MAHATMA GANDHI UNIVERSITY
of
MEDICAL SCIENCES & TECHNOLOGY
JAIPUR

Syllabus

MD – PAEDIATRICS (MD11)

(3 Years Post Graduate Degree Course)

Edition 2022-23

Notice

1. Amendment made by the National Medical Commission (NMC) of India in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST), Jaipur.
2. The University reserves the right to make changes in the syllabus/books/guidelines, fees-structure or any other information at any time without prior notice. The decision of the University shall be binding on all.
3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only

RULES & REGULATIONS

MD PAEDIATRICS (MD11)
(3 Years Post Graduate degree course)

TITLE OF THE COURSE:
It shall be called Doctor of Medicine.

ELIGIBILITY FOR ADMISSION:
No candidate of any category (including NRI quota) shall be eligible for admission to MD/MS courses, if he or she has not qualified NEET PG (MD/MS) conducted by National Board of Examinations or any other Authority appointed by the Government of India for the purpose.

(1) General Seats

(a) Every student, selected for admission to postgraduate medical course shall possess recognized MBBS degree or equivalent qualification and should have obtained permanent Registration with the Medical Council of India, or any of the State Medical Councils or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled;

(b) Completed satisfactorily one year's rotatory internship or would be completing the same before the date announced by the University for that specific year as per MCI rules after passing 3rd professional MBBS Part II Examination satisfactorily.

(c) In the case of a foreign national, the Medical Council of India may, on payment of the prescribed fee for registration, grant temporary registration for the duration of the postgraduate training restricted to the medical college/institution to which he/she is admitted for the time being exclusively for postgraduate studies; however temporary registration to such foreign national shall be subject to the condition that such person is duly registered as medical practitioner in his/her own country from which he has obtained his basic medical qualification and that his degree is recognized by the corresponding Medical Council or concerned authority.

(2) NRI Seats

(a) Students from other countries should possess passport, visa and exchange permits valid for the period of their course of study in this Institution and should also observe the regulations of both central and state governments regarding residential permits and obtain no-objection certificate from the same.

(b) The candidate should have a provisional "Student Visa". If he comes on any other visa and is selected for admission, he will have to first obtain a student visa from his country and then only he will be allowed to join the course. Therefore it is imperative to obtain provisional student visa before coming for Counseling.

(c) This clause is applicable to NRI/Foreign Students only.

CRITERIA FOR SELECTION FOR ADMISSION:

(1) NRI Quota

15% of the total seats are earmarked for Foreign National / PIO / OCI/ NRI / Ward of NRI/NRI sponsored candidates who would be admitted on the basis of merit obtained in NEET PG or any other criteria laid down by Central Government/MCI.

(2) Remaining Seats (Other than NRI Quota Seats)

(a) Admissions to the remaining 85% of the seats shall be made on the basis of the merit obtained at the NEET conducted by the National Board of Examinations or any other

Authority appointed by the Government of India for the purpose.

(b) The admission policy may be changed according to the law prevailing at the time of admission.

COUNSELING/INTERVIEW:

(1) Candidates in order of merit will be called for Counseling/Interview and for verification of original documents and identity by personal appearance.

(2) Counseling will be performed and the placement will be done on merit-cum-choice basis by the Admission Board appointed by the Government of Rajasthan.

RESERVATION:

Reservation shall be applicable as per policy of the State Government in terms of scheduled caste, scheduled tribe, back ward class, special back ward class, women and handicapped persons.

ELIGIBILITY AND ENROLMENT:

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself enrolled and registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed eligibility and enrolment fees.

The candidate shall have to submit an application to the MGUMST through Principal of College for the enrolment/eligibility along with the following original documents and the prescribed fees within the prescribed period without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules –

(a) MBBS pass Marks sheet/Degree certificate issued by the University (Ist MBBS to Final MBBS)
(b) Certificate regarding the recognition of medical college by the Medical Council of India.
(c) Completion of the Rotatory Internship certificate from a recognized college.
(d) Migration certificate issued by the concerned University.
(e) Date of Birth Certificate
(f) Certificate regarding registration with Rajasthan Medical Council / Medical Council of India / Other State Medical Council.

REGISTRATION

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed registration fees.

