European Training Requirements
for Training in Paediatric Gastroenterology, Hepatology and Nutrition

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Preface

Paediatrics is an independent medical specialty based on the knowledge and skills required for the prevention, diagnosis and management of all aspects of illness and injury affecting children of all age groups from birth to the end of adolescence, up to the age of 18 years. It is not just about the recognition and treatment of illness in babies and children; it also encompasses child health, which covers all aspects of growth and development and the prevention of disease. The influence of the family and other environmental factors also play a large role in the development of the child, and many conditions require life-long management and follow-up before a smooth transition of care to adult services.

For these reasons we believe that all doctors practising paediatric gastroenterology, hepatology and nutrition (PGHN) require a solid basic training in General Paediatrics as set out by many National Training Authorities (NTAs), and in the recommended European Common Trunk Syllabus, approved by the EAP-UEMS. This training, which should be of 3 years minimum duration, should act as a prelude to specialist training, and will underpin many of the principles set out in this specialist syllabus.

This document is an update of and replaces the previous training syllabus Paediatric Gastroenterology, Hepatology and Nutrition (PGHN) (1). Its' development has been guided by the European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHN). It sets out the minimum requirements for training in Tertiary Care PGHN. PGHN is a subsection of the Tertiary Care Group of the European Academy of Paediatrics, itself a section of the European Union of Medical Specialists (Union Européenne des Medicins Specialistes (UEMS) through the European Board of Paediatrics (EBP).

PGHN is a specialty concerned with the diagnosis and management of disorders that affect the gastrointestinal tract, pancreas and liver. Furthermore, this specialty includes care on nutrition of healthy children and nutritional support for patients, including enteral and parenteral nutrition.

Composition of the syllabus subcommittee

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Council members and Education Task Force members (in Annex)

Methodology for generating the syllabus

This document was developed by the syllabus subcommittee, with input from other ESPGHAN members, based on the previous ESPGHAN Syllabus (1), New United Kingdom Syllabus (2) and the Speciality Training Programme and Curriculum for Gastroenterology and Hepatology ("The Blue Book") (3).

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1. Introduction

This syllabus intends to:

- Harmonise training programmes in PGHN between different European countries.
- Establish clearly defined standards of knowledge and skill required to practice PGHN at the tertiary care level.
- Foster the development of a European network of competent tertiary care centres for PGHN.
- Improve the level of care for children with PGHN.

2. Aim of tertiary care training

The aim of tertiary care training in PGHN is to provide training to allow competent practice by a Tertiary Care Specialist whose practice would be expected to deal with complex problems in PGHN. Tertiary care training in PGHN can only be completed and certified in addition to successful completion of an at least 3 years training in General Paediatrics.

- Management of inflammatory bowel disease (IBD)
- Management of acute, chronic diarrhoea and congenital and acquired conditions causing maldigestion and malabsorption
- Management of gastrointestinal (GI) anomalies requiring surgical treatment in early infancy
- Management of the life-threatening GI conditions
- Management of upper GI disease
- Management of nutrition allergies and GI eosinophilic diseases
- Functional gastrointestinal disorders
- Motility disorders
- Management of polyps and tumours
- Management of anorectal disease
- Management of acute liver failure
- Management of chronic and end-stage liver disease and the associated complications
- Management of different conditions of infantile cholestasis
- Management of liver transplantation process

- Management of acute and chronic diseases of pancreas
- Nutrition in healthy children
- Management of the complex nutritional needs requiring nutritional support
- Management of all aspects of reversible and irreversible intestinal failure
- Provision and interpretation of GI diagnostic and therapeutic procedures

End Result of Training

The training programme aims to develop fully competent Tertiary Care Paediatricians specialized in PGHN and therefore capable of delivering complete care for the conditions outlined below.

The Tertiary Care PGHN, at the end of training, should:

- Provide clinical care within the framework of a specialised Tertiary Care Unit in the inpatient/outpatient setting using various specialised diagnostic and therapeutic modalities.
- Liaise with the appropriate laboratories and similar departments.
- Liaise with colleagues in Secondary Care Paediatrics in the provision of high quality local care.
- Liaise with and consult other Tertiary Care Specialists.
- Develop an integrated pattern of care with colleagues in the Adult Speciality and Genetics.
- Be trained in Clinical Research Practice and capable of conducting/establishing a Research Programme.
- Lead on health administrative issues and research activities.

3. Training period

Clinical training

A medical doctor who has successfully completed his/her training of at least 3 years in general paediatrics will be eligible for access to further PGHN specialist training. A clinical training period of full-time employment of at least 24 months, preferably uninterrupted, is considered adequate, but in some countries a longer training may be found.

4. Research training

Whereas there are no active guidelines at present for prosecution of a research programme within the European Syllabus of tertiary training, research training (clinical or laboratory based) of at least 6 months is highly recommended. Details will need to be determined at the national level.

5. Requirements for Training Institutions

The recognition of training institutions will ultimately be part of a joint process involving NTAs, EAP-UEMS and the specialist society. It is anticipated that PGHN will act as the agent for EAP-UEMS and CESP in executing this task. A list of the names and characteristics of existing national training centres will be created and held by PGHN and EAP-UEMS which will

oversee quality assurance of the recognised centres at periodic intervals every 5 years using the guidelines suggested by the UEMS.

Accreditation of Centres

For each EU Member country, a list of centres, units, training directors, tutors and teachers should be compiled and updated on an annual basis. Each centre is characterised by the available modules or areas of teaching activity, tutors and teachers available and the size of the clinical practice as defined by the needs of the trainee.

