MGM INSTITUTE OF HEALTH SCIENCES

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COMPETENCY BASED MEDICAL EDUCATION

(CBME)

(with effect from 2022 Batches)

Curriculum for Doctor of Medicine Pediatrics

Amended as per AC-50/2024, Dated 27/11/2024

Amended History

1. Approved as per AC-44/2022, Resolution No.5.42; Dated 09/12/2022.
2. Amended as per AC-46/2023, Resolution No 5.29, Resolution No. 5.31 dated 28/04/2023
3. Amended as per AC-50/2024, Resolution No. 4.107 Dated 27/11/2024

Annexure-39 of AC-44/2022

Resolution No. 5.42 of Academic Council (AC-44/2022): Resolved to adopt the NMC PG CBME Curriculum for MD (Pediatrics) from the batch joined MD (Pediatrics) in Feb 2022 onwards

NATIONAL MEDICAL COMMISSION
Postgraduate Medical Education Board

D 11011/1/22/AC/Guidelines/14 **Date: 05-08-2022**

GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MD IN PAEDIATRICS

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PREAMBLE

The purpose of any postgraduate (PG) education is to train an individual, in this case a qualified MBBS doctor, to achieve competencies across all domains that enables the student to perform the professional role as an expert and specialist practicing a specialty in the community (Newborn to adolescent care; ambulatory and in-patient care; Well child/Healthy and Ill child; health promotion, disease prevention and curative care; individual and family centered care; emergency care, Intensive and routine Care). The shift towards competency-based medical education by Medical Council of India and continued by the National Medical Commission (NMC) focuses education to be outcome based, emphasizing abilities, balancing domains of learning and promoting a learner centered ownership of the curriculum.

The practice of medicine has and will continue to change. Existing changes in the environment and practice have included an explosion of information, stress on knowledge at the expense of skills/attitudes/critical thinking, increased access of information and health delivery systems by lay public, development and access to sub-specialties, technological and IT advances, costs of management (diagnostic and therapeutic), changes in disease trends (non-communicable diseases, behavioral/developmental disorders, malignancies, immunology, etc.), medico-legal litigations, emphasis on quality standards, improved patient safety, violence/anger against health personnel and the emergence of professional-ethical dilemmas to name a few.

The NMC's competency based education is organized using a framework of competencies (predefined abilities) that forms the backbone of the curriculum as defined outcomes. These competencies are defined as observable abilities of a health professional, integrating multiple components across all domains, cognitive, psychomotor skills, and affective. Identified competencies are to be measured and assessed to ensure their acquisition which in turn determines competence. Defined competencies in each domain facilitates education progressing from being a novice towards mastery with formative assessments (feedback) vital for success. Every domain will have weightage and the phenomenon of allowing the ability in one should not be allowed to compensate the lack of ability in another.

These changes are reflected in the review of Core Competencies keeping them mostly aligned with CBME Undergraduate efforts. Each competency will require Sub-competencies/milestones enabling both student and teacher monitor progress that is transparent making both accountable. Specific Learning Objectives that will be necessary to achieve (and assess) outcomes are certainly also required to complete the process. This document has been prepared by subject-content specialists of NMC. The Expert Group of the NMC had attempted to render uniformity without compromise to the 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

SUBJECT SPECIFIC OBJECTIVES

Goal

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 Paediatrics and Medicolegal 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.

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/Hypernatremia, 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
1.22.5. 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. Porphyrias
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. Leuocyctosis

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 ductusarteriosus
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. Haemophilusinfluenzae
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. Yersina
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. NonpolioEnteroviral Infections
34.24. Poliomyelitis
34.25. Viral Hepatitis
34.26. HIV
34.27. Human Lymphotrophic 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 Diar*rhea*
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 dyserthropoietic 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 DuctusArteriosus
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

42.11.1. Transposition of Great Arteries and variants
42.11.2. TruncusArteriosus
42.11.3. TAPVC
42.11.4. Hypoplastic Left Heart Syndrome

42.12. Others

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

45.4.2. Microcephaly
45.4.3. Brain Malformations
45.4.4. Hydrocephalus
45.4.5. Craniosynostosis

45.5. Seizures

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. PseudotumorCerebri
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, GianottiCrosti Syndrome
52.10. AcanthosisNigrans
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 TalipesEquinovarus

53.3. Torsional deformities of Limb
53.4. Leg Length discrepancies
53.5. Transient Monoarticularsynovitis
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. Osteogenesisimperfecta
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 relevantto Natonal Health Mission including RBSK.
56.9. Integrated Management of Neonatal and ChildhoodIllness-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 Programincluding 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 – Nasophy, Orophy	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 historyfrom an attender/child including family and support systems

1.2. Engage and explainsin 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. Educatea 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. Demonstrateadherence 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 ofhealth 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. RecognizesEthical 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
    - 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 specialities 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 2ndyear — 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 bedsides 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 stu overall knowledge of the subject.