The candidate shall have to submit application to the MGUMST through Principal of College for registration with the prescribed fees within the prescribed period without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules.

DURATION OF COURSE:

The course shall be of 3 years duration from the date of commencement of academic session.

PERIOD OF TRAINING:

The period of training for obtaining Post graduate degrees (MD/MS) shall be three completed years including the period of examination.

MIGRATION:
No application for migration to other Medical Colleges will be entertained from the students already admitted to the MD/MS course at this Institute.

METHODS OF TRAINING FOR MD/MS:
Method of training for MD/MS courses shall be as laid down by the Medical Council of India.

ONLINE COURSE IN RESEARCH METHODS

i. All postgraduate students shall complete an online course in Research Methods to be conducted by an Institute(s) that may be designated by the Medical Council of India by way of public notice, including on its website and by Circular to all Medical Colleges. The students shall have to register on the portal of the designated institution or any other institute as indicated in the public notice.
ii. The students have to complete the course by the end of their 2nd semester.
iii. The online certificate generated on successful completion of the course and examination thereafter, will be taken as proof of completion of this course
iv. The successful completion of the online research methods course with proof of its completion shall be essential before the candidate is allowed to appear for the final examination of the respective postgraduate course.
v. This requirement will be applicable for all postgraduate students admitted from the academic year 2019-20 onwards

ATTENDANCE, PROGRESS AND CONDUCT:

(1) Attendance:

(a) 80% attendance in each course is compulsory. Any one failing to achieve this, shall not be allowed to appear in the University examination.
(b) A candidate pursuing MD/MS course shall reside in the campus and work in the respective department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/work in clinic/laboratory/ nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration. Each year shall be taken as a unit for the purpose of calculating attendance.
(c) Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, CCR, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons. Candidates should not be absent continuously as the course is a full time one.

(2) Monitoring Progress of Studies- Work diary/Log Book:

(a) Every candidate shall maintain a work diary in which his/her participation in the entire training program conducted by the department such as reviews, seminars, etc. has to be chronologically entered.
(b) The work scrutinized and certified by the Head of the Department and Head of the Institution is to be presented in the University practical/clinical examination.

(3) Periodic tests:

There shall be periodic tests as prescribed by the Medical Council of India and/ or the Board of Management of the University, tests shall include written papers, practical/clinical and viva voce.

(4) Records:

Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University when called for.

THESIS:

(1) Every candidate pursuing MD/MS degree course is required to carry out work on research project under the guidance of a recognized post graduate teacher. Then such a work shall be submitted in the form of a Thesis.
(2) The Thesis is aimed to train a postgraduate student in research methods & techniques.
(3) It includes identification of a problem, formulation of a hypothesis, designing of a study, getting acquainted with recent advances, review of literature, collection of data, critical analysis, comparison of results and drawing conclusions.
(4) Every candidate shall submit to the Registrar of the University in the prescribed format a Plan of Thesis containing particulars of proposed Thesis work within six months of the date of commencement of the course on or before the dates notified by the University.
(5) The Plan of Thesis shall be sent through proper channel.
(6) Thesis topic and plan shall be approved by the Institutional Ethics Committee before sending the same to the University for registration.
(7) Synopsis will be reviewed and the Thesis topic will be registered by the University.
(8) No change in the thesis topic or guide shall be made without prior notice and permission from the University.
(9) The Guide, Head of the Department and head of the institution shall certify the thesis. Three printed copies and one soft copy of the thesis thus prepared shall be submitted by the candidate to the Principal. While retaining the soft copy in his office, the Principal shall send the three printed copies of the thesis to the Registrar six months before MD/MS University Examinations. Examiners appointed by the University shall evaluate the thesis. Approval of Thesis at least by two examiners is an essential pre-condition for a candidate to appear in the University Examination.
(10) Guide: The academic qualification and teaching experience required for recognition by this University as a guide for thesis work is as laid down by Medical Council of India/Mahatma Gandhi University of Medical Sciences & Technology, Jaipur.
(11) Co-guide: A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching/training by Mahatma Gandhi University of Medical Sciences & Technology, Jaipur/Medical Council of India. The co-guide shall be a recognized postgraduate teacher.
(12) Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION:

The following requirements shall be fulfilled by every candidate to become eligible to appear for the final examination:

(1) Attendance: Every candidate shall have fulfilled the requirement of 80% attendance prescribed by the University during each academic year of the postgraduate course. (as per MCI rules)
(2) Progress and Conduct: Every candidate shall have participated in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year as designed by the department.