Accreditation will initially be given by the NTA and ultimately approved by EAP-UEMS. The approval process will follow the EU Guidelines (currently in preparation). At present PGHN will simply review National Inspections and act as arbiter in situations of disagreement.

A training centre can be a single institution or a group of related establishments.

Full Training Centre

The centre must provide adequate experience in all fields of PGHN including emergency care. It is expected to provide all Training modules. The number of activities must be sufficient to provide at least a minimum experience for a trainee.

A group of related establishments can be considered a centre and each component considered as a unit contributing one or more modules.

The centre must have easy access and close relationships with other relevant specialities involved in PGHN.

Demonstration of involvement of other care teams particularly specialised nurses, paediatric nutritionists, physiotherapists, social workers, PGHN and psychologists is essential for recognition. The centre must provide evidence of on-going clinical research and access to basic research. In countries that have approved centres for PGHN care then the Full Training Centre must be one of these.

The centre will be responsible for weekly clinical staff/seminar teaching and participation in regional/national meetings. Basic textbooks in PGHN should be immediately available and there should be easy access to a comprehensive reference library either in paper or electronic format.

Training Unit

Training Units are institutions that provide training in one or more aspects (Modules). They must provide adequate exposure in the defined area and a teacher who is deemed competent in these areas.

6. Requirements for Trainers in PGHN

The training staff in a Centre needs to include at least two trainers qualified in PGHN with specialist accreditation. The Training Program Director (TPD) must have been practising PGHN **for at least 5 years**.

There should be additional Educational Supervisors/Trainers who should provide training across all aspects of the speciality and be research active in PGHN. When an aspect of training cannot be provided in one centre it will be necessary for the trainee to be taught at another suitable centre by a trainer approved for that purpose.

A Trainer is a person who holds acknowledged expertise in one or several aspects of PGHN. This person's contribution may be restricted to these areas of expertise. Both educational supervisors and trainers must have practised PGHN for a **minimum of 2 years**.

Trainers should work out a training programme for the trainee in accordance with the trainee's own qualities and the available facilities of the institution. Regular review will be required to allow for flexibility and for early identification of problems/deficiencies. The trainer should work with the Trainee to create a Personal Development Plan (PDP).

Trainers are expected to provide appraisal and assessment of progress. Appraisal consists of determining what is needed and what evidence is required to show that this has been achieved. Assessment evaluates progress against objectives. Trainee assessment should be provided in terms of:

- Training and career ambitions
- Training experience related to syllabus
- Achievements related to current plan

In order to provide a close personal monitoring of the trainee during his/her training, the number of trainees should not exceed the number of teachers in the centre.

Trainers will meet the trainee at the beginning of the programme to define the educational contract for that trainee. Reviews of progress should take place at 3 monthly intervals during the first year of training to appraise the individual.

An annual assessment should be undertaken, ideally at a National level, to review competencies achieved and to allow progress within the teaching programme. Assessments should be detailed and contain statements of theoretical and practical experience accumulated by the trainee. It is expected that the trainee will also provide an account of the training received and problems encountered (portfolio). Reports will be submitted to the TPD or national body.

7. Requirements of Trainees

In order to gain the necessary experience each trainee should be actively involved in the management care of a range of patients during the whole period of his/her speciality training. This should include the care of outpatients, inpatients (including emergency admissions) and community care where appropriate.

Many countries have recently reformed their postgraduate medical education. New pedagogic initiatives and blueprints have been introduced to improve quality and effectiveness of the education in line with outcome-based education using the CanMEDS framework. Competency based assessment, as an adjunct to knowledge assessment and portfolio completion, is an important aspect of evaluation.

CanMEDS consists of the following competencies

- Medical expert: integration of all CanMED roles applying medical knowledge, clinical skills and professional attitudes
- Communicator: effectively facilitates doctor-patient relationship and dynamic exchanges before, during and after medical encounter
- Collaborator: effectively work within healthcare system to achieve optimal patient care
- Manager/integral participant in health care organisations, allocating resources and contributing to health care system
- Health advocate: responsibly use expertise and influence to advance the health of individual patients, communities or populations
- Scholar: demonstrates lifelong commitment to reflective learning and to creation, dissemination, translation of medical knowledge
- Professional: committed to the health and wellbeing of individuals and society through ethical practice, professional led regulation and high personal standards of behaviour.

Log-book

The trainee should keep a written log-book of patients they have seen, procedures conducted, diagnosis and therapeutic interventions instigated and followed-up. This will constitute part of their portfolio.

The trainee will be required to keep his/her personal logbook or equivalent up-to-date according to National guidelines and European Union directives. The logbook must be endorsed by his/her tutor or authorised deputy. The trainee should attend and provide evidence of attendance at local, regional and national meetings.

Attendance at International Meetings is considered essential for Tertiary Care training. It is recommended to give at least 2 - 3 presentations at these meetings. Attendance at summer schools or other educational training schools is strongly encouraged.

Competency assessment

Competencies should be evaluated throughout the training period. There are a number of different tools for this, describing different aspects of training. Some of these are set out

below with a recommendation for the number that should be completed during each year of training. Formal and informal reflection on these assessments is an important aspect of their success.

