

NATIONAL POSTGRADUATE MEDICAL COLLEGE OF  
NIGERIA



CURRICULUM FOR SUBSPECIALTY IN PAEDIATRIC  
GASTROENTEROLOGY, HEPATOLOGY AND  
NUTRITION

FACULTY OF PAEDIATRICS

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DR OWOIDOHO UDOFIA, FMCPsych  
COLLEGE REGISTRAR

# **PAEDIATRIC GASTROENTEROLOGY, HEPATOLOGY AND NUTRITION SUB-SPECIALTY CURRICULUM**

## **1. Introduction and Philosophy:**

Digestive system encompasses the gastro-intestinal tract, liver and the pancreas. Problems of the digestive system, like diarrhoeal diseases, malnutrition and liver diseases are major contributors to childhood morbidity and mortality especially in the developing countries. Despite the tremendous medical advances in the field of gastroenterology that have improved the understanding of the pathophysiology of various diseases of the system, in the developing parts of the world, Africa inclusive, challenges of rapidly escalating health care costs and dearth of appropriately trained manpower in the subspecialty, remain a major problem, thus the need for a training programme for Paediatricians who would like to develop further interest in the subspecialty.

A Paediatric Gastroenterologist and Hepatologist is a paediatrician who is trained and certified as a specialist -in the investigation and treatment of children with gastrointestinal, liver and nutritional disorders (paediatric gastroenterology, hepatology and nutrition); to train others in the field and carry out research in diseases of the gastrointestinal system and the liver in children.

## **2. Objectives of training**

At the end of the training programme, the trainee:

1. Should be suitable for appointment as a specialist in paediatric gastroenterology, hepatology and nutrition at a tertiary centre.
2. Should have achieved proficiency in investigative skills in paediatric gastroenterology, hepatology and nutrition
3. Should be able to teach and engage in research in the field of paediatric gastroenterology.

## **3. Learning Objectives**

During the period of training, the trainee should have acquired:

- A broad range of clinical experience in gastrointestinal and liver diseases of children, together with their associated nutritional problems.
- Broad experience with the nutritional disorders of children
- Specific training in diagnostic techniques
- Experience in planning and execution of basic or clinical research
- Experience in functioning as part of a multidisciplinary team that includes addressing psychosocial aspects of care
- Adequate skill to effectively communicate with other members of the health team, patients, relations, hospital authorities and the community.
- Ability to train and supervise resident doctors, medical officers, house officers, medical students and other health care professionals.
- Be able to demonstrate a broad knowledge of ethics and law

## **4. Admission Requirements**

To be admitted into the fellowship training in Paediatric Gastroenterology, the candidate:

- Must have passed the membership/ Part I examination of the Faculty of Paediatrics of the National Post Graduate Medical College or its equivalent
- Will need to apply to the College to be registered as a Fellow –in –training in the subspecialty.

### 5. Duration of training.

The minimum duration of the fellowship training programme will be three years. This can run concurrently with the Part II fellowship training in General Paediatrics:

- Minimum of eighteen months to be devoted to paediatric gastroenterology, hepatology and nutrition and related disciplines.
- Six months to 12 months to be spent rotating through other specialties in General paediatrics.

### 6. Curriculum

Training will take place in accredited training institutions, and the list of such institutions will be made available by the College from time to time.

#### *Core objectives:*

The trainee will gain experience with and understanding of the following:

- Epidemiology of the principal diseases encountered in Paediatric Gastroenterology and Hepatology
- Diagnostic and therapeutic procedures required for the examination of the gastrointestinal tract and liver
  - breath tests, -in the diagnosis of disaccharide malabsorption; *H.pylori*
  - Upper GI endoscopy (and biopsy) and colonoscopy
  - endoscopic procedures ( e.g removal of foreign body, sclerotherapy)
  - small intestinal (jejunal) and rectal biopsy
  - Liver biopsy
  - motility studies (e.g. oesophageal pH, Transit studies, a knowledge of manometry)
  - Pancreatic function tests(e.g., screening tests, faecal elactase, )
  - Histopathology of GI disorders
- Nutritional skills and knowledge in:
  - dietary requirements of children
  - pathophysiology of malnutrition
  - assessing nutritional status
  - theory and technique of enteral and parenteral nutritional support
  - role of special therapeutic diets
- Skills in “team-working” with other specialists (surgeons, pathologists, radiologists, lab scientists, dietitians, adult specialists)
- Skills in relevant aspects of organization and management
- Skill in teaching
- Research in paediatric gastroenterology, hepatology and nutrition

#### *Course content and learning outcomes*

Training requirements will include 1) basic knowledge; 2) clinical and management skills and competencies; 3) attitudes; and 4) the ability to diagnose and treat particular disorders.