(3) Work diary and Logbook: Every candidate shall maintain a work diary for recording his/her participation in the training program conducted in the department. The work diary and logbook shall be verified and certified by the Department Head and Head of the Institution.

(4) Every student would be required to present one poster presentation, to read one paper at a National/State Conference and to have one research paper which should be published/accepted for publication/ sent for publication to an indexed journal during the period of his/her post graduate studies so as to make him/her eligible to appear at the Post Graduate Degree Examination.

(5) Every student would be required to appear in and qualify the Pre-University Post graduate degree Mock examination. Post graduate students who fail to appear in or do not qualify the Pre-University Post graduate degree Mock examination shall not be permitted to appear in the final examination of the University.

The certification of satisfactory progress by the Head of the Department/ Institution shall be based on (1), (2), (3), (4) and (5) criteria mentioned above.

ASSESSMENT:

(1) The progress of work of the candidates shall be assessed periodically by the respective guides and report submitted to the Head of the Institution through the Head of the Department at the end of every six months. The assessment report may also be conveyed in writing to the candidate who may also be advised of his/her shortcomings, if any.

(2) In case the report indicate that a candidate is incapable of continuing to do the work of the desired standard and complete it within the prescribed period, the Head of the Institution may recommend cancellation of his/her registration at any time to the University.

(3) Formative Assessment:

(a) General Principles

i. The assessment is valid, objective, constructive and reliable.
ii. It covers cognitive, psychomotor and affective domains.
iii. Formative, continuing and summative (final) assessment is also conducted.
iv. Thesis is also assessed separately.

(b) Internal Assessment

i. The internal assessment is continuous as well as periodical. The former is based on the feedback from the senior residents and the consultants concerned. Assessment is held periodically.
ii. Internal assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.
iii. The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student.
iv. Marks should be allotted out of 100 as under

(1) Personal Attributes - 20 marks

a. Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
b. Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
c. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.

(2) Clinical Work - 20 marks

A. Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.

B. Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.

C. Academic Ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities and performs well in oral presentation and departmental tests.

D. Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

(3) Academic Activities - 20 marks

a. Performance during presentation at Journal club / Seminar / Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

(4) End of term theory examination - 20 marks

a. End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months.

(5) End of term practical examination - 20 marks

c. Marks for academic activity should be given by the all consultants who have attended the session presented by the resident.

d. The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.

e. Yearly (end of 1st, 2nd & 3rd year) theory and practical examination will be conducted by internal examiners and each candidate will enter details of theory paper, cases allotted (2 long & 2 short) and viva.

f. Log book to be brought at the time of final practical examination.

APPOINTMENT OF EXAMINERS:

Appointment of paper setters, thesis evaluators, answer books evaluators and practical & viva voce examiners shall be made as per regulations of the National Medical Commission.

SCHEME OF EXAMINATION:

Scheme of examination in respect of all the subjects of MD/MS shall be as under :

(1) The examination for MD/MS shall be held at the end of three Academic Years.

(2) Examinations shall be organized on the basis of marking system.

(3) The period of training for obtaining MD/MS degrees shall be three completed years including the period of examination.

(4) The University shall conduct not more than two examinations in a year for any subject with an interval of not less than 4 months and not more than 6 months between the two examinations.

(5) The examinations shall consist of:

(a) Thesis :

i. Thesis shall be submitted at least six months before the main Theory examinations.

ii. 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/Practical.

iii. In departments where besides the two earmarked practical/clinical examiners no one else is a qualified P.G. teacher, in that case the Thesis shall be sent to the third external examiner who shall actually be in place of the internal examiner.

v. Only on the acceptance of the thesis by any two examiners, the candidate shall be eligible to appear for the final examination.

vi. A candidate whose thesis has been once approved by the examiners will not be required to submit the Thesis afresh, even if he/she fails in theory and/or practical of the examination of the same branch.

vi. In case the Thesis submitted by a candidate is rejected, he/she should be required to submit a fresh Thesis.

