



Entrustable Professional Activities

EPA 1 for Pediatric Nephrology

EPA 1: Care of Children with Acute Electrolyte and Kidney Disorders, Including Hypertension and Disorders of the Urinary Tract

Supervision Scale for This EPA

1. Trusted to observe only
2. Trusted to execute with direct supervision and coaching
3. Trusted to execute with indirect supervision for most simple cases and some complex cases
4. Trusted to execute with indirect supervision but may require discussion for a few complex cases
5. Trusted to execute without supervision

Description of the Activity

The appropriate evaluation and management of children with acute electrolyte and kidney disorders are the specific province of Pediatric Nephrologists. These disorders include:

- Acute electrolyte disorders, including abnormalities of sodium, potassium, calcium/phosphorous, disorders of water metabolism, acid-base, and/or fluid balance
- Acute kidney disorders, including glomerular disorders, tubulointerstitial diseases, acute kidney injury (AKI), and appropriate provision of renal replacement therapies to such children
- Acute hypertension
- Acute urinary tract disorders

Pediatric nephrologists must effectively select and provide all care for children with the above disorders, including renal replacement therapy, and must be able to provide appropriate consultation, appropriate referral (when necessary) counseling, as well as care coordination and follow up for children with acute kidney disorders.

The specific functions which define this EPA include:

1. Applying clinical, epidemiologic, and environmental knowledge to the care of children with acute electrolyte and kidney disorders
2. Directing appropriate evaluation methods
3. Initiating an effective treatment plan
4. Initiating, supervising, and managing all modalities of renal replacement therapy (RRT).
5. Identifying and applying evidence-based guidelines
6. Anticipating and, when possible, mitigating chronic or long-term issues
7. Communicating and coordinating with families and other members of the health care team
8. Demonstrating caring, compassionate, empathetic, effective communication and principled professional behavior with patients, families, and the health care team in the care of such children

Judicious Mapping to Domains of Competence

- Patient Care
- Medical Knowledge



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- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-Based Practice
- Personal and Professional Development

Competencies Within Each Domain Critical to Entrustment Decisions

PC 6:	Using optimal clinical judgment
PC 7:	Developing management plans
MK 2:	Practicing EBM
PBLI 9:	Educating others
ICS 1:	Communicating with patients/families
ICS 4:	Working as a member of a health care team
ICS 5:	Consultative role
P 2:	Demonstrating professional conduct
P 3:	Demonstrating humanism
SBP 2:	Coordinating care

Context for the EPA

Rationale: Pediatric nephrologists must be able to identify, diagnose and manage children with acute fluid/electrolyte, kidney disorders and hypertension.

Scope of Practice: The nephrologist will often manage acute electrolyte, kidney disorders, and hypertension after referral by either a primary care provider or hospital provider (general pediatricians, surgical, and medical specialists). These disorders also will arise in established nephrology patients, both inpatient and outpatient. Pediatric nephrologists practice in a variety of settings, from smaller, community-based programs to large, academic, quaternary-care institutions.

Curricular Components That Support the Functions of the EPA

1. Applying clinical, epidemiologic, and environmental knowledge to the care of children with acute electrolyte and kidney disorders
 - Performs a thorough history and physical examination when necessary and a focused history and physical examination when necessary
 - Formulates a broad differential diagnosis
 - Uses expertise and knowledge of pediatric kidney disease to narrow the differential diagnosis appropriately
 - Disorders encountered and managed include, but are not limited to:
 - Acute dysnatremias
 - Acute hypo/hyperkalemia



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- Acute acid/base disorders
 - Acute disorders of calcium and phosphorous
 - Disorders of water metabolism
 - Fluid overload/dehydration
 - Acute kidney injury, including the provision of renal replacement therapy
 - Acute intoxications or other metabolic derangements which would require provision of renal replacement therapy
 - Acute presentation of nephrotic syndrome
 - Acute glomerulonephritis
 - Acute interstitial nephritis
 - Hemolytic uremic syndrome
 - Acute hypertension, including hypertensive urgency/emergency
 - Medical management of acute infections in children with pre-existing kidney disease, such as transplant recipients and those with genitourinary malformations
- Disorders that generally require the help of additional specialists or subspecialists include, but are not limited to:
 - Acute urologic disorders
 - Acute surgical issues in children with kidney disorders
 - Acute kidney disorders that require involvement of intensivists

2. Directing appropriate evaluation methods

- Recommends or directly orders the appropriate laboratory tests to assist in diagnosis and treatment selection
- Utilizes available kidney imaging modalities and recommends or orders the appropriate studies. These may include:
 - Ultrasound
 - Standard radiography and fluoroscopy (e.g., voiding cystourethrogram, computerized tomography [CT], magnetic resonance imaging [MRI])
 - Nuclear medicine studies
 - Vascular imaging (Duplex ultrasound, CT or MR angiography, arteriogram)

3. Initiating an effective treatment plan

- Recommends or directly arranges for both nonmedical and medical treatment.
- Demonstrates familiarity with the indications for dosing and monitoring of the following categories of medical treatment:
 - Electrolyte and fluid replacement/treatments
 - Diuretics and fluid removal treatments
 - Disorders of water metabolism
 - Immunosuppressive and immunomodulatory agents
 - Antihypertensive medications



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4. Initiating, supervising, and managing all modalities of renal replacement therapy (RRT)
 - Determines clinical and/or laboratory criteria for initiation of RRT.
 - Chooses most appropriate modality of RRT for each clinical scenario and manages these modalities effectively (refer to Pediatric Nephrology EPA 4 for more specific RRT details)
5. Identifying and applying evidence-based guidelines
 - Formulates a clinical question (PICO format- population, intervention, comparison, outcome, as well as other methods)
 - Searches medical literature for relevant guidelines and/or studies
 - Interprets available evidence and applies recommendations to patient care
6. Anticipating, and when possible, mitigating chronic/long-term issues
 - Identifies pertinent long-term complications or issues that may arise and formulates a plan to address these issues
 - Counsels patient and family on prognosis and possible future complications
7. Communicating and coordinating with families and other members of the health care team
 - Explains testing, diagnosis and treatment plan to the patient, family, and other members of the health care team (if applicable)
 - Tailors explanations and discussion to specific needs of the patient and family
 - Requests consultation from ancillary providers, such as nutrition and social work, and works together with them to formulate a plan
 - Identifies the need for additional medical or surgical consultation (e.g., urology, surgery, cardiology, rheumatology, intensive care, or other medical subspecialties)
 - Coordinates care appropriately with multiple providers and disciplines, assuming where appropriate the role of the consultant
8. Demonstrating caring, compassionate, empathetic, effective communication and principled professional behavior with patients, families, and the health care team in the care of such children
 - Clearly states plans of care and documents appropriately for patients, families, and other members of the health care team
 - Encourages and responds effectively to questions about diagnosis, workup, and plan
 - Maintains and displays compassion toward patients and families
 - Interacts professionally with patients, families, and other members of the health care team at all times, in an atmosphere of mutual respect and collaboration
 - Provides empathetic care to patients and families
 - Maintains the highest levels of professionalism in interactions with patients, families, and members of the health care team

References



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1. The American Board of Pediatrics. Training Requirements for Subspecialty Certification. 2004. Available at <https://www.abp.org/sites/abp/files/trainingrequirements.pdf>
2. Federation of Pediatric Organizations Policy Statement. Pediatric Fellowship Training. *Pediatrics* 2004;114:295-296.

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