

## **Entrustable Professional Activity (Neurogastroenterology and Motility Disorders)**

1. **EPA Title:** Care of infants, children and adolescents with neurogastroenterology and motility disorders

### **2. Description of Activity**

Practicing subspecialists must be trained to care for children and adolescents with neurogastroenterology and motility (NGM) disorders which are common in childhood and often debilitating. Pediatric gastroenterologists need to be familiar with the pathophysiology of these disorders and aware of differences in children compared to adults. It is critical that trainees and future gastroenterologists are able to determine which patients are appropriate to undergo motility testing, to perform the testing safely and accurately if it is available at their institution, and to integrate the clinical presentation with the results of testing. Trainees should know when to ask for additional procedural support from a more experienced and highly trained motility consultant. The trainee must also be able to communicate motility findings to the patient, family, and the referring physician in a timely fashion.

This requires a multitude of competencies within each domain of competence.

#### The functions required of this activity include:

1. Understand the pathophysiology, clinical presentation, and natural history of NGM disorders
2. Diagnose and recognize children with suspected NGM disorders in a variety of clinical presentations
3. Understand the indications for, risks and benefits of, and interpretation and utilization of available diagnostic testing for NGM disorders
4. Create a therapeutic plan for children with NGM disorders, including pharmacologic and non-pharmacologic strategies
5. Understand the diagnosis and management of disorders of brain-gut interaction - also see EPA for common outpatient GI and liver issues
6. Work collaboratively with other subspecialists (surgeons, pediatric psychologists, dieticians) to provide multidisciplinary support to patients and families with NGM disorders
7. Apply research findings from clinical, translational and basic studies to help guide patient care

### **3. Domains of Competence (Judicious Mapping)**

- Patient Care
- Medical Knowledge and Diagnostic Skills Required
- Practice Based Learning
- Interpersonal Skills
- Professionalism
- System-based Practice
- Personal and Professional Development

### **4. Competencies within each domain critical to entrustment decision**

- PC 1, 4, 6-9
- MK 1, 2
- PBLI 1, 3, 6
- ICS 1, 3, 5
- P 1
- SBP 3,5

**5. Curriculum - List Specific Knowledge, skills and attitudes needed to execute EPA**

*Medical Knowledge*

1. Understand the anatomy and physiology of the enteric nervous system as well as interactions with the autonomic and central nervous systems
2. Understand the pathophysiology of NGM including neurogenic and myogenic processes
3. Understand the presenting signs and symptoms of congenital and acquired motor disorders of the esophagus, stomach, small intestine, colon, anorectum
4. Understand the mechanism of action, efficacy, routes of administration, adverse effects, indications for and contraindications to medications and treatments for NGM disorders
5. Recognize the contribution of infection, inflammation and systemic diseases to NGM disorders
6. Understand and identify overlapping symptoms between congenital and acquired NGM disorders and other gastrointestinal disorders including disorders of brain-gut interaction, using age-specific current Rome criteria

*Patient Care*

1. Recognize common NGM disorders including gastroesophageal reflux, dysphagia, gastroparesis, small bowel dysmotility, and constipation, and provide appropriate diagnostic assessment and management
2. Recognize the indications for surgical treatment of NGM disorders, interpret the symptoms and complications of patients who have had surgery, and evaluate these patients
3. Perform an appropriate history and physical examination in a child with a suspected NGM disorder
4. Understand the indications, limitations, and cost-effectiveness of diagnostic motility testing, especially:
  - a. Wireless pH and pH / impedance monitoring
  - b. Esophageal high-resolution manometry
  - c. Contrast radiography
  - d. Gastric scintigraphy
  - e. Wireless motility capsule
  - f. Hydrogen breath test
  - g. Antroduodenal manometry
  - h. Colonic manometry
  - i. Anorectal manometry
  - j. Intestinal transit studies
  - k. Defecography
  - l. Magnetic resonance imaging
5. Perform and/or interpret diagnostic motility testing (optional for levels 1-3 / Tier 1), including:
  - a. Wireless pH and pH / impedance monitoring
  - b. Esophageal high-resolution manometry
  - c. Antroduodenal manometry
  - d. Colonic manometry
  - e. Anorectal manometry
  - f. Intestinal transit studies

6. Understand the medical and surgical therapies for gastroesophageal reflux, gastroparesis, small bowel dysmotility, and constipation, including their uses and limitations
7. Understand and appropriately provide treatment modalities for NGM disorders including disorders of brain-gut interaction eg:
  - a. Pharmacologic treatment
  - b. Complementary and alternative therapies
  - c. Behavioral therapies
  - d. Oral, enteral and parenteral nutrition and specific dietary therapy
  - e. Surgical treatment
  - f. Endoscopic treatment (peroral endoscopic myotomy (POEM), dilation, botulinum toxin injection, enteral tube placement)
  - g. Intestinal Neuromodulation
8. Recognize and manage relevant problems associated with the transition from pediatric to adult care teams

#### *Practice Based Learning*

1. Educate parents and children on cause, treatment, and other aspects of NGM disorders and disorders of brain-gut interaction using a biopsychosocial model
2. Locate, appraise and assimilate evidence from scientific studies and apply evidence to patient care
3. Identify and perform appropriate learning activities related to care of children with NGM disorders