Assessment	Purpose	Method
MiniCeX (Mini clinical examination)	Provides feedback on skills needed in clinical care	Trainer observes a trainee examining a patient and explaining the management plan to the parents
CbD (Case based discussion)	Assesses clinical reasoning or decision making	Trainee presents a more complex case to the trainer and has a discussion about the evidence or basis for diagnosis or treatment.
DOPS (Directly observed procedural skills)	Assesses practical skills	Trainee undertakes a practical skill whilst being observed
LEADER	Focuses on leadership skills	A trainee is observed leading a team (eg during a resuscitation)
HAT (Handover assessment tool)	Evaluates handover skills	Handover episodes are supervised and discussed
DOC (Discussion of correspondence)	Assesses letter writing skills	Clinic letters or discharges are reviewed and discussed
MSF (Multi-source feedback)	Provides wider feedback on the performance of the trainee	Confidential comments from a wide range of colleagues, patients and the trainee are sought

Knowledge base

A knowledge-based examination will be provided at the European level, planned and executed by ESPGHAN with an option of having a knowledge-based examination provided at the level of National Board.

Participation in Audit project

The trainee should conduct at least one systematic style review of a topic and in addition prepare a detailed evidence-based appraisal of a diagnostic test or a therapeutic intervention, although there is no obligation to have this published.

8. Content Table

a. Specialty specific skills

Degree of knowledge required:

H = HIGH	Up to date scientific knowledge
B = BASIC	Specialty textbook

Table 1: Summary of principles tertiary care paediatric PGHN:

A	**BASIC KNOWLEDGE**	
1.	Anatomy (gross and microscopic) of the liver, pancreas and gastrointestinal tract	H
2.	Embryology of the liver, pancreas and gastrointestinal tract	B
3.	Biochemistry, especially GI hormones, enzymes and neurotransmitters	H
4.	Hepatic metabolism and transport, biliary physiology and pathophysiology	H
5.	Cellular turnover, growth, differentiation and death	B
6.	Mucosal immunity and immunology	H
7.	Physiology including motility, digestion, absorption and secretion	H
8.	Physiological and other changes in the GI tract and liver associated with growing	B
9.	Basic knowledge in genetics and applied PGHN genetics.	B
B	**BASIC SKILLS**	
1.	Establishing an appropriate atmosphere and putting the patient and parents/caregivers at ease and at the centre of the consultation	H
2.	Understanding the need to deliver compassionate care	H
3.	Taking an appropriate medical history	H
4.	Performing a thorough physical examination	H
5.	Considering initial diagnosis and differential diagnosis	H
6.	Arranging appropriate, cost-effective and ethical diagnostic investigations	H
7.	Reaching diagnostic conclusions	H
8.	Communicating diagnostic results and possible treatment options clearly to parents/caregivers and patients taking into consideration the patient's age in language that they all understand	H
9.	Understanding the particular needs of adolescents with regard to their independence and autonomy, compliance with treatment, and how this affects management of chronic conditions	H
10.	Considering various treatment options	H
11.	Obtaining help or second opinions from colleagues or other health professionals	H
12.	Prescribing or recommending therapies or procedures	H
13.	Providing sensitive and empathetic emotional support allowing efficient consultation time	H
14.	Understanding principles of evidence-based medicine including implications for clinical practice	H
15.	Understands adolescent medicine and knowledge of how to manage the process of transition and transfer to adult care	H
C	**BIOSTATISTICS**	
1.	Application of parametric and nonparametric statistics	B
2.	Statistical modelling	B
3.	Principles of screening and surveillance programmes	B
4.	Study design	B
5.	Evidence based PGHN	B
6.	Critical appraisal of literature principles of systematic reviews	B

D	**MANAGEMENT SKILLS**	
1.	Personal management including time management	B
2.	Understanding the need for a multidisciplinary approach (collaboration with paediatric histopathologists, paediatric radiologists, paediatric psychotherapists, paediatric surgeons etc.)	B
3.	Understanding that investigations may be unpleasant, painful, or frightening and that child and parents must be counselled in advance	B
4.	Understanding issues around transition from paediatric to adult care, and being able to contribute effectively to transitional care services	B
5.	Ethical behaviour – understanding ethical aspects in diagnostic procedures, treatment and support of patients but also ethical aspect of the research conduct and reporting	B
6.	Clinical governance	B
7.	Awareness and understanding of legal frameworks and obligations	B
8.	Understanding and importance in the teaching of colleagues and students	B
9.	Knowing how to perform a clinical audit	B
10.	Research management • Be able to understand and interpret research results • Participating in research • Developing the skills to conduct research in the future • Recognize possible research biases • Be able to present research at the international PGHN scientific meeting • Develop skills to write scientific paper • Develop skills to write research grant proposal • Knowledge about and application of consensus and recommendations in clinical practice	B
E	**EDUCATION**	
1.	Defining aims of teaching course/programme/lecture	B
2.	Targeting different audiences	B
3.	Preparation of teaching material	B
4.	Distance based learning using web sites	B
F	**GASTROENTEROLOGY DISORDERS**	
I	**Management of inflammatory bowel disease (IBD)** *Including:* • *Crohn's disease* • *Ulcerative colitis* • *IBD-U*	
1.	Incorporates knowledge of basic sciences relevant to IBD in order to understand and manage the disease	B
2.	Understands appropriate endoscopic, pathophysiological and radiological investigations to diagnose IBD	H
3.	Identifies relevant differential diagnoses (infections; functional disorders; food allergic colitis; eosinophilic colitis; vasculitis; immune dysregulation; chronic granulomatous disease and Behçet's disease)	H