(b) Theory papers:

i. There shall be four theory papers.

ii. Out of these, one shall be of Basic Medical Sciences and one shall be of Recent Advances.

iii. Each theory paper examination shall be of three hours duration.

iv. Each theory paper shall carry maximum 100 marks.

v. The question papers shall be set by the External Examiners.

vi. There will be a set pattern of question papers.

Every question paper shall contain three questions. All the questions shall be compulsory, having no choice.

Question No. 1 shall be of long answer type carrying 20 marks.

Question No. 2 shall have two parts of 15 marks each. Each part will be required to be answered in detail.

Question No. 3 shall be of five short notes carrying 10 marks each.

vii. The answer books of theory paper examination shall be evaluated by two External and two internal examiners. Out of the four paper setters, the two paper setters will be given answer books pertaining to their papers and the answer books of the remaining two papers will be evaluated by two Internal Examiners. It will be decided by the President as to which paper is to be assigned to which Internal Examiner for evaluation.

viii. A candidate will be required to pass theory and practical examinations separately in terms of the governing provisions pertaining to the scheme of examination in the post graduate regulations. The examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for degree examination to be cleared as "passed" at the said Degree examination.

(c) Clinical/ Practical & Oral examinations:

i. Clinical/Practical and Oral Examination of 400 marks will be conducted by at least four examiners, out of which two (50%) shall be External Examiners.

ii. A candidate will be required to secure at least 50% (viz. 200/400) marks in the Practical including clinical and viva voce examinations.

(6) If a candidate fails in one or more theory paper(s) or practical, he/she shall have to reappear in the whole examination i.e. in all theory papers as well as practical.

GRACE MARKS

No grace marks will be provided in MD/MS examinations.

REVALUATION / SCRUTINY:

No Revaluation shall be permitted in the MD/MS examinations. However, the student can apply for scrutiny of the answer books as per University Rules

GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MD IN PAEDIATRICS

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

Goal

SUBJECT SPECIFIC OBJECTIVES

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

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

SUBJECT SPECIFIC OBJECTIVES

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

- Acquires competencies relevant to all aspects of Paediatrics (newborn to adolescent) that are essential to function as a clinical expert in providing newborn and pediatric health services for the community at all levels.
- Recognizes the holistic health needs of healthy neonates, infants, children, and adolescents
- Performs responsibilities of the provision of clinical care in keeping with principles of the National Health Policy.
- Performs responsibilities in a professional and ethical manner.
- Acquires skills in effectively communicating not only with the health team but with the child, family, and the community

- Is actively involved in keeping oneself up to date with scientific advances in 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 Paediatricpost-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 careproviders.

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 healthcare.

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, Clinicalconsiderations

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. Fetalcirculation

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 respons esystem

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 ofVaccinology

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. Auto antibodies

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. Druginteractions
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. Ethicalworkup
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/signs inclusive 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. Healthyneonate
1.1.2. Healthyinfant
1.1.3. Healthy child
1.1.4. Healthyadolescent

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. Incessantcrying
1.5.6. Sick looking
1.5.7. Statusepilepticus
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. Tonguetie
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. Gastrointestinalbleed
1.7.10. Hepatomegaly
1.7.11. Splenomegaly
1.7.12. Hepatosplenomegaly
1.7.13. Encopresis
1.7.14. Abdominaldistention
1.7.15. Abnormal Liver Functiontests

1.8. GenitalSymptoms

1.8.1. Atypical or ambiguousgenitalia
1.8.2. Menstrualabnormalities
1.8.3. Injuries togenitalia
1.8.4. Foreskin, penile problems
1.8.5. Labialadhesions

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. Under nutrition
1.9.5. Failure to thrive
1.9.6. Overweight and obesity

1.10. HematologicalSymptoms

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

1.11. Infectious (and Immunological) Symptoms

1.11.1. Fever with focus
1.11.2. Fever with outfocus

1.11.3. Fever - persistent orrecurrent
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-Basedisturbance
1.12.4. Dyselectrolytemia–Hypo/Hypernatremia, Hypo/Hyperkalemia, ypo/ 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. Termgestation
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/Cranialabnormalities
1.14.13. Post NICU follow up
1.14.14. HIV-HepB-Syphilisexposure/infection
1.14.15. Inadequate breast milk
1.14.16. Antenatal detected renalabnormalities

