

***Residency Program:
Doctor of Medicine (MD)
Curriculum (Phase-B)***

Pediatric Gastroenterology



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1. Introduction:

1.1 Overview of the Specialty:

The specialty of Pediatric gastroenterology developed as a sub-specialization of Pediatrician who is predominantly concerned with the care of patients with gastrointestinal disorders. It is a branch of Pediatrics concerned with prevention, investigation and therapy of and research into diseases involving the gastrointestinal system. Pediatricians have a detailed knowledge and understanding of diseases in children. They are skilled in looking at health and ill health in babies, children and adolescents, and at specific health issues, diseases and disorders related to these stages of growth and development. They develop expertise in practical procedures specifically related to the good clinical care of small babies and children. Pediatricians work in multi disciplinary teams and with colleagues from a wide range of professional groups in hospitals, general practice and in the community, in social services and schools and with the voluntary sector. They have strong communication and interpersonal skills and take on a variety of roles within their different communities of practice. They share expertise effectively and assume the responsibilities of teaching, leadership and management roles where appropriate. They work with colleagues to ensure consistency and continuity in the treatment and care of children and young people in all aspects of their well being. They are committed to a policy of advocacy for a healthy lifestyle in children and young people and for the protection of their rights.

Pediatricians are doctors who have a particular compassion and respect for children, young people and their families and enjoy working with them. They have an expert understanding

of the ways in which illness affects the child, the parents and the rest of the family and are skilled in the management of emotionally complex family situations. They show patience and sensitivity in their communications with children and their families and a particular ability to explore each individual's perspectives of a problem. They are aware of religious and cultural beliefs that parents might hold about the treatment of their children. They know how to respond in these cases, when to seek support and where to find legal and ethical guidelines to support their practice.

Pediatricians ensure that they are up to date in their practice and endeavour to promote evidence based medicine where possible. They are keen to develop innovative approaches to teaching in Pediatrics and to research. They are committed to the highest standards of care and of ethical and professional behavior.

1.2 Pediatric Gastroenterology.

Residency Program:

Residents will undertake a three year intensive Phase B training after completion of Phase A training in order to achieve the levels of knowledge, skills and expertise required for clinical practice in the field of Pediatrics. It is a competency-based Program emphasizing on meaningful integration and contextualization. The two years Phase A training Program is designed to introduce and develop the broad range of core knowledge, skills, attitudes and behaviors required to become a competent Pediatrician. The knowledge and skills acquired during Phase A training are further focused and refined during Phase B training, which is a 3 year specialty-specific training in Pediatric gastroenterology.

The teaching, learning and assessment of the curriculum is facilitated by the provision of comprehensive, educationally oriented supervision and support, which is provided to all trainees across both phases of the Program.

2. Goals and Objectives:

2.1 Overall Goals:

1. To prepare Pediatric gastroenterologists who would be able to meet and respond to the changing healthcare needs and expectation of the society.
2. To develop Pediatric gastroenterologists who possess knowledge, skills and attitudes that will ensure that they are competent to practice gastroenterology safely and effectively.
3. To ensure that they have appropriate foundation for lifelong learning and further training in their speciality.
4. To help them develop to be critical thinkers and problem solvers when managing health problems in the community they serve.

2.2 General Objectives:

The educational and training process aims to produce Pediatric gastroenterologists who:-

- Can address all aspects of the healthcare needs of patients and their families.
- Maintain the highest standards appropriate in their professional field.
- Are aware of current thinking about ethical and legal issues.
- Are able to act as safe independent practitioners whilst recognizing the limitation of their own expertise and are able to recognize their obligation to seek assistance of colleagues where appropriate.