4.	Knows and uses classifications of IBD eg the Paris classification	H
5.	Knows how to assess the severity of IBD using disease activity and endoscopic scores	H
6.	Understands effective treatment strategies including nutritional therapy, aminosalicylates, corticosteroids, immune modulation, and biologic treatment	H
7.	Understanding side effects of drugs used in treatment of IBD	H
8.	Knows how to perform and interpret a nutritional assessment and plans nutritional intervention together with a dietitian	H
9.	Formulates an individualised treatment plan and monitoring schedule to check for treatment efficacy and potential side effects	H
10.	Identifies the potential risks of drug treatment and recognises the adverse effects	H
11.	Uses antibiotics appropriately when needed	H
12.	Recognises the potential complications of IBD, including surgical complications (e.g. intra-abdominal mass, abscess, perforation, strictures and fistulae), malnutrition, growth failure, delayed puberty and extra-intestinal manifestations	H
13.	Advises about vaccination	H
14.	Knows when to start cancer surveillance	H
15.	Knows how to treat perianal disease	H
16.	Knows how to recognise flare of the disease and takes appropriate action to adjust treatment as necessary, including referral for surgery and the involvement of other healthcare professionals	H
17.	Understands adolescent medicine and knows how to manage the process of transition and transfer to adult gastroenterology	H
18.	Understanding specific approach to very-early onset IBD patients including consideration of possible monogenic diseases in differential diagnosis	H
19.	Knows how to interpret and contextualise commonly used diagnositic tests eg TPMT, 6TG, faecal calprotectin and anti-tnf levels and antibodies	H
20.	Knows how to investigate, diagnose and treat anaemia associated with IBD	H
II	**Management of acute, chronic diarrhoea and congenital and acquired conditions causing maldigestion and malabsorption** *Including:* • *Acute viral gastroenteritis* • *Bacterial, parasitic and helminthic infections of the small intestine* • *Coeliac disease* • *Early onset protracted diarrhoea (congenital enteropathies, transport disorders, protein-losing enteropathies)* • *Protracted diarrhoea caused by immune dysregulation* • *Pancreatic exocrine insufficiency*	
1.	Recognises the mechanism and knows how to distinguish between secretory and osmotic diarrhoea	H
2.	Be able to assess dehydration and start management of acute gastroenteritis	H
3.	Diagnosis and treatment of bacterial, parasitic and helminthic infections of the small intestine	H
4.	Knows causes of acute gastroenteritis taking into account local disease incidence	H
5.	Recognises and manages the causes of early-onset protracted diarrhoea (including genetic conditions):	B

	• Congenital enteropathies: microvillus inclusion disease, tufting enteropathy and phenotypic diarrhoea
	• Transport disorders including acrodermatitis enteropathica, glucose-galactose malabsorption, and sucrase-isomaltase deficiency
	• Congenital protein-losing enteropathies (e.g. congenital lymphangiectasia or congenital disorders of glycosylation) or acquired (e.g. post-Fontan procedure)
	• Diarrhoea caused by immune dysregulation:
	  • Congenital (e.g. immunoglobulin deficiency, immunodysregulation polyendocrinopathy enteropathy X-linked syndrome [IPEX], severe combined immunodeficiency [SCID] and Omenn syndrome/Hyper IgE syndrome)
	  • Acquired – secondary to other diseases or treatments (e.g. post-organ transplant or due to human immunodeficiency virus [HIV] infection)	

6.	Recognizes and manages secretory diarrhoea, including that due to infection, congenital but also hormone-secreting tumours such as a VIPoma, mucosal compromise due to gut ischaemia	H
7.	Recognises the presenting features of coeliac disease • Knows the appropriate investigations to diagnose coeliac disease: interpretation of serological tests, the indications for endoscopy and interprets histopathological classification, role of genetics in CD diagnosis • Knows the nutritional aspects of the gluten-free diet • Recognises the importance of adherence to a gluten-free diet in coeliac disease • Recognise the key points for patient follow up focusing on compliance and monitoring for complications • Knows how, when and why to perform a gluten challenge • Understands advises on the testing of other family members for coeliac disease • Understands psychosocial and financial burden of restrictive gluten free diet	H
8.	Manages pancreatic exocrine insufficiency including cystic fibrosis, chronic pancreatitis, Shwachman-Bodian-Diamond syndrome, and mitochondrial disease (e.g. Pearson's syndrome)	H
III	**Management of GI anomalies requiring surgical treatment in early infancy** *Including:* • *Abdominal wall defects* • *Oesophageal atresia +/- tracheoesophageal fistula* • *Duodenal obstructions* • *Intestinal atresia* • *Anorectal anomalies* • *Pyloric stenosis* • *Hirschsprung's disease* • *Meconium ileus and distal intestinal obstruction syndrome* • *Vascular abnormalities of the GI tract and liver*	
1.	Understands possible genetic causes or associations of congenital GI anomalies	B
2.	Be able to collaborate with surgeons regarding diagnosis, treatment, possible complications and follow up	H
3.	Be able to advise on postoperative management	H