1.15. Neurological Symptoms

1.15.1. Seizures
1.15.2. Alteredsensorium/Coma
1.15.3. Motor weakness
1.15.4. Incessant Irritability
1.15.5. Headache
1.15.6. Abnormal Head circumference
1.15.7. Sensoryabnormalities

1.15.8. Abnormalgait
1.15.9. Ataxia
1.15.10. Facial weakness
1.15.11. Involuntary movements

1.16. Ophthalmological Symptoms

1.16.1. Redeye
1.16.2. Watering of eye
1.16.3. Discharge from eye
1.16.4. Poorvision
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. Tonsillarhypertrophy
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 (Micturatingcystourethrogram)

1.21.3. Ultrasound (Lung: Consolidation, Left Heart failure, effusion; Circulation: Intravascular Volume; Neonatal Brain: Hydrocephalus, Intracranial ollections; Central veins: Patency for US guided central lines; Lymphadenopathy: For US guided FNA Caspirations)

1.21.4. CT scan with/without contrast (Brain: Cerebral edema, Midline shift, eningitis, 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, Peritonealfluid

1.22.2. Ziehl Neilson Stain of Sputum,Pus

1.22.3. Hanging drop for motilecholera

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 routineanalysis

1.25. Biochemical

1.25.1. error of metabolism newborn screening reports

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

1.25.3. Inborn 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 Paediatricsincluding:

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. OrganicAcidemias
        - 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 GM2Gangliosidosis
    - 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 combinedimmunodeficiency)
    - 4.3. Phagocytic system
        - 4.3.1. Neutrophils
        - 4.3.2. Leukopenia
        - 4.3.3. Leuocyctosis
    - 4.4. Complementpathway
        - 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. AcutelyIll

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 theHouse hold
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. ColdInjuries

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 Birth weight

14.1.1. Feeding of Low-birth weight
14.1.2. Intrauterine Growth Restriction

14.2. Prematurity
14.3. Postterm
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 amurmur
19.2. Patentductusarteriosus
19.3. Ductus dependentshunts

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 Mal formations
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. Psycho social 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 Under nutrition
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 HypervitaminosisD
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. Haemophilus Influenzae 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 Papilloma virus Vaccines
26.25. Dengue Vaccines
26.26. Yellow Fever Vaccine
26.27. Combination Vaccines
26.28. Covid-19Vaccines
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 Immuno compromised 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. Listeriamonocytogenes
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. Helicobacterpylori

32.5. Anaerobic Bacterial

32.5.1. Clostridiumtetani
32.5.2. Clostridiumbotulinum
32.5.3. Clostridiumdifficile

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. Chlamydiapneumonia
32.8.2. Chlamydia trachomatis
32.8.3. Psittacosis

32.9. Rickettsia

32.9.1. SpottedFever
32.9.2. ScrubTyphus
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. Humanmetapneumo virus
34.13. Rhino virus
34.14. Adenovirus
34.15. Corona virus
34.16. Rotavirus
34.17. Human Papillomavirus
34.18. Arbovirus

34.18.1. Japanese Encephalitis
34.18.2. Other Encephalitis
34.18.3. Tick-borne Encephalitis
34.18.4. Chikungunya
34.18.5. Zika

34.19. Varicella-zoster
34.20. Herpes Simplex

34.21. Rabies
34.22. Parvovirus Infections
34.23. Nonpolio Entero viral 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. PneumocystisJirovecii

37. DiarrhealIllnesses

- 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 softpalate
  - 38.3.5. Cleft Lip and Cleft Palate
  - 38.3.6. Diseases of Salivary Glands
- 38.4. Esophageal atresia, TracheoesophagealFistula
- 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. MeckelDiverticulum
- 38.15. Chronic obstructivepseudoobstruction
- 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. Pilonidalsinus
38.31.5. Anorectalmal formations

38.32. Cyclicvomiting

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. LiverTumors
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 dyserthropoieticanemia

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. CoagulationDisorders
40.6.2. Hemophilia
40.6.3. Other Clotting FactorDeficiencies
40.6.4. Von WillebrandDisease
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. Retropharyngealabscess
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 CiliaryDyskinesia
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 HeartFailure
42.6. Cardiac Mal position
42.7. Acyanotic Congenital Heart Disease, Left to Rights hunt