- Are aware of the procedures and able to take appropriate action, when things go wrong, both in their own practice and in that of others.
- Will be honest and objective when assessing the performance of those they have supervised and trained.
- Can take advantage of information technology to enhance all aspects of patient care.
- Can develop management plans for the “whole patient” and maintain knowledge in other areas of medicine which impinge on the specialty of Pediatric gastroenterology.
- Understand that effective communication between them and their patients can lead to more effective treatment and care.
- Apply appropriate knowledge and skill in the diagnosis and management of patients.
- Establish a differential diagnosis for patients presenting with medical problems by the appropriate use of the clinical history, examination and investigations.
- Are competent to perform the core investigations and procedures required in their specialties.
- Develop clinical practice which is based on an analysis of relevant clinical trials and to have an understanding of their research methodologies.
- Are able to apply the knowledge of biological and behavioral sciences in clinical practice.
- Are able to identify and take responsibility for their own educational needs and the attainment of these needs.
- Have developed the skills of an effective teacher.

3. Admission Requirements for Phase B Training:

- A. Residents who has successfully completed Phase A training and passed Phase A Final Examination in Pediatrics and Allied are eligible for enrolment in the Phase B Program.
- B. Candidates with FCPS/ MD in Pediatrics can be enrolled directly into Phase B of the residency Program.

4. Phase B Curriculum Structure:

The training is designed to develop both the generic and speciality-specific attributes necessary to practice independently as a consultant Pediatric gastroenterologist. The aim is to train individuals to provide the highest standard of service to patients with gastrointestinal disorders. This includes the development of positive attitudes towards lifelong learning and the ability to adopt to future technological advances and the changing expectations of society.

4.1 Phase B: Pediatric Gastroenterology Specialty Training:

In-depth, speciality-specific educational and training Program in this phase will make the residents competent and prepare them for the speciality qualification. It will provide educational Program covering the speciality of gastroenterology and its subspecialties, Biostatistics, Research Methodology and Medical Education along with rotation of specific clinical training.

Expected outcomes at the completion of the Phase B Program:

Residents of this training Program will be equipped to function effectively within the current and emerging professional, medical and social contexts. At the completion of the training

program in Pediatric Gastroenterology, as defined by this curriculum, it is expected that a new Pediatric gastroenterologist will have developed the clinical skills and have acquired the theoretical knowledge for competent Pediatric gastroenterology practice. It is expected that a new gastroenterologist will be able to:

- Utilize effective communication with patients and their families and with professional colleagues.
- Be devoted to life long learning.
- Be equipped to manage both acute and chronic gastrointestinal disorders.
- Identify the pathophysiology and manifestations of gastrointestinal disorders, and modern therapeutics, which can be applied to patient diagnosis and management.
- Apply appropriate skills to perform necessary diagnostic and therapeutic decisions.
- Demonstrate a capacity to rationally analyze clinical data and published work.
- Demonstrate an understanding of and commitment to the role of research in advancing medical care of gastrointestinal diseases.
- Develop a commitment to compassionate, ethical professional behavior.
- Identify gastrointestinal health issue of importance to the community and contribute constructively to debate about those issues.
- Apply primary and secondary prevention strategies in gastrointestinal and hepatobiliary diseases.

5. Teaching and Learning Methods:

The bulk of learning occurs as a result of clinical experiences (experiential learning, on-the-job learning) and self-directed study. The degree of self-directed learning will increase as

trainees become more experienced. Teaching and learning occurs using several methods that range from formal didactic lectures to planned clinical experiences. Aspects covered will include knowledge, skills and practices relevant to the discipline in order to achieve specific learning outcomes and competencies. The theoretical part of the curriculum presents the current body of knowledge necessary for practice. This can be imparted using lectures, grand-teaching-rounds, clinico-pathological meetings, morbidity/mortality review meetings, literature reviews and presentations, journal clubs, self-directed learning, conferences and seminars.

5.1 Phase B Training Rotations:

Specialty training comprises rotations in:

- Inpatients, outpatients
- Adult gastroenterology
- Adult hepatology
- Radiology and imaging
- ICDDR,B
- Ad-din hospital

6. Record of Training:

The evidence requires confirming progress through training includes:

- Details of the training rotations, the training plan agreed with weekly timetables and duty rosters and numbers of practical procedures and outcomes.
- Confirmations of attendance at events in the educational Program, at departmental and interdepartmental meetings and other educational events.
- Confirmation (certificates) of attendance at subject-based/skills-training/instructional courses.