IV	**Management of the life-threatening GI conditions** *Including:* • *Gastrointestinal bleeding* • *Diseases requiring imminent surgical treatment*	
1.	Knows how to assess severity of bleeding	H
2.	Applies the principles of fluid resuscitation	H
3.	Arranges endoscopy at the appropriate time	H
4.	Participates in interventional upper gastrointestinal endoscopy (with variceal banding +/-sclerotherapy)	H
5.	Knows methods to secure haemostasis	H
6.	Recognises the signs of re-bleeding and liaises with other disciplines such as interventional radiology or surgery	H
7.	Applies an understanding of the role of pharmacotherapy in managing acute gastrointestinal bleeding	H
8.	Advises other centres on how to initiate first-line treatment for gastrointestinal bleeding and when it is safe to transfer the child to another centre for definitive treatment	H
9.	Knows the causes of intestinal obstruction and mechanical ileus	H
10.	Knows the differential diagnosis and is able to investigate a patient with acute abdominal pain (including acute appendicitis, perforation, intussusception etc.)	H
11.	Knows the differential diagnosis of bilious vomiting	H
12.	Is able to differentiate and investigate abdominal masses	H
13.	Is able to recognize and diagnose bowel ischemia together with possible causes	H
V	**Management of upper GI disease** *Including:* • *Oesophageal disorders caused by caustic agents, medications and trauma* • *Foreign body oesophageal impaction* • *Diagnosis and management of oesophageal strictures* • *Helicobacter pylori infection* • *Other causes of gastritis* • *Peptic ulcer disease*	
1.	Knows how to diagnose and understands treatment modalities in oesophageal disorder caused by caustic agents, medications, infection and trauma	H
2.	Recognizes the importance of an early diagnosis and management of oesophageal impaction by foreign body	H
3.	Knows causes of oesophageal strictures and stenosis and recognize treatment options	H
4.	Understands *Helicobacter pylori* infection and its clinical implications	H
5.	Knows how and when to diagnose and treat *H. pylori* infection	H
6.	Recognizes differential causes of gastritis and peptic ulcer disease (PUD) (e.g. H pylori infection, other infections, IBD, hypersecretory state, immune related etc.)	H
7.	Knows how to diagnose and treat PUD	H
VI	**Management of nutrition allergies and GI eosinophilic diseases**	
1.	Knows and recognizes symptoms of food allergy in all age groups	H
2.	Applies algorithm to diagnose food allergy	H
3.	Knows nutritional treatment strategy for the food allergy in all age groups including specifically cow's milk protein allergy	H

4.	Recognizes symptoms of eosinophilic oesophagitis in all age groups	H
5.	Understands endoscopic and pathological criteria for the diagnosis of eosinophlic oesophagitis and other eosinophilic GI disorders	H
6.	Knows nutritional and medical treatment options for eosinophlic oesophagitis and other eosinophilic GI disorders	H
VII	**Manages functional gastrointestinal disorders** *Including:* • *Infantile regurgitation* • *Infantile colic* • *Aerophagia* • *Rumination* • *Functional abdominal pain* • *Irritable bowel syndrome (IBS)* • *Abdominal migraine* • *Functional dyspepsia* • *Cyclic vomiting syndrome* • *Functional constipation*	
1.	Describes the brain–gut axis and the role of psychological factors in the pathogenesis of symptoms	H
2.	Recognises the contribution of disordered gastrointestinal motility to patients' symptoms	H
3.	Recognises the full spectrum of functional gastrointestinal disease across all age groups	H
4.	Involves patients in deciding among treatment options, self-management and how and when to refer to clinical psychology	H
5.	Manages the causes of constipation and can distinguish between idiopathic and secondary constipation	H
6.	Manages the syndromes of disordered defecation including infant dyschezia, retentive constipation and spurious diarrhoea; understands the range of treatment	H
7.	Recommends effective and judicious use of laxatives according to guidelines and coordinates ongoing care	H
8.	Recognises differential diagnosis, e.g. Hirschsprung's disease	H
VIII	**Motility disorders** *Includes:* • *Gastro-oesophageal reflux* • *Oesophageal dysmotility* • *Gastric dysmotility* • *Slow-transit constipation* • *Chronic intestinal pseudoobstruction (CIPO)*	H
1.	Describes the enteric nervous system and understands its function	B
2.	Demonstrates an understanding of the range of factors that control gastrointestinal motility	B
3.	Makes a differential diagnosis of nausea and vomiting and knows how to investigate the symptoms.	H
4.	Recognises that bilious vomiting may reflect a surgical problem (e.g. malrotation or volvulus), a congenital cause (e.g. web or malrotation)	H

5.	Makes a thorough clinical assessment of gastro-oesophageal reflux and esophagitis in patients across all ages, including in children and young people with neurodisability	H
6.	Interprets results of pH and impedance monitoring	H
7.	Manages the relationship of reflux to pharyngeal, laryngeal and respiratory symptoms as well as oesophagitis	H
8.	Discusses the medical treatment options for gastro-oesophageal reflux disease	H
9.	Recognises indications for surgery in patients with GORD; describes the potential complications of surgery	H
10.	Assesses a patient with dysphagia, including the use of endoscopy, contrast studies, and manometry where appropriate, and manages the condition appropriately	H
11.	Recognizes and manages achalasia	H
12.	Knows and recognises organic causes of constipation (including slow-transit constipation)	H
13.	Manages a patient with gastric dysmotility	H
14.	Knows how to recognize, diagnose and manage chronic intestinal pseudo-obstruction (CIPO) (including possible genetic cause)	B
15.	Recognises indications for specialist testing in specific situations eg gastric emptying studies, small bowel scintigraphy and colonic manometry	H
IX	**Management polyps and tumours** *Including:* • *Intestinal polyp* • *Polyposis syndromes* • *Small intestinal lymphoma* • *Other intestinal tumours*	
1.	Manages the different types of bowel polyps including the management of premalignant conditions	H
2.	Applies the principles of screening and surveillance in polyposis syndromes including familial adenomatous polyposis, juvenile polyposis syndrome, Peutz–Jeghers syndrome	H
3.	Understands risk factors and diagnostic procedures of intestinal malignancies	H
4.	Collaborates with the haematologist and oncologists for management of intestinal malignancies	H
5.	To view and if possible undertake endoscopic polyp removal in a patient	H
X	**Management of anorectal disease** *Including:* • *Mucosal rectal prolapse* • *Haemorrhoids* • *Fissure* • *Perianal fistula* • *Pruritus ani* • *Proctitis* • *Rectal Bleeding*	
1.	Understands differential diagnosis of anorectal disease including PR bleeding	H
2.	Recognises treatment options for anorectal disease	H
G	**DISORDERS OF LIVER AND PANCREAS**	
I	**Interpretation of liver test abnormalities**	

