

Entrustable Professional Activity

1. EPA Title: Care of infants, children and adolescents with acute and chronic liver diseases
2. Description of Activity

Practicing subspecialists must be trained to care for children and adolescents with acute and chronic liver disease. Within pediatric gastroenterology subspecialty, these relatively uncommon conditions account for a significant amount of morbidity and mortality. Pediatric gastroenterologists need to be familiar with classic understanding of liver disease processes. Additionally, subspecialists should be able to manage acute issues as well as long-term management of chronic illnesses including the transition of care. This requires a multitude of competencies within each domain of competence.

The functions required of this activity include:

1. Understand the epidemiology, pathogenesis and natural history of acute and chronic liver disease
2. Understand basic/translational/clinical research in children with acute and chronic liver disease
3. Diagnose and recognize children with suspected liver disease in a variety of clinical presentations
4. Manage children and adolescents with liver disease
5. Educate parents and children on liver disease cause, treatment, and clinical course.
6. Lead and direct care for children/adolescents with liver disease in the medical system including coordinating 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 (From Pediatric Milestones Document)

PC 5, 9
MK 1, 2
PBLI 2, 8, 10
ICS 2
PPD 5, 8

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

Medical Knowledge

1. Understand differences between acute and chronic liver disease.
2. Demonstrate knowledge of the differential diagnosis for acute (eg. acute infectious hepatitis, drug/toxin hepatitis, Acute Liver Failure (ALF)) and chronic liver disease (eg. Chronic viral hepatitis, Autoimmune Hepatitis, Non-alcoholic Steatohepatitis, congenital liver disease) including clinical presentation and features, epidemiology, natural history and treatment (including liver transplantation).
3. Understand the basic science of the acute and chronic liver disease etiologies including pathogenesis, genetics, and immunology.
4. Recognize the clinical and laboratory findings of a child in ALF and understand the management of ALF (including PICU support, prevention/treatment of complication, hepatic support and consideration for liver transplantation)
5. Understand the mechanism of action, side effects, and other complications of medications and treatments for chronic liver disease including immunosuppression medical regimens, nutritional and vitamin supplementation, and other medications.
6. Understand the extrahepatic manifestation of liver disease, including but not limited to neurological involvement, renal disease, and hematological disorders.
7. Demonstrate knowledge and be able to recognize complications of liver disease, including malnutrition and growth failure, pruritus, ascending cholangitis, portal hypertension, ascites, variceal bleeding, coagulopathy, hepatic encephalopathy, hepatorenal syndrome, hepatopulmonary syndrome, bacterial infections (spontaneous bacterial peritonitis) and hepatocellular carcinoma.
8. Recognize signs and symptoms of End Stage Liver Disease (ESLD) and timing to refer for liver transplantation.
9. Demonstrate knowledge on transmission and prevention strategies for the viral hepatitis.

Patient Care

1. Gather essential and accurate information of risk factors such as intravenous injections, foreign travel, contact with jaundiced individuals, medications/toxin exposures, and in adolescents if sexually active.
2. Perform an initial appropriate physical examination, with evaluation for evidence of chronic liver disease including hepatomegaly, splenomegaly, ascites, and a complete neurological exam for evaluation of encephalopathy.
3. Perform an appropriate initial workup for a child with acute and chronic liver disease (laboratory, imaging, and histological interpretation). Understand that the etiology for ALF is usually age dependent and thus need for tailoring of initial work-up.
4. Establish the diagnosis, stage the disease and detect complications of liver disease.
5. Develop an initial treatment plan with monitoring of medications side effects.
6. Recognize remission and flare in chronic liver disease and develop a treatment plan for disease flares and maintenance therapy.
7. Monitoring and recognition of complications of both acute and chronic liver disease.
8. Perform endoscopy for prophylaxis and/or therapeutic treatment of esophageal varices.

9. Understand imaging modalities for liver disease including but not limited to abdominal radiography, ultrasonography with dopplers, CT scans and MRI, including MRCP.
10. Understand the use of treatment modalities for liver disease including:
 - a. Steroids
 - b. Immunomodulators
 - c. Biologics
 - d. Anti-virals
 - e. Oral, enteral and parenteral nutrition
 - f. Other medications (vit E, vit D, vit K, fish oil, etc)
 - g. Pharmacotherapy in portal hypertension, eg. Beta-blockers, octreotide
 - h. Endoscopic or surgical treatment for portal hypertension
 - i. Aldosterone antagonist and diuretics for ascites
 - j. Albumin infusion
 - k. Pharmacotherapy for hepatic encephalopathy (lactulose, antibiotics)
 - l. Non-conventional therapies:, alternative medicine
 - m. Liver transplantation
 - n. Evolving Therapies / New Treatment Modalities- hepatic support (eg. Molecular Absorbent Recirculating Systems, Hepatocyte transplantation)
11. Recognize extra-intestinal manifestations of liver disease
12. Interpret pathology findings.
13. Understand health care maintenance and vaccinations in children with chronic liver disease and immunosuppression medical regimens.
14. Recognize and manage psychosocial concerns

Practice Based Learning

1. Apply evidence based medicine to the care of children with liver disease
2. Apply quality measures to improve care of children with liver disease
3. Educate parents and children on cause, treatment, and other aspects of liver disease including maintenance health check and cancer surveillance
4. Participate in lifelong learning as it relates to care of children with liver disease

Interpersonal and Communication Skills

1. Effectively communicate disease information, treatment plan, and outcome to parents and children
2. Effectively communicate with other medical professionals involved in the care of patients with acute and chronic liver disease.