- Recorded attendance at conference and meetings.
- A properly completed logbook with entries capable of testifying to the training objectives which have been attained and the standard of performance achieved.
- CME activity.
- Supervisor's reports on observed performance (in the workplace) : of duties, practical procedures, of presentation made and teaching activity, of advising and working with others, of standards of case notes, correspondence and communication with others.

6.1 Logbook:

Residents are required to maintain a logbook in which entries of academic/professional work done during the period of training should be made on a daily basis, and signed by the supervisor. Completed and duly certified logbook will form a part of the application for appearing in Phase B Final Examination.

7. Research:

Development of research competencies forms an important part of the Residency Program curriculum as they are an essential set of skills for effective clinical practice. Undertaking research helps to develop critical thinking and the ability to review medical literature. Every Resident shall carry out work on an assigned research project under the guidance of a recognized supervisor, the project shall be written and submitted in the form of a Thesis/ Research Report

8. Assessment:

The assessment for certification of the MD degree of the University is comprehensive, integrated and phase-centered

attempting to identify attributes expected of specialists for independent practice and lifelong learning and covers cognitive, psychomotor and affective domains. It keeps strict reference to the components, the contents, the competencies and the criteria laid down in the curriculum. Assessment includes both **Formative Assessment and Summative (Phase final) Examinations.**

8.1. Formative Assessment:

Formative assessment will be conducted throughout the training phases. It will be carried out for tracking the progress of residents, providing feedback, and preparing them for final assessment (Phase completion exams).

There will be Continuous (day-to-day) and Periodic type of formative assessment.

- **Continuous (day-to-day) formative assessment** in classroom and workplace settings provides guide to a resident's learning and a faculty's teaching / learning strategies to ensure formative lesson / training outcomes.
- **Periodic formative assessment** is quasi-formal and is directed to assessing the outcome of a **block placement** or **academic module completion**. It is held at the end of Block Placement and Academic Module Completion. The contents of such examinations include **Block Units** of the Training Curriculum and **Academic Module Units** of the Academic Curriculum.

8.1.1. End of Block Assessment (EBA):

End of Block Assessment (EBA) is a periodic formative assessment and is undertaken after completion of each training block, assessing knowledge, skills and attitude of the

residents. Components of EBA are written examination, structured clinical Assessment (SCA), medical record review, and logbook assessment. Unsatisfactory block training must be satisfactorily completed to be eligible for phase final examination

8.1.2. Formative assessment for Academic modules for Biostatistics and Research Methodology and Medical Education to be done in the first nine months of Phase B training. Residents getting unsatisfactory grade must achieve satisfactory grade by appearing the re-evaluation examination to be eligible for the Phase B Final Examination.

8.2. Summative Examination:

Assessment will be done in two broad compartments.

a) Compartment A: Consist of 3 (three) components.

1. Written Examination (Consisting of 2 papers).
2. Clinical Examination (One long and four short cases).
3. SCA and Oral (10 stations SCA, Oral one board consisting of 2 examiners).

Every Resident must pass all the 3 components of compartment-A separately. Candidates will be declared failed if he/she fails in one or more component (s) of the examination. He/she then have to appear all the 3 components in the next Phase B Final Examination.

b) Compartment B: Thesis and Thesis defense.

8.2.1. Written Examination:

Two Papers: Contents of written papers listed in Annexure II

Question type and marks:

- Two Papers (Paper I and Paper II); 100 marks each; Time 3 hrs for each paper. Pass marks-60% of total of 2 papers.