42.7.1. Ventricular Septal Defects
42.7.2. Patent Ductus Arteriosus
42.7.3. Atrial Septal Defects
42.7.4. PAPVC
42.7.5. Atrioventricular Septal Defects

42.8. Acyanotic Congenital Heart Disease, Obstructive

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

42.9. Acyanotic Congenital Heart Disease, Regurgitation

42.9.1. Mitral Valve Pro lapse

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. Truncus Arteriosus
42.11.3. TAPVC
42.11.4. Hypo plastic 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. Membrano proliferative Glomerulonephritis
43.3.1.4. Rapidly Progressive Glomerulonephritis

43.3.2. IgAnephropathy
43.3.3. Alportsyndrome

43.4. Systemic Vasculitis and Lupus Nephritis
43.5. Good pasture 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. Tubulointerstitialnephritis
43.9.3. Papillarynecrosis
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 TractInfection
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
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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 genitalmutilation

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
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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

45.1 2.1. Arterial versus Venous

45.13. CNS Vasculitis
45.14. CNS Infections

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. BellPalsy

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. Pseudohypothyroidism
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47.5. Pubertal Development

47.5.1. Normal Puberty
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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 Hypo function
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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
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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
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48.5. Brain Tumors
48.6. Neuroblastoma
48.7. WilmsTumor
48.8. Soft Tissue Tumors
48.9. Bone Tumors
48.10. Retinoblastoma
48.11. Gonadal, Germ cellneoplasms
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. Hemophagocytic Lymphohistiocytosis

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 Diseaseand PolyarteritisNodosa
49.11. Small Vessel Vasculitis:Henoch-SchönleinPurpura and 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 LacrimalSac
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

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52.1. Skin of the Newborn: Physiological and Pathological Changes
52.2. Care of Skin in the Newborn
52.3. Infections and Infestations
52.4. Congenital Cutaneous Malformations
52.5. Vitiligo and Other Hypopigmentary Diseases
52.6. Atopic Dermatitis
52.7. Contact Dermatitis
52.8. Urticaria and Mastocytosis
52.9. Psoriasis, Gianotti Crosti Syndrome

52.10. Acanthosis Nigrans
52.11. Cutaneous Drug Reactions
52.12. Cutaneous Manifestations of Nutritional Deficiency
52.13. Cutaneous Manifestations of Collagen Vascular Diseases
52.14. Neurocutaneous Syndromes
52.15. Vesiculobullous Disorders
52.16. Papulosquamous Disorders
52.17. Ichthyosis
52.18. Genetic Cutaneous Disorders
52.19. Hair Disorders
52.20. Nail Disorders
52.21. Infections of Skin

52.21.1. Impetigo
52.21.2. Subcutaneous Infections
52.21.3. Staphylococcal Scalded Skin Syndrome
52.21.4. Ecthyma
52.21.5. Fungal Infections
52.21.6. Viral Infections
52.21.7. Arthropodbites
52.21.8. Scabies
52.21.9. Pediculosis
52.21.10. Acne

53. Disorders of Bones and Joints

53.1. Assessment of the Loco motor System
53.2. Deformities of Foot and Toes

53.2.1. Congenital Talipes Equinovarus

53.3. Torsional deformities of Limb
53.4. Leg Length discrepancies
53.5. Transient Monoarticularsynovitis
53.6. Legg-Calvé-Perthes Disease
53.7. Neck Problems

53.7.1. Torticollis
53.7.2. Cervicalanomalies

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 ACT2012
56.7. Rights of People With Disability Act 2016
56.8. National Programs for Child Health as relevant to National Health Mission Including RBSK.
56.9. Integrated Management of Neonatal and Childhood Illness- Facility (IMNCI-F)
56.10. Investigation of an Outbreak

57. Quality Assessment and Improvement

57.1.1. Point of Care Quality Improvement

B. Psychomotor Domain

- *Should be able to perform independently in the practice of Paediatrics,*

  The following diagnostic and therapeutic interventions as listed below:

1. Physical Examination

1.1. Measurement of Vitals
1.2. Measurement of Anthropometry
1.3. General physical examination
1.4. Physical Examination of Systems
1.5. Development (Screening)Assessment
1.6. Behavioral (Screening) Assessment
1.7. Sexual Maturity Assessment
1.8. Newborn Assessment including gestational assessments
1.9. Breastfeeding Assessment of Position and Attachment
1.10. Motor Disability Assessment
1.11. Autism Spectrum Disorder Screening
1.12. Fundus examination

1.13. Middle ear examination
1.14. Throate xamination
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. Bonemarrow
3.15.2. Liver
3.15.3. Kidney
3.15.4. FNAC Lymphnode

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. Gluco meter Blood Sugar
3.22. Shake test (Newborn gastric aspirate)
3.23. Electrocardiogram
3.24. Specific Screening /Assessment Tools

3.24.1. Gestation Assessments
3.24.2. Anthropometric measurements and Growth charting
3.24.3. Peak Flow Meter Measurement
3.24.4. HEADSS screening (Adolescence)
3.24.5. DDST screening (Development Assessment)
3.24.6. Assessment of Sexual Maturity using Tanner's
3.24.7. M-CHAT-R screening (Autism Assessment)
3.24.8. GMSCF Assessment of Motor Disability (Cerebral Palsy)
3.24.9. Pain assessment

4. Procedures –Therapeutic

4.1. Informed Consent

4.2. Prescriptions/Medication Orders
4.3. Neonatal Resuscitation Program including intubation
4.4. Basic Life Support
4.5. Advanced Paediatric Life Support including intubation
4.6. Heimlich, Foreign Body Removal
4.7. Exchange Transfusion

4.8. Stomach wash
4.9. Injections

- 4.9.1. Intravenous
- 4.9.2. Intramuscular
- 4.9.3. Subcutaneous
- 4.9.4. Intradermal

4.10. Infusions

- 4.10.1. IV bolus
- 4.10.2. Intravenous
- 4.10.3. Intraosseous
- 4.10.4. Blood Component Transfusion

4.11. Respiratory

- 4.11.1. Meter dose inhalation with or without Spacer/ Mask
- 4.11.2. Nebulization
- 4.11.3. Airway Insertion –Nasopharyngeal, Oropharyngeal
- 4.11.4. Needle Cricothyroidoto my
- 4.11.5. Oxygen delivery methods
- 4.11.6. HFNC/CPAP/Non-Invasive Ventilation
- 4.11.7. Ventilation –Conventional
- 4.11.8. Inter costal 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 dependently

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
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	
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		
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	
Ventilation – Conventional, High Freq (HFV)	O	PS	PI (Not HFV)
4.11.8. Inter costal 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 New born	PI		
4.20.2. Kangaroo Mother Care	PI		
4.21. Immunization Cold Chain Measures			
4.21.1. Refrigerator	PI		
4.21.2. Vaccine carrier	PI		
4.22. Restraining a child	O, PS	PI	
4.23. Transporting a child	O, PS	PI	
4.24. Early Interventional Therapy	O	PS	PI
4.25. Chest Physiotherapy	O, PS	PI	

C. Predominant in Affective Domain

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

1. Communication –Child/Attender/Guardian

1.1. Elicit a relevant and appropriate history from an attender/child including family and support systems

1.2. Engage and explains in appropriate language the plan (diagnostic and management including economics of plans)to anattender/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 healthcare.

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 Healthcare

Should be able to ……..

3. Professionalism and Ethical Behaviour

3.1. Demonstrates Professional Conduct in patient care and research

3.1.1. Demonstrate respect for the Doctor-Patient relationship

3.1.2. Demonstrate respect for the Doctor-Health Care Team Member relationship

3.1.3. Demonstrate adherence to confidentiality and patient privacy in all communications in and outside the place ofwork.

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

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

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

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

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

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

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

3.1.11. Provides care that surpasses personal beliefs and prejudices

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

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

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

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

D. Pedagogic and ResearchSkills

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 Power Point 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 suchas:

1. Subject-related important topics as per Paediatric requirements
2. Recent advances
3. Research methodology and biostatistics
4. Undergraduate/Postgraduate medicalcurriculum
5. Teaching and assessmentmethodology.

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 issuggested.

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 ofpostgraduates.

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

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 post graduates.