## Basic knowledge

Basic knowledge in gastroenterology will include understanding of the following:

- The embryology and normal anatomy of the gastrointestinal system, the liver and pancreas; abnormal embryogenesis and its association with clinical disorders (e.g., diaphragmatic hernia, malrotation, atresias, biliary atresia etc)
- Physiology of the gastrointestinal tract including liver and pancreas and its association with clinical disorders (e.g. causes of malabsorption, steatorrhea, and protein-losing enteropathy)
- Pathogens in the gut ie viral, bacterial, fungal, parasites etc
- Immunology of the gut and the derangements that can arise therefrom
- Fluid and electrolyte balance and disturbances; causes, pathophysiology, effects and treatment of dehydration
- Recognition, interpretation and management plan/protocol of gastrointestinal disorders e.g. -
  - diarrhoea diseases (including chronic diarrhea); – pathogenetic mechanisms
  - other GI infections and parasitic infestations
  - malabsorption syndrome-principles of management
  - failure to thrive in infancy
  - Abdominal pain in children-recurrent and chronic abdominal pain, including peptic ulcer disease; role of *Helicobacter pylori* in GI diseases
  - Chronic Inflammatory Bowel disease
  - Gastrointestinal bleeding
  - Chronic constipation, functional and acquired: Hirschsprung disease; Anorectal anomalies
  - Surgical GI conditions in children

Basic knowledge of hepatology will include understanding of the presentation, investigation and treatment of the following:

- Neonatal liver disease,- including mechanisms of disease & disorders leading to cholestasis
- The hepatitises – Acute and Chronic with sequelae; other liver infections
- Chronic liver disease-cirrhosis, portal hypertension
- Liver failure –fulminant and chronic
- Primary Liver malignancies
- Metabolic liver disorders
- Role of nutritional support in liver disease
- Liver transplantation- basic understanding of its principle, indications, and therapeutic role

Basic knowledge in nutrition will include understanding of the following:

- Basis of normal infant /childhood feeding
- Dietary requirements of children

- Role of different nutrients;- macro- and micro-nutrient, pre and probiotics, etc
- Pathophysiology and management of different types of Malnutrition; protein energy malnutrition, wasting, stunting, overweight , obesity
- Short and long term effects of malnutrition in the infant, child and adolescent
- Assessing nutritional status
- Mechanism of nutritional support and their use
- Enteral and Parenteral nutrition; indications, principles and applications, complications, monitoring of the patient

Basic knowledge in Pancreatic diseases in children will include understanding of the following:

- Childhood pancreatic disorders and principles of management.

### *Skills*

During the training period, the trainee should in addition to acquiring theoretical knowledge, be able to take a history in the context of detecting GI, liver and nutritional diseases; demonstrate signs of the diseases; carry out relevant investigations and make appropriate diagnosis of diseases of the system from the history, signs and the investigations.

Trainee should also be proficient or have adequate practical experience in performing, observing or being conversant with the following

#### Clinical skills:

- Assessing nutritional status of infants and children, including **auxometry** of height and weight
- Assessing dehydration, and planning fluid therapy
- Managing enteral and parenteral nutrition
- Interpretation of plain radiographs and of contrast & other imaging studies

#### Technical skills:

##### **-Intubation procedures**

- Gastric lavage(performed)
- Nasogastric feeding
- Oesophageal and rectal manometry (observed/knowledge);
- Oesophageal pH Monitoring (conversant/ performed)

##### **-Needle procedures**

- Paracentesis abdominis (performed)
- Percutaneous liver biopsy (performed) Fine needle liver aspiration (performed)
- Peritoneal biopsy (observed/ performed)

##### **-Diagnostic /Therapeutic Endoscopy**

- Upper and Lower (colonoscopy) GI endoscopy (performed)
- Jejunal biopsy (using Crosby capsule or equivalent (conversant/ observed/performed)
- Endoscopic Retrograde cholangiopancreatography [ERCP (observed)]
- Proctoscopy (performed)
- Sclerosis of oesophageal varices and other vascular Malformations

(observed/performed)

### **-Abdominal ultrasound**

- Diagnostic(observed/ performed)
- Guided liver biopsy(observed/ performed)
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### Management skills include:

- ✚ Conducting a clinical audit - Managing admission policies, endoscopy list, etc
- ✚ Organising a Postgraduate teaching programme
- ✚ Establish and maintain a programme of community awareness and screening
- ✚ Monitoring and evaluation of the gastroenterological services provided

**\*\*Revision Course** – Two weeks intensive update course on the subspecialty and general paediatrics – will include lectures, seminars, orals, etc

### Research skills -

- ✓ Understand the basic principles of ethics in research
- ✓ Be able to design clinical trials using medical medical statistics
- ✓ organize and present data
- ✓ Demonstrate Computer literacy including ability to conduct a literature database search

### **Attitudes**

- Understand the need for a multidisciplinary approach
- Understand the need to deliver compassionate care
- Develop effective communication skills with the child and parents /relations
- Demonstrate professionalism and ethical practice
- Demonstrate good team spirit- able to communicate/work effectively with colleagues, other members of the health team, Hospital authorities and the community.