Professionalism

1. Demonstrate compassion, integrity, respect and sensitivity to diversity in treating acute and chronic liver disease, a complex chronic disease
2. Protect patient privacy

System-based Practice

1. Coordinate care of children with acute and chronic liver disease including PCPs, surgeons, psychologists/social workers, nutritionists, radiologists, and other medical professionals
2. Practice cost-effective medicine, for both outpatient clinic management and intensive inpatient therapy
3. Transition care in children with liver disease to adult gastroenterologists/hepatologists

Personal and Professional Development

1. Thoughtfully analyze practice style, self-confidence and seek advice for management of complex patients
2. Develop bedside manner and maturity through interactions with patients and families

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

Direct observations

Checklist

Chart stimulated recall / Chart audits

In-training examination

Quick Summary of EPA

| End-of-Training EPA | Step 1 Description and Tasks | Step 2 Domains of Competence and Competencies within each Domain Critical to Entrustment Decisions | | Step 3 Assessment Methods/Tools |
|--|--|---|------------|--|
| 1. Care of children and adolescents with acute and chronic liver disease | Summary: The tasks required: <ul style="list-style-type: none"> • Understand the pathogenesis, natural history, and basic/translational research on acute and chronic liver disease • Diagnose and recognize children with suspected liver disease in a variety of clinical presentations • Manage children and adolescents with liver disease • Educate parents and children on liver disease cause, treatment, and clinical course. • Lead and direct care for children/adolescents with liver disease in the medical system including coordinating care | Patient Care (PC) | 1 – 10 | Checklist Chart stimulated recall Chart audits Direct observations Standardized patient In-training examination 360 Global Rating Procedure Log Patient Survey Simulation Portfolios |
| | | Medical Knowledge (MK) | 1 - 2 | |
| | | Practice-Based Learning & Improvement (PBLI) | 1, 6, 9 | |
| | | Interpersonal & Communication Skills (ICS) | 1, 3, 4, 6 | |
| | | Professionalism (P) | 1, 3, 5 | |
| | | Systems-Based Practice (SBP) | 3, 4, 5 | |
| | | Personal and Professional Development (PPD) | | |

EPA Title: Care of children and adolescents with acute and chronic liver diseases

| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|--|--|---|--|---|
| <p>Recognize clinical and laboratory data suspicious for liver disease</p> <p>Complete an essential history and examination on children with liver disease</p> <p>Understand differences between acute and chronic liver disease</p> <p>Recognize general categories of liver diseases including infectious (viral), metabolic, genetic, immunologic, oncologic, vascular, and obesity</p> | <p>Understand the natural history, epidemiology, pathogenesis, and extra-hepatic manifestations of acute and chronic liver diseases</p> <p>Develop an appropriate initial diagnostic plan including laboratory evaluation, histology, imaging and other tests</p> <p>Develop an appropriate initial management plan based on liver disease etiology</p> <p>Understand medication classes/side effects (steroids, immune-modulators, diuretics)</p> <p>Perform basic education regarding diagnosis, treatment, disease course, etc</p> <p>Diagnose and treat viral etiologies of liver disease</p> <p>Diagnose and manage autoimmune hepatitis</p> <p>Recognize and diagnose drug related liver disease</p> | <p>Manage chronic liver diseases including maintenance, flares, and escalation of therapy</p> <p>Identify complications of chronic liver disease (portal hypertension, ascites, hepatocellular carcinoma)</p> <p>Recognize extra-hepatic diseases associated with liver disease (hepatorenal, hepatopulmonary)</p> <p>Recognize ESLD and refer for liver transplantation</p> <p>Perform advanced education including side effects, long-term outcome, surgery, risk benefits and prevention</p> <p>Perform health care maintenance</p> <p>Recognize and treat genetic and metabolic disorders that result in liver disease</p> <p>Recognize and treat NAFLD</p> <p>Recognize and treat vascular causes of liver disease</p> | <p>Manage complex advanced issues associated with liver disease including malnutrition, portal hypertension, ascites, coagulopathy, hepatic encephalopathy</p> <p>Understand and interpret disease monitoring modalities including clinical, laboratory, and imaging assessments</p> <p>Lead a multi-disciplinary team: nutritionist, surgeon, nurses, support staff, psychologist</p> <p>Understand indications for surgical treatment of portal hypertension and work with surgeons to develop a surgical plan of care</p> <p>Apply QI, Best Practices, and scientific evidence</p> <p>Transition care of liver disease from pediatric to adult practitioner</p> | <p>Interpret histopathology from children and adolescents with liver disease</p> <p>Participate in scholarly activity related to liver disease</p> <p>Present research findings at a national meeting in oral format</p> <p>Participate in regional/national meetings specific to liver disease</p> <p>Be invited to speak at regional meetings/grand rounds on liver disease</p> |

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