https://www.medscape.com/>
- i. JM Rey's IACAPAP e-Textbook of Child and Adolescent Mental Health. Rey JM, Martin A. International Association for Child and Adolescent Psychiatry and Allied Professions. ISBN 9780646574400 Free on <https://iacapap.org/english/>

Postgraduate Students Appraisal

Form Pre / Para /Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM.....TO.....

| Sr. No. | PARTICULARS | Not Satisfactory | Satisfactory | More Than Satisfactory | Remarks |
|---------|-------------|------------------|--------------|------------------------|---------|
| | | 1 2 3 | 4 5 6 | 7 8 9 | |

| | | | | | |
|----|--|--|--|--|--|
| 1. | Journal based / recent advances learning | | | | |
| 2. | Patient based /Laboratory or Skill based learning | | | | |
| 3. | Self directed learning and teaching | | | | |
| 4. | Departmental and interdepartmental learning activity | | | | |
| 5. | External and Outreach Activities / CMEs | | | | |
| 6. | Thesis / Research work | | | | |
| 7. | Log Book Maintenance | | | | |

Publications

Yes/ No

Remarks*

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE
HOD

SIGNATURE OF CONSULTANT SIGNATURE OF