### **Teaching and learning Methods**

- ❖ Unit Seminars, Presentations are made by the trainees
- ❖ Departmental academic meetings, where trainees make presentation.
- ❖ Joint gastro/ radiology meeting; Plain films, Contrast, Ultrasound, CTscan, MRI scan– results are discussed.
- ❖ Joint Gastro/Pathology meetings
- ❖ Histology reports are reviewed
- ❖ Journal clubs
- ❖ Mortality meeting
- ❖ Departmental Grand rounds
- ❖ Hospital grand round
- ❖ Medical outpatient consultations
- ❖ Emergency room consultation
- ❖ Attending to consultations from other units and departments
- ❖ Ward clerking and follow up of patients
- ❖ Performance of ward based investigations
- ❖ Participation at ward rounds, teaching rounds and small group sessions

- ❖ Teaching of medical students and other health workers
- ❖ Observation and eventual performance of procedures;
- ❖ Liver biopsies, aspirations.
- ❖ Upper gastro intestinal endoscopies
- ❖ Lower gastrointestinal endoscopies
- ❖ Benefits from mentorship
- ❖ Attendance of update and revision courses

### ***Those involved in teaching***

- I. Consultant Paediatric Gastroenterologists
- II. Consultants in other sub specialties in Paediatrics
- III. Consultants in Radiology, Histopathology, Surgery.
- IV. Senior registrars
- V. Resource personnel at updates and revision courses

### ***Supervision, portfolio, log books and mentoring***

Evidence of training shall be kept in a portfolio which contains the following;

- log books,
- certification of attendance at conferences, updates and revision courses
- recommendations and awards
- graded clerking, formative assessment annual reports and publications.
- Records of interactions with the mentor should be kept

## **7. Course assessment**

Assessment shall be both formative and summative.

### *Formative assessment*

Formative assessment will be conducted during the training and after each rotation in the training centre. It will consist of:

- log book/ portfolio assessment
- work based assessment
- individual trainer-to-trainee assessment

### *Summative assessment*

The summative assessment (Fellowship examination) will be carried out by the College.

Eligibility to take the examination will be determined by:

- successful completion of the postings
- satisfactory log book - which should contain a record of cases managed, procedures participated in or performed, and attendance at seminars and conferences.
- adequate completion of the requisite application forms and payment of examination fees.

The **fellowship examination** will consist of:

- 2 hour written paper on Paediatric Gastroenterology / liver /nutrition. Part A ( 10 questions of the best of four format) and Part B (100 questions of best of 4 format) for 2 hours
- a PACSE and orals in Gastroenterology / liver /nutrition
- a viva in general paediatrics
- defense of the dissertation

The questions will cover the range of topics in gastroenterology /liver /nutrition, domains of learning and the levels of competences.

*The trainee will be examined in the 3 different parts:*

- *Paediatric gastroenterology sub-specialty*
- *General paediatrics*
- *Dissertation.*

A pass is required in each of the 3 parts for an overall pass. Trainees who are referred in any part (or parts), at any examination, will be re-examined in that part (or parts) at a subsequent examination.

## **8. Certification**

To obtain certification the trainee must have completed the training programme, passed the Fellowship / Part 2 examination and completed other formalities as may be required by the College. The candidate will be awarded the Fellowship of the National Post Graduate Medical College of Nigeria with specialization in specialization in Paediatric Gastroenterology.

## **12. Accreditation**

Essential accreditation requirements for sub-specialty training in Paediatric Gastroenterology are:

- accreditation in Paediatrics.
- Minimum staffing: Consultant Paediatric gastroenterologist, preferably more than one (and with minimum of 5 years practicing experience),
- at least a fellow-in-training
- some gastroenterology beds
- at least two clinics in a week
- at least two ward rounds in a week
- seminars/teaching sessions- two per week
- *Clinical Pathology Laboratories* with facilities for relevant tests for gastrointestinal hepato-biliary and pancreatic disorders. Histopathology and virology laboratories.
- *Radiology Department* with facilities for:
  - X-Rays, Barium and contrast studies, fluoroscopy
  - Ultrasonography
  - CAT Scan
- adequate laboratories and radiology with investigative facilities viz: liver function tests, stool microscopy, gastrointestinal imaging, histology
- endoscopic (upper and lower) facilities and biopsy procedure
- *Library:* (May be part of Departmental Library).

Well equipped with standard textbooks and Journals of Paediatric Gastroenterology , liver and nutrition; paediatric investigative procedures.

#### Approach

A multicenter training approach may be operated with a trainee, going for some aspects of his/her training in other centers where facilities for special diagnostic skills are available.

#### ***Recommended Specialty Books***

- Pediatric Gastrointestinal and Liver Disease 5<sup>th</sup> Edition, by Robert Wyllie, Jeffrey S. Hyams & Marsha Kay

F.O Akinbami

Faculty Rep on GI Subspecialty Curriculum