1.	Demonstrates knowledge of the basics in liver testing	H
II	**Management of acute liver failure** *Including:* • *Acute liver failure* • *Acute on chronic liver failure*	
1.	Demonstrates knowledge of the causes and clinical manifestations of acute liver failure	H
2.	Knows how to investigate for the different causes of acute liver failure	H
3.	Knows the initial management of acute liver failure patient until the transfer to a liver unit	H
4.	Knows indications and contraindications for liver biopsy in acute liver failure	H
5.	Understands the pathophysiology of complications	H
6.	Liaises with intensivists, liver transplant surgeons and transplant co-ordinators	H
7.	Knows about the extracorporeal liver support devices	B
III	**Management of chronic and end-stage liver disease and the associated complications** *Including:* • *Cirrhosis* • *Portal hypertension* • *Autoimmune liver disease* • *Sclerosing cholangitis* • *Gallbladder stones* • *Metabolic liver disease (including Wilson's disease, alpha-1-antitrypsin deficiency, cystic fibrosis)* • *IFALD* • *NASH/NAFLD* • *Outlet obstruction syndromes (Budd-Chiari syndrome)* • *Viral hepatitis* • *Toxic liver disease*	
1.	Understands the clinical presentation and complications of chronic liver disease	H
2.	Explains the pathophysiology, clinical picture and presentation of portal hypertension	H
3.	Understands pathophysiology of portal hypertension and its complications	H
4.	Knows diagnostic procedures in portal hypertension	H
5.	Knows the risk for upper GI bleeding and management strategy	H
6.	Understands the different causes of ascites in children with liver disease and knows treatment options for ascites and spontaneous bacterial peritonitis	H
7.	Understands the indications and contraindications for a transjugular intra-hepatic portosystemic shunt (TIPS) or surgical shunt surgery in children with portal hypertension	H
8.	Understands metabolic diseases affecting the liver	H
9.	Understands diagnostic procedures and treatment of autoimmune liver disease (including cholangitis)	H
10.	Understands risk factors for intestinal failure associated with liver disease (IFALD)	H
11.	Interprets diagnostic tests for hepatotropic viruses and is aware of available treatment options for viral hepatitis B and C	H
12.	Manages the liver complications of immunodeficiency, including the post chemotherapy	B

13.	Identifies the various presentations of hepatic vascular abnormalities	H
14.	Understands patho-mechanism, presentation and treatment options of hepatic outflow obstruction (Budd–Chiari syndrome and veno-occlusive disease)	H
15.	Explains the causes and complications of gallbladder stones	H
16.	Understands clinical picture, diagnostic procedures and treatment options of cholangitis	H
17.	Recognizes and manages fatty liver disease including NASH	H
18.	Understands differential diagnosis of liver masses, be able to initiate the diagnostic in liver masses and liaises with oncologist (if liver tumours)	H
19.	Recognises and objectively assesses nutritional deficiencies in children with chronic liver disease, and understands the indications for enteral or parenteral support and their limitations	H
20.	Manages investigation of persistently raised transaminases in a child	H
IV	**Management of different conditions of infantile cholestasis** *Including:* • *Biliary atresia* • *Progressive familial intrahepatic cholestasis* • *Alagille syndrome* • *Choledochal cysts*	
1.	Knows the causes, pathophysiology and possible genetic basis of intra- and extra-hepatic cholestasis	H
2.	Understands the importance of appropriate investigations and a medical treatment for infantile cholestasis	H
3.	Understands the urgent need for certain cases of infantile cholestasis to be referred to a liver centre	H
4.	Interprets liver biochemistry, ultrasound and other imaging findings and biopsy results in infantile cholestasis and understands their importance and limitations in helping to reach a diagnosis	H
5.	Manages children with biliary atresia and understands the principles of the Kasai porto-enterostomy	H
6.	Knows how to treat cholangitis, pruritus and failed bile drainage in children post-Kasai	B
7.	Knows how to assess the need for liver transplant	H
8.	Manages pruritus secondary to liver disease	H
9.	Understands indications and contraindications for different types of biliary diversion surgery	H
10.	Advises on the management of children with pathological causes of unconjugated jaundice and understands the associated risks	H
11.	Recognises and objectively assesses nutritional deficiencies in cholestatic children and competently manages those deficiencies	H
V	**Management of transplantation process**	
1.	Discusses the principles of patient selection for liver transplantation	H
2.	Understands the importance of the timely inclusion into the transplant team	H
3.	Explains the indications and contraindications for liver transplant	H
4.	Plans the process of transplant assessment	H
5.	Has the knowledge of immunosuppressive drugs used in transplantation including side effects	H
6.	Identifies and manages transplant-related complications	H
7.	Be able to manage the care of patients in the post-transplant period	B