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. Inter departmental 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 pediatricexposure
    - 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 there by be

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

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

I. Training in teaching skills

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

J. Logbook

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 fort night
- Case discussions : once a fort night/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 02each)

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 Practicalexamination

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, Mc Graw 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, HansenAR, Martin CR, Stark AR. WoltersKluwer.
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 MedicalPublisher.
10. Illingworth's Development of The Infant and The Young Child. Au:Illing worth RS; Elsevier Health.
11. Fenichel's Clinical Pediatric Neurology. Au: Piña-Garza JE, James KC.Elsevier.
12. Park'sPediatricCardiologyforPractitioners.MyungParkM,SalamatM.Elsevier.
13. Lanzkowsky's Manual of Pediatric Hematology and Oncology. Fish J, LiptonJ, 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. IAPhttps://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/

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 togrowth of learning of theteam										
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										

MODEL PAPER
MD11301 **Paed-I**

MD Examination Month, Year
PAEDIATRICS

Paper – I

Basic Sciences as Applied to the Subject

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1. Describe composition, formation, circulation and functions of cerebro spinal fluid. Write clinical implications of its derangenment. 20

Q2 Write on 2x15 =30

Discuss acute phase reactants and their diagnostic and prognostic value in childhood diseases

Write pathophysiology of Hypoxia Ischemic Encephalopathy

Q3. Write short notes 5x10 =50

Define various RBC indices

Write physiological basis of human lactation

Discuss briefly Pulmonary Function Tests

Describe genetic counselling and prenatal diagnosis in parents with Beta Thalassemia

Z-Score

MODEL PAPER

MD11302 **Paed-II**

MD Examination Month, Year
PAEDIATRICS

Paper – II

General Paediatrics

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1. Discuss oxygen therapy in a toddler presenting with respiratory distress and low saturation in the emergency room. Write in detail about devices used to give high flow and low flow oxygen in this age group. 20

Q2 Write on 2x15 =30

Clinical features and management of obesity in children.

Diagnosis and management of Juvenile rheumatoid arthritis in children

Q3. Write short notes 5x10 =50

How will you approach a suspected case of Celphos poisoning in children.

How will you assess hearing in infants.

Discuss in brief Collodian baby.

Classify the sleep disorder and discuss restless leg syndrome.

What are the complications of severe malaria.

MODEL PAPER

MD11303 **Paed-III**

MD Examination Month, Year
PAEDIATRICS

Paper – III

Systemic Paediatrics

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1. An eight year child is brought with a history of convulsion altered sensorium. One extremities BP was 180/110 mm of Hg. Discuss the D/D and lab investigations of this child. Discuss management of hypertensive encephalopathy in this child. Add a note on fundus changes in hypertension. 20

Q2 Write on 2x15 =30

A 3 year old child is with H/O jaundice since 2 months. H/O of exchange transfusion on Day 2 of life. Discuss the D/D. Classify Hemolytic Anemia. Add note on management of Intravascular in G6pd deficiency.

Draw an Algorithm for managing pulseless ventricular Tachycardia and ventricular fibrillation (As per AHA). Describe briefly superior QRS Axis

Q3. Write short notes 5x10 =50

Health and sex education of adolescent girl.

Clinical and immunological criteria for starting antiretroviral treatment in HIV infected child.

Stevenson's Johnson disease.

Approach to precocious puberty.

Course and prognosis of Acute Bronchiolitis

MODEL PAPER

MD11304 **Paed-IV**

MD Examination Month, Year
PAEDIATRICS

Paper – IV

Recent Advances

Time : Three Hours
Maximum Marks : 100

Attempt all questions
All the parts of one question should be answered at one place in sequential order.
Draw diagrams wherever necessary

Q1. Discuss clinical features, investigations, D/D and management of multi system inflammatory syndrome of children. (MISC). 20

Q2 Write on 2x15 =30

Discuss basis of development of antibiotics resistance and steps for prevention of antibiotic resistance.

Illustrate the clotting cascade. Discuss clinical features and management of Von- Willebrand disease.

Q3. Write short notes 5x10 =50

Recent advances in management of steroid resistant nephrotic syndrome.

Rapid diagnotic tests for chilhood infeatious .

Fetal stem cell therapy

ECMO

Non inative ventilation