▪ **Each paper will consist of Two Groups:**

• **Group A:**

- 10 short questions (5 marks each)
- These will assess the knowledge of different level and its application

• **Group B:**

- 5 scenario based problem solving questions (10 marks for each).
- The questions should focus to assess the capability of handling clinical problem independently and comprehensively as a specialist.
- Suggested format:-
 - A scenario followed by question(s).
 - Questions may include diagnosis, differential diagnosis, investigation plan, treatment, follow up and patient education.

8.2.2. Clinical Examination: Long case and Short case:

- There will be one long case and four short cases.

i) Long case: Marks-100

- Directly observed
- Two examiners for each examinee.
- History taking and examination by the examinee – 30min.
- Discussion on the case 20 min.(presentation 6min, crossing 6x2min and decision 2min).
- Examiners will not ask any question nor stop the examinee in any way during history taking and physical examinations.
- Discussion should be done preferably as per structured format and proper weightage on different segments of clinical skills.

- ii) **Short cases : Marks-100**
- Four in number
 - Time 20-30 min. (Time will be equally divided for each short case)
 - Crossing should be done with proper weightage on different segment of clinical skills.
- iii) **Pass marks: 60% of total of Long and Short Cases**

8.2.3. Structured Clinical Assessment (SCA): Marks-100

- 10 stations : 5 min each

8.2.4. Oral Examination: Marks-100

- One board consisting of 2 examiners.
- 20 minutes (9+9+2).

8.2.5. Pass marks in SCA and Oral: 60% of total (SCA and Oral.)

8.3. Thesis Evaluation:

- **Marks: Thesis writing-200; Defense-100: Marks for acceptance-60% of total.**
- To be evaluated by 3 (three) evaluators:- 2 subject specialists and one academician preferably involve in research and teaching research methodology.
- Among the subject specialists one should be external.
- Evaluators should be in the rank of Professor/Associate Professor.
- Supervisor will attend the defense as an observer and may interact only when requested by the evaluators.
- Thesis must be submitted to the controller of Exam not later than 27 months of enrolment in Phase-B.
- Thesis must be sent to the evaluators 2 (Two) weeks prior to assessment date.
- Evaluation will cover Thesis writing and its defense.

- For thesis writing evaluator will mark on its structure, content, flow, scientific value, cohesion, etc.
- For defense – Candidate is expected to defend, justify and relate the work and its findings.
- Assessment must be completed in next 3 months.
- Outcome of the assessment shall be in 4 categories – “Accepted”, “Accepted with minor correction”, “Accepted with major correction” and “Not Accepted”.

8.3.1. Description of terms:

- **Accepted:** Assessors will sign the document and resident will bound it and submit to the Controller of Examinations by 10 days of the examination.
- **Accepted with minor correction:** Minor correction shall include small inclusion/exclusion of section; identified missing references, correction of references and typographical and language problem. This should be corrected and submitted within 2 weeks.
- **Accepted with major correction:** Task is completed as per protocol with acceptable method but some re-analysis of result and corresponding discussion are to be modified.
- To be corrected, confirmed by Supervisor and submit within 3 (Three) weeks.
- **Not Accepted:** When work is not done as per protocol or method was faulty or require further inclusion or confirmation of study.
- To complete the suggested deficiencies and reappear in defense examination during its next Phase Final Examination.
- Candidate has to submit his/her thesis and sit for examination and pay usual examination fess for the examination.

8.3.2. Residents must submit and appear Thesis defense at notified date and time. However non- acceptance of the Thesis does not bar the resident in appearing the written, clinical and oral exam.

8.4. Qualifying for MD/MS Degree:

On passing both the compartments, the candidate will be conferred the degree of MD/MS in the respective discipline. If any candidate fails in one compartment he/she will appear in that compartment only in the subsequent Phase-B exam.