VI	**Pancreas** *Including:* • *Acute pancreatitis* • *Chronic pancreatitis* • *Cystic fibrosis* • *Pancreatic exocrine insufficiency* • *Congenital causes of pancreatic dysfunction*	
1.	Identifies the aetiology and the potential complications of acute and chronic pancreatitis	H
2.	Provides nutritional support to patients with chronic or acute pancreatic disease	H
3.	Recognizes common and uncommon causes of pancreatic exocrine insufficiency	H
4.	Knows diagnostic procedures for cystic fibrosis including genetic testing	H
5.	Recognises short- and long-term complications of cystic fibrosis	H
6.	Collaborates with other subspecialties in the treatment of cystic fibrosis	H
7.	Monitors the potential effects of pancreatic exocrine insufficiency and manages pancreatic enzyme replacement therapy	H
8.	Knows appropriate indications for intervention methods (ERCP incl. sphincterotomy, stent placement etc.)	H
H	**NUTRITION**	
I	**Nutrition in healthy children** *Including:* • *Nutritional requirements* • *Nutrition in infancy: breastfeeding, formula feeding, complementary feeding* • *Nutritional assessment including body composition assessment* • *Growth charts* • *Malnutrition* • *Overweight - Obesity*	
1.	Know the physiology of nutrient digestion, absorption, metabolism, and elimination	B
2.	Be able to estimate daily energy requirements taking into account RMR/BMR (e.g. equations), physical activity level, stress factor and losses	H
3.	Knows the human milk composition and understands importance of breastfeeding its positive effects and strategies of how to increase rate of breastfeeding	H
4.	Understands different formulations of infant and follow on formula	H
5.	Understands indications for specific infant formula	H
6.	Knows all aspects of complementary feeding (including baby-led weaning and vegetarian/vegan complementary feeding)	H
7.	Understand assessment of feeding ability	H
8.	Discusses the normal nutrient requirements of growing infants and children	H
9.	Knows the techniques for measuring dynamic nutritional needs (e.g., resting energy expenditure)	H
10.	Can perform a nutritional assessment (with appropriate tools) and dietary assessment; this includes knowledge of the clinical, anthropometric, haematological and biochemical indices of nutritional status including assessment of body composition	B

11.	Knows how to interpret results of nutritional assessment	H
12.	Know the different types of growth charts available and how to use them	H
13.	Applies knowledge of the aetiology and the clinical consequences of under- and overnutrition (obesity) in the infant, child and adolescent to its management.	H
14.	Be able to interpret a dual-energy x-ray absorptiometry bone densitometry result	B
15.	Understand the role of nutritional support teams in hospital and community settings, and the roles of individual team members including when to refer patients to a dietician	H
16.	Basic knowledge of gut microbiota and EBM related with "probiotic" treatment of diseases.	B
II	**Management of the complex nutritional needs requiring nutritional support** *Including:* • *Nutritional support* • *Enteral nutrition (including formula, type and mode of delivery)* • *Basics of parenteral nutrition* • *Feeding disorders* • *Nutritional support in different diseases* • *Complication of nutritional treatment*	
1.	Identifies any patients with faltering growth, significant weight loss or those who require complex nutritional support	H
2.	Understands methods of nutritional support and their use	H
3.	Discusses special infant formulae and the indications for their use, including feeding composition and feeding in special circumstances (e.g. feeding preterm infants and patients with renal, cardiac, liver and metabolic diseases).	H
4.	Understands principles and mainstream approaches to manage malnutrition (both disease and starvation associated malnutrition) (e.g dietary counselling, fortification, supplementation, enteral nutrition, parenteral nutrition)	B
5.	Balances the benefits and risks of the methods of giving artificial nutritional support, including the indications and complications of enteral nutrition.	H
6.	Understands modality of enteral nutrition	H
7.	Understands indications for nasogastric and nasojejunal feeding	H
8.	Understands benefits and risks of insertion of a gastrostomy tube or device for feeding	H
9.	Recognise and manage feeding disorders, including anorexia nervosa and bulimia	B
10.	Provides specific and personalized diets in overweight and obese children and plan long-term follow up	B
11.	Provides nutritional support to children with neuro-disabling conditions	H
12.	Manages conditions that lead to abnormal energy requirements (e.g. cardiac, critical illness or oncology patient).	B
13.	Understands the ways by which acute and chronic illness can affect nutritional status and nutritional requirements	H
14.	Understands nutritional needs in patients with liver disease	H
15.	Nutrition in cystic fibrosis and exocrine pancreatic insufficiency	H
16.	Manages post-surgical patients	H
17.	Understands the different nutritional needs in children with jejunostomy, ileostomy or colostomy	H