#### *Interpersonal and Communication Skills*

1. Effectively communicate disease information, treatment plan, and outcome to patients and families
2. Effectively communicate with other medical professionals involved in the care of NGM patients including referring physicians
3. Act in a consultative role to referring pediatricians and general pediatric gastroenterologists

#### *Professionalism*

1. Demonstrate compassion, integrity, respect and sensitivity to diversity in treating NGM disorders including disorders of brain-gut interaction
2. Protect patient privacy

#### *System-based Practice*

1. Coordinate care of children with NGM disorders including primary physicians, gastroenterologists, surgeons, psychologists/social workers, dietitians radiologists, and other medical professionals
2. Incorporate considerations of cost awareness and risk-benefit analysis into the management plan, with a focus on quality of care

#### *Personal and Professional Development*

1. Demonstrate trustworthiness and leadership that enhance team functioning and the clinical learning environment, with the ultimate goal of improving patient care
2. Develop effective bedside manner and maturity through interactions with patients and families

**6. Assessment Procedure (from ACGME Assessment Toolbox – see below):**

Checklist

Chart stimulated recall / Chart audits

Direct observations

## Summary of EPA

<b>EPA Title:</b> Care of children and adolescents with neurogastroenterology and motility disorders				
<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>
<p>Understand basic anatomy and development of the enteric nervous system</p> <p>Understand and recognize symptoms of common NGM disorders such as GERD</p> <p>Describe the pathophysiology of common NGM disorders</p> <p>Understand the biopsychosocial model of patient care</p>	<p>Understand the natural history, presentation, and pathophysiology of specific NGM disorders of the esophagus, stomach, small and large intestine and anorectum</p> <p>Obtain a complete history and perform a directed physical examination to evaluate patients with suspected NGM disorders</p> <p>Understand the indications for motility testing</p> <p>Develop an appropriate initial diagnostic plan including laboratory evaluation, endoscopy, imaging and other tests</p> <p>Provide basic education to families and children</p> <p>Understand the overlap between organic and functional disorders</p>	<p>Apply diagnostic algorithms for NGM disorders</p> <p>Refer patients appropriately to motility consultants for expert evaluation and management</p> <p>Understand the indications for motility testing in patients with suspected NGM disorders</p> <p>Understand the indications, mechanisms of action and adverse effects of medical therapies</p> <p>Understand indications for surgical treatment and work with surgeons to develop a surgical plan of care</p> <p>Recognize GI diseases associated with NGM disorders</p> <p>Discuss the brain-gut axis and role of microbiome with patients and families</p> <p>Apply the Rome criteria to diagnose disorders of brain-gut interaction</p> <p>Provide appropriate nutritional support</p>	<p>Demonstrate in-depth understanding of pathophysiology of NGM disorders</p> <p>Understand the indications, cost-effectiveness, and limitations of basic and advanced motility testing</p> <p>Refer complex patients for advanced testing</p> <p>Understand the role of endoscopic and surgical management</p> <p>Work with a multidisciplinary team to provide care</p> <p>Apply QI, best practices, and scientific evidence</p> <p>Transition care of NGM from pediatric to adult practitioner</p>	<p>Provide expert opinion and management of complex and refractory cases</p> <p>Expertise to select appropriate invasive therapies for the management of complicated esophageal motor disorders (pneumatic dilation, peroral endoscopic myotomy (POEM), surgery)</p> <p>Lead a multidisciplinary team and an institutional NGM center</p> <p>Participate in the development and study of novel management strategies, protocols and devices</p> <p>Participate in scholarly activity related to NGM</p> <p>Present research findings at a national meeting in oral format</p> <p>Participate in and speak at regional/national meetings specific to NGM</p>

		Provide advanced education including side effects and complications of therapies		
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**DIAGNOSTIC AND THERAPEUTIC PROCEDURES: PERFORMANCE AND/OR INTERPRETATION**

	Interpret the results of basic testing, including radiography	Perform and interpret basic esophageal motility testing including pH probe, wireless pH and pH-impedance reflux monitoring <sup>1</sup>	Interpret transit studies (scintigraphy, breath test)  Perform and interpret motility testing including pH probe, wireless pH and pH-impedance reflux monitoring and anorectal manometry	Perform and interpret advanced motility testing including high-resolution esophageal manometry, endoluminal functional lumen imaging probe, wireless motility capsule, antroduodenal manometry, colonic manometry  Perform pneumatic or hydraulic dilation for achalasia and other conditions; perform esophageal/pyloric/anal botulinum toxin injection  Perform POEM and temporary lead placement and monitoring of gastric electric stimulator (both are optional and require advanced endoscopic training to acquire necessary skills)
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**Training / Expertise Level**

**Entrustment Level**

Execution with direct proactive supervision 
 Execution with reactive supervision (on request) 
 Supervision at distance post hoc supervision 
 Entrustment, ready for unsupervised practice 
Supervision of others junior colleagues

<sup>1</sup> in centers where studies are available and trainees are interested in learning to perform and interpret