9. Supervision and Training Monitoring:

Training should incorporate the principle of gradually increasing responsibility, and provide each trainee with a sufficient scope, volume and variety of experience in a range of settings that include inpatients, outpatients, emergency and intensive care. All elements of work in training rotation must be supervised with the level of supervision varying depending on the experience of the trainee and the clinical exposure. Outpatient and referral supervision must routinely include the opportunity to personally discuss all cases. As training progresses the trainee should have the opportunity for increasing autonomy, consistent with safe and effective care for the patient. Trainees will at all times have a named Supervisor responsible for overseeing their education.

Supervisors are responsible for supervision of learning throughout the program to ensure patient and/or laboratory safety, service delivery as well as the progress of the resident with learning and performance. They set the lesson plans based on the curriculum, undertake appraisal, review progress against the curriculum, give feedback on both formative and summative assessments as well as sign the logbook and

portfolio. The residents are made aware of their limitations and are encouraged to seek advice and receive help at all times.

The Course Coordinator of each department coordinates all training and academic activities of the program in collaboration with the Course Manager. The Course Director of each faculty directs, guides and manages curricular activities under his/her jurisdiction and is the person to be reported to for all events and performances of the residents and the supervisors.

10. Curriculum Implementation, Review and Updating:

Both Supervisors and Residents are expected to have a good knowledge of the curriculum and should use it as a guide for their training Program.

Since Pediatric Gastroenterology has historically been rapidly changing specialty, the need for review and up-dating of curricula is evident. The Curriculum is specifically designed to guide an educational process and will continue to be the subject of active redrafting, to reflect changes in both Pediatric Gastroenterology and educational theory and practice. Residents and Supervisors are encouraged to discuss the curriculum and to feedback on content and issue regarding implementation at Residency Course Director. Review will be time tabled to occur annually for any minor changes to the curriculum. The curriculum will be reviewed with input from the various subspecialties of Pediatrics.

11. Phase B Syllabus:

The educational process in Pediatric gastroenterology aims to provide basic knowledge, intellectual, clinical and transferable skills to produce competent gastroenterology specialist. These specialists will be capable of providing specialized care of the

highest order to Pediatric patients with gastrointestinal disorders in the community as well as clinical tertiary centers. They shall recognize the health needs of the community and carry out professional obligations ethically and keeping their standards by engaging in continuing medical education. The program also aims to introduce the candidate to the basics of scientific medical research.

11.1. Learning objectives:

A. Scientific basis of Pediatric gastroenterology

Basic Principles in gastroenterology

- Explain anatomy and physiology of alimentary system.
- Explain gastrointestinal biochemistry.
- Apply clinical skills to diagnose and manage gastrointestinal and Hepatobiliary disorders

B. Diseases and presentations

Acute and chronic diarrhoea and/or vomiting

know the causes the symptoms of acute diarrhoea and /or vomiting
Be familiar with local isolation policies
Know about oral and intravenous fluid therapy
Understand the scientific principles for oral and intravenous fluid therapy
Recognise features in the presentation which suggest serious pathology e. g. haemolytic uraemic syndrome, appendicitis, intestinal obstruction
Implement local isolation policies
Know the causes of chronic diarrhoea and / or vomiting
Be aware of the characteristics of bulimia
Be able to instigate investigations
Be familiar with unusual manifestations of diarrhoea

Be able to perform confirmatory diagnostic tests to distinguish between secretory and osmotic diarrhoea
Be able to manage patients with prolonged and/or severe diarrhoea
Be able to evaluate complex cases of malabsorption

Congenital abnormalities and the newborn

Know the presenting features of congenital abnormalities including tracheo-oesophageal fistula, malrotation, bowel atresias, Hirschsprung's disease, abdominal wall defects, diaphragmatic hernia
Be familiar with potential associated abnormalities
Know when antenatal transfer to a Neonatal Surgical Centre should be considered
Institute appropriate emergency treatment
Recognize the need to liaise with surgeons
Institute appropriate emergency treatment and be able to assess the fitness of the baby and the need to transfer to a specialist centre
Recognize when the bowel might be compromised
Recognize the need to liaise with surgeons and when this urgent
Know the full range of presenting features of congenital abnormalities of the intestinal tract
Be able to diagnose and manage care for the child with short bowel syndrome