18.	Assesses dietary intake and requirements in patients with IBD and provides nutritional support to maintain normal growth	H
19.	Knows how to provide exclusive enteral nutrition in Crohn's disease.	H
20.	Prescribes a gluten-free diet, ensures compliance and monitors children with coeliac disease	H
21.	Provides nutritional support in children with single and multiple food allergies, and oversees nutritional management including dietary exclusions and substitutions	H
22.	Provides dietetic treatmenr in patients with eosinophilic esophagitis	H
23.	Identifies who is at risk of refeeding syndrome and how to minimise and manage such risks	H
24.	Applies the ethical and legal implications of provision, withdrawal and withholding of artificial nutrition support to advocate	B
III	**Management of the all aspects of reversible and irreversible intestinal failure** *Including:* • *Intestinal failure including (e.g. congenital enteropathies, short bowel syndrome)* • *Parenteral nutrition*	
1.	Identifies the need for parenteral and enteral nutrition in intestinal failure	H
2.	Knows how to balance provision of enteral and parenteral nutrition in patients with intestinal failure, and monitors the safety and efficacy of parenteral nutrition	B
3.	Knows how to prescribe enteral nutrition in intestinal failure related to the type of the disease	B
4.	Assesses nutritional/fluid requirements and prescribes appropriate and individualised amounts of parenteral nutrition with the team	B
5.	Knows venous access types for provision of parenteral nutrition and the indications for the insertion of tunnelled central venous catheters	H
6.	Recognises congenital gut disorders (e.g. enteropathies, transport disorders, immune dysregulation and severe motility disorders) and acquired pathologies (e.g. short bowel syndrome) that may require nutritional support	H
7.	Understands origin of symptoms in short bowel syndrome related to remnant length and type of intestine	H
8.	Together with intestinal rehabilitation team manages the fluid, electrolyte and micronutrient disturbances associated with short bowel syndrome, high output stomas, enteropathies and protracted diarrhoea of infancy	B
9.	Identifies the indications for and appropriate timing of non-transplant surgical options in patients with short bowel syndrome (e.g. intestinal lengthening, closure of stoma and plication)	H
10.	Understands the mechanisms of intestinal adaptation, the time over which it occurs and how to promote it	H
11.	Recognises the timing for home parenteral nutrition	H
12.	As a part of nutritional support team, supports families in completing the training programme to establish a patient on home parenteral nutrition	B
13.	Recognises the potential complications of intestinal failure (e.g. bacterial overgrowth, IFALD, central line associated complications, challenges of achieving normal development, linear and bone growth, and quality of life)	B
14.	Understands when to make a referral for consideration of a small intestinal (+/- liver) transplant and understands the risks of transplantation	B

I	**PROCEDURES**	
I	**Management with diagnostic and therapeutic procedures**	
1.	Assessment of nutritional status of infants and children, including anthropometric measurements (height, weight, head circumference, skin-fold thickness, mid-arm and waist circumference)	B
2.	Assessment of dehydration and planning fluid therapy	H
3.	Knows indications, how to insert and manage nasogastric tube	H
4.	Knows indications of jejunal feeding and how to achieve it by nasojejunal tube, PEG-J placement or through jejunostomy feeding tube	B
5.	Knows the indications for abdominal ultrasound and collaborates with radiologist during the procedure and in the interpretation of findings	H
6.	Knows the appropriate timing of upper endoscopy and colonoscopy	H
7.	Manages the indications and contraindications for endoscopy and the implications of comorbidities (e.g. critical illness, diabetes mellitus and immune deficiency)	H
8.	Prepares a patient for ileo-colonoscopy and understands the safety and appropriateness of the procedure in different age groups	H
9.	Understands endoscope design, construction and maintenance	H
10.	Selects the correct endoscopic equipment based on patient age and task required, can perform pre-procedure equipment checks and demonstrates problem-solving for equipment malfunction	H
11.	Discusses the rationale for and performs safe pre- and post-operative checks, such as those included in the World Health Organisation (WHO) surgical safety checklist	H
12.	Performs upper gastrointestinal endoscopy; intubates the duodenum and performs the J-manoeuvre to view the fundus	H
13.	Performs ileo-colonoscopy; reaching the caecum and intubates the terminal ileum as required	H
14.	Takes biopsies and other necessary actions as required	H
15.	Interprets the histological results of the oesophageal, gastric and intestinal biopsies with histopathologist	H
16.	Knows indications and participate in the installation of percutaneous endoscopic gastrostomy (PEG) and understands possible complications	H
17.	Knows indications and participate in the installation of PEG - jejunostomy and understands possible complications	H
18.	Knows how to maintain PEG	H
19.	Knows how to replace PEG with gastrostomy tube or button	H
20.	Recognises and manages the indications, contraindications and complications of endoscopic polyp removal	H
21.	Recognises the risks of foreign body ingestion, particularly button battery ingestion	H
22.	Indicates foreign body removal based on symptoms, type of foreign body and part of the GI tract where foreign body is located	H
23.	Knows appropriate time for endoscopy in children with GI bleeding	H
24.	Participate in the treatment of upper GI bleeding during interventional upper gastrointestinal endoscopy	B
25.	Participate in balloon dilatation and bougie-dilatation of oesophageal and intestinal stenosis	B

26.	Knows indications for oesophageal pH metry and impedance	H
27.	Interprets results of oesophageal pH metry and impedance	H
28.	Knows indications for oesophageal manometry and knows how to implement the results	B
29.	Knows indications for anorectal manometry and knows how to implement the results	H
30.	Knows indications for colonic manometry and knows how to implement the results	B
31.	Knows indications and contraindications for liver biopsy	H
32.	Interprets the histological results of the liver biopsies with histopathologist	H
33.	Recognizes complications of liver biopsy	H
34.	Knows indications for capsule videoendosopy, enteroscopy and ERCP	H
35.	Knows when to refer patient to radiological investigations (plain x-ray films, contrast and other imaging studies such as ultrasound, endoscopic ultrasound, computed tomography, magnetic resonance imaging, cholangiography) and knows how to interpret the results together with radiologist	H

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