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. Cloherty 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/

Resolution No. 5.29 of Academic Council (AC-46/2023): Resolved to approve the proposed pattern of Paediatrics MD Theory is 400 marks, 4 papers, 100 marks each. It was modified as per NMC documents since 2022 with effect from the MD Pediatrics batch admitted in 2022 onwards **[ANNEXURE-34].**

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

Paper 1	BASIC SCIENCES RELATED TO Pediatrics
Paper 2	**General Pediatrics** 1. Growth and development 2.Adolescent medicine 3. social and preventive pediatrics 4. fluid, acid-base and electrolyte 5.nutrition 6.Genetics and metabolic diseases 7.Vaccinology 8. Neonatology 9. infectious disease 10. environmental health hazards 11. child psychiatry
Paper 3	**Systemic pediatrics** 1.CNS 2. CVS 3.RS 4. GI 5.LIVER 6.HEMATOLOGY AND ONCOLOGY 7.ENDOCRINOLOGY 8. NEPHROLOGY 9.RHEUMATOLOGY 10.ALLERGY AND IMMUNOLOGY 11.ENT/OPHTHALMOLOGY/SKIN /ORTHO in relation to Pediatrics
Paper 4	Recent advances in Pediatrics

Resolution No. 5.31 of Academic Council (AC-46/2023): Resolved to approve modification in practical exam pattern of MD (Pediatrics) university exam from batch appearing in June 2023 onwards, as per the CBME PG Curriculum of NMC **[ANNEXURE-35A, 35B]**

NEW MARKSHEET

MGM INSTITUTE OF HEALTH SCIENCE, NAVI MUMBAI

MARKSLIST FOR PRACTICAL AND VIVA-VOCE EXAMINATION

EXAM CENTER: _____ COURSE / EXAM: PG-2024

DATE OF EXAMINATION: _____ EXAMINATION FOR: M.D. (PEDIATRICS)

A								B					
Seat No	*Case-1 Long Case*	*Case – 2 Newborn short Case*	*Case -3 Short Case*	*Case -4 Short Case*	*OSCE – 2 STATION*		*PRACTICAL CLINICAL TOTAL*	*Case (A) + Table Viva (B)*				*TABLE VIVA TOTAL*	*PRACTICAL TOTAL = 400 MARKS (A+B)*
					STATION - 1 Counseling / Communication Skill Station	**STATION - 2** Pediatrics & Neonatal Advance Life Support (PALS/ NALS) (Procedure & Response station)		**1 Drugs & Emergencies**	**2 Instruments & Procedures**	**3 Vaccines & Nutrition**	**4 Investigations (Lab Reports + Radiology)**		
	100	**50**	**50**	**50**	**25**	**25**	**300**	**25**	**25**	**25**	**25**	**100**	

NAME OF EXAMINERS	COLLEGE	SIGNATURE WITH DATE
1.		
2.		
3.		
4.		

Annexure-111 of AC-50/2024

~~**Annexure 5**~~ **for item 16:** MD pediatrics practical examination pattern for batch appearing in January 2025 incorporating marks for thesis viva as per NMC

Item	**Long case**	**Short case (neonate)**	**Short case**	**OSCE** **1. Procedural/ skill based** **2. communication/ counselling**	**Total of clinical & practical skills**	**Thesis viva**	**Total of clinical & dissertation viva**
Number	1	1	1	2		1	
Marks	100	70	70	40	280	20	**300**

Oral viva	1	2	3	4	**Total**
Items	Drugs & emergencies	Instruments & procedures	Vaccines & nutrition	Investigations	
Marks	25	25	25	25	**100**

Total: Clinical & dissertation viva and oral viva- 400 marks

The above is applicable from MD pediatrics admission batch 2021-2022 onwards

Annexure I

Student appraisal form for MD in Pediatrics											
	Elements	**Less than Satisfactory**			**Satisfactory**			**More than satisfactory**			**Comments**
		1	2	3	4	5	6	7	8	9	
1	**Scholastic Aptitude and Learning**										
1.1	Has Knowledge appropriate for level of training										
1.2	Participation and contribution to learning activity (e.g., Journal Club, Seminars, CME etc)										
1.3	Conduct of research and other scholarly activity assigned (e.g. Posters, publications etc.)										
1.4	Documentation of acquisition of competence (eg Log book)										
1.5	Performance in work based assessments										
1.6	Self- directed Learning										
2	**Care of the patient**										
2.1	Ability to provide patient care appropriate to level of training										
2.2	Ability to work with other members of the health care team										
2.3	Ability to communicate appropriately and empathetically with patients families and care givers										
2.4	Ability to do procedures appropriate for the level of training and assigned role										
2.5	Ability to record and document work accurately and appropriate for level of										

	training										
2.6	Participation and contribution to health care quality improvement										
3	**Professional attributes**										
3.1	Responsibility and accountability										
3.2	Contribution to growth of learning of the team										
3.3	Conduct that is ethically appropriate and respectful at all times										
4	**Space for additional comments**										
5	**Disposition**										
	Has this assessment been discussed with the trainee?	Yes	No								
	If not explain										
	Name and Signature of the assesse										
	Name and Signature of the assessor										
	Date										

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