Inflammatory bowel disease

Be familiar with uncommon and unusual manifestations of inflammatory bowel disease
Know and recognise the macroscopic and microscopic features of Crohn's disease, ulcerative colitis and indeterminate colitis
Be able to recognize common extra-intestinal manifestation of IBD
Be able to perform confirmatory diagnostic tests in IBD
Be able to manage all forms of IBD but especially severe cases including fistulas
Anticipate and manage the complications of IBD, including malnutrition, osteoporosis and dysplasia/cancer

Know the indications for surgery in IBD
Be familiar with anti-inflammatory drugs and immune suppression used to manage IBD
Be familiar with novel agent for treating IBD and possess an open attitude to their use in research protocols

Celiac disease

Know and recognize the histopathological changes in celiac disease
Know the precise level of risk, short-and long-term complications of coeliac disease
Be able to conduct a gluten challenge safely and measure adherence to a gluten free diet by endoscopy if necessary

Upper and lower gastrointestinal bleeding

Know the causes of upper and lower gastrointestinal bleeding
Understand the potentially life threatening nature of this condition
Assess the severity of the condition
Institute appropriate emergency treatment
Recognize features in the presentation which suggest serious pathology
Be able to investigate and manage upper and lower GI bleeding
Recognize and be able to resuscitate a child with a significant GI bleeding

Motility problems including gastro-oesophageal reflux and oesophagitis

Know the range of presentations of gastro-oesophageal reflux and oesophagitis in otherwise well infants children and also in disabled children
Recognize the range of signs and symptoms associated with gastro- oesophageal reflux and oesophagitis
Manage mild and moderate gastro-oesophageal reflux and recognize when to refer

Be able to manage severe gastro-oesophageal reflux disease
Be able to manage severe dysphagia
Be able to diagnose and treat H.pylori infection in young children and recurrent episodes in adolescents
Be able to perform and interpret an oesophageal pH study
Be able to administer and interpret intestinal transit studies
Know the indications for the surgical treatment of gastro-oesophageal reflux disease and how to manage complications of surgery
Pseudo obstruction

Chronic or recurrent abdominal pain

Know the possible biological, psychological and social contributing factors in chronic or recurrent abdominal pain
Know which features suggest that reassurance rather than investigation is needed
Recognize features in the presentation that suggest the importance of different aetiologies
Be able to refer appropriately to psychology when required
Consider when there might be child protection issues
Be aware of different management strategies for irritable bowel syndrome (IBS)
Be able to manage patients with IBS

Pancreatic diseases

Know about exocrine pancreatic dysfunction including cystic fibrosis and Shwachman – diamond syndrome
Know the causes of acute and chronic pancreatitis
Be able to prescribe pancreatic enzyme supplements

Infantile cholestasis

Know the cause of intra and extra hepatic cholestasis
Understand the clinical manifestations of cholestasis
Know the potential diagnoses of jaundice, particularly the differential between biliary atresia and other forms of infantile cholestasis

Understand the various genetic basis of cholestatic syndromes
Know the reasons behind nutritional deficiencies in cholestasis and chronic liver disease
Understand the clinical manifestations of nutritional deficiencies
Understand the clinical manifestations of nutritional deficiencies particularly found in liver disease
Know the special nutritional formulae and supplements and the indications for their use
Be able identify infantile cholestasis and initiate appropriate medical treatment and investigations
Be able to interpret blood, ultrasound and biopsy results and understand their importance and limitations in reaching diagnosis
Be able to identify treatable causes of infantile cholestasis such as metabolic and infectious conditions
Be able to counsel parents about the cause of cholestasis and give a realistic prognosis
Be able to recognize and assess nutritional deficiencies and manage appropriate medical treatment and investigations

Hepatosplenomegaly

Know the cause of cirrhosis
Understand the pathophysiology of portal hypertension
Know other causes of ascites
know the causes of hepatic and extra-hepatic masses
know about storage disorders
know about haematological malignancies
know about peripheral stigmata of liver cell failure
Be able to identify hepatosplenomegaly and other abdominal masses and manage appropriate treatment investigation
Be able to make a diagnosis of cirrhosis, hepatic malignancies and metabolic conditions presenting in older children
Be able to manage appropriately ascites and SBP
Be able to manage refractory ascites and SBP
Be able to recognize stigmata of liver cell failure

Viral hepatitis and Immune disorders

Understand the serology, molecular diagnostics and their prognostic value in hepatotropic viruses
Understand the screening tests used to detect hepatotropic viruses
Understand the immune basis of some liver disorders
Be able to identify viral and immune liver disorders and initiate appropriate medical treatment and investigations
Be able to interpret immunological profiles related to auto-immune liver disorders
Be able to interpret immunological profiles related to auto-immune liver disorders especially atypical patterns

Metabolic liver disease

Know the pathophysiology of metabolic conditions
Know the pathophysiology of metabolic conditions affecting the liver and recent advance in treatment
Understand the management of these conditions
Be able to discuss metabolic problems with consultants in metabolic medicine

Acute liver failure

Be familiar with the causes of acute liver failure
Be familiar with the complications of acute liver failure
Know the management of paracetamol poisoning
Know the causes of acute liver failure
Recognize the need to discuss the case with the liver unit early
Be able to assess the severity and complications of this condition
Be able to initiate appropriate resuscitation and liaise early with the Pediatric liver unit
Be able to identify acute liver failure and manage appropriate medical treatment and investigations
Be able to identify acute liver failure and initiate first line treatment whilst arranging referral to Pediatric liver transplant unit

Be able to recognize the progression of acute liver failure and the need for transplantation
Be able to recognize the progression of acute liver failure and when liver transplantation is indicated and contra-indicated
Know the causes of acute hepatic failure
Understand the clinical manifestations of acute hepatic failure
Know the pathophysiology of complications including cerebral oedema and hepato-renal syndrome
Understand the indications for liver transplantation
Understand the indications for liver transplantation and know the importance of timely involvement of the transplant team
Know about liver assist devices, dialysis and intracranial pressure monitoring

Hepatic tumor

Know about benign and malignant liver tumors
Understand investigations in liver tumors
Be able to assess a child with a hepatic tumor
Be able to initiate specialist investigations and interpret their results

Nutrition

Be able to take detailed dietary history
Know the physiology of nutrient digestion, absorption, metabolism and elimination
Know about the nutrition of the newborn, infancy, childhood and adolescent
Know about childhood growth and development
Be able to assess anthropometry
Be able to assess WHO growth standard
Know about nutritional status of children: Global and National.
Know about Breastfeeding : Anatomy, Physiology & Biochemistry
Know about Breastfeeding problems & their management
Know about Breastfeeding: Recent advances
Know about Breastfeeding management, counseling and lactation management center

Know about the importance of Breastfeeding
Know about IYCF : Complementary feeding
Know about Nutritional disorders: Chronic energy deficiency disorders, Micronutrient deficiency disorders & different kind of nutrients
Know about PEM
Be able to manage SAM
Be able to assess FTT
Know about food based dietary guidelines- Food classification, food groups demonstration, including prepared home based menus
Know about healthy food habits
Know the epidemiology, etiology and clinical features of childhood obesity
Know how to recognize, investigate and manage a case of short stature
Know the indications and contraindications for commencing enteral and parenteral nutritional supports
Know the composition of different enteral feeds, parenteral nutritional support
Understand the role of different members of the nutritional support team in the establishment and maintenance of patients receiving enteral and parenteral nutritional support
Know the causes and effects of specific nutrient deficiencies including iron, zinc, copper, selenium, folate, vitamins and essential fatty acids

Abdominal distention

Know the causes of abdominal distention
Initiate investigation and seek surgical opinion when required

Constipation with or without soiling

Be familiar with local and national guidelines for management
Know about predisposing conditions e.g. hypothyroidism, neurodisability, psychosocial problems
Understand the relevance of predisposing conditions e.g. hypothyroidism, neurodisability, psychosocial problems

Manage simple constipation with and without soiling
Recognize when to liaise with more senior Pediatricians or with specialist nurses, psychologists or psychiatrists

Dysphagia

Know the causes of dysphagia
Be able to distinguish between organic and functional dysphagia

Malabsorption

Know the causes of malabsorption including celiac disease
Understand the principles of treatment of the different types of malabsorption
Recognize the role of the dietician and to liaise appropriately
Be able to explain and initiate investigations, nutritional assessment, dietary principles and liaise appropriately with the dietician

Malnutrition

Know the causes of malnutrition including organic and inorganic causes
Be familiar with the consequences of malnutrition
Know the principles of enteral and parenteral nutrition support
Be able to assess nutritional status
Be able to initiate investigations to establish the diagnosis and to detect nutritional deficiencies

Iron deficiency anaemia

Know the causes of iron deficiency anaemia including poor diet, bleeding and malabsorption
Understand factors which predisposes to dietary iron deficiency anaemia
Be aware of the consequences of this condition
Be able to manage iron deficiency anaemia
Be able to counsel parents about preventing dietary iron deficiency

12. Contents of diseases & procedures in Year I-III:

Year-1	Year-2	Year-3
1. PEM 2. Diarrhoea 3. Viral Hepatitis a. Hepatitis A b. Hepatitis B 4. Cholestatic jaundice 5. Fluid and electrolyte imbalance 6. Acid Base Imbalance 7. Constipation 8. GERD 9. Nutritional anemia 10. RAP 11. Persistent vomiting 12. Breast feeding 13. Peptic ulcer disease 14. Anthropometry 15. Childhood growth and development 16. IYCF: Complementary feeding 17. Commonly used drugs in hepatic/ GIT diseases- Pharmacology .	1. Pancreatic diseases a. Acute pancreatitis b. Chronic pancreatitis 2. Emergency: a. Acute variceal bleeding b. Hepatic encephalopathy c. Acute liver failure d. Ascites / SBP 3. Surgical problem a. liver abscess b. Pancreatic pseudocyst c. Choledochal cyst 4. Chronic liver disease/ portal hypertension 5. Congenital abnormality of GIT: Hirschsprung's disease infantile hypertrophic pyloric stenosis 6. Nutritional status of children : Global and national 7. Nutritional disorder- chronic energy disorders, micronutrients deficiency disorders 8. Food based dietary guidelines. 9. Nutrition counseling	1. Malabsorption syndrome a. IBD b. Celiac disease c. Cystic fibrosis d. Chronic diarrhoea 2. Wilson's disease 3. Hepatic tumor 4. Storage disease 5. Abdominal TB 6. Obesity 7. FTT. 8. Short stature 9. Enteral nutrition 10. Parenteral nutrition 11. Use of food tables 12. Inborn error of metabolism

Year 1 Procedure	Year 2 Procedure	Year 3 Procedure
<ol style="list-style-type: none"> 1. Paracentesis 2. Aspiration of pleural fluid 3. Observation: <ul style="list-style-type: none"> - Liver biopsy - Endoscopy 	<ol style="list-style-type: none"> 1. Liver biopsy 2. Observation: <ul style="list-style-type: none"> - Endoscopy - HIDA - USG guided FNAC/liver biopsy - CT guided biopsy - MRCP/ERCP - Colonoscopy 	<ol style="list-style-type: none"> 1. Endoscopy <ul style="list-style-type: none"> ▪ Diagnostic <ul style="list-style-type: none"> - Endoscopic biopsy ▪ Therapeutic <ul style="list-style-type: none"> - Band ligation - Sclerotherapy 2. Colonoscopy 3. USG guided FNAC/liver biopsy 4. CT guided biopsy