



## Entrustable Professional Activities

### Curricular Components Supporting EPA 2 For Pediatric Nephrology

#### Curricular Components That Support the Functions of EPA 2: Care of Children with Chronic Electrolyte and Kidney Disorders, Including Hypertension and Disorders of the Urinary Tract

1. Applying important clinical, epidemiologic, and environmental knowledge to the care of children with chronic electrolyte and kidney disorders. This includes abnormalities of water, sodium, potassium, calcium, phosphorous, magnesium, acid-base and fluid balance, chronic kidney disorders, urinary tract disorders and hypertension
  - Performs a thorough history and physical examination when necessary and a focused history and physical examination when necessary
  - Formulates a broad differential diagnosis appropriate for children with chronic electrolyte and kidney disorders
  - Uses expertise and knowledge of pediatric kidney disease and renal physiology to narrow the differential diagnosis appropriately

Diseases/disorders generally within the scope of pediatric nephrology practice where the role of the pediatric nephrologist is to evaluate and manage include, but are not limited to

- Congenital anomalies/abnormalities of the kidney and urinary tract [CAKUT]
  - Kidney (e.g., multicystic dysplastic kidney, renal dysplasia, renal agenesis, inherited cystic kidney diseases including Polycystic Kidney Diseases, nephronophthisis)
  - Urinary tract (e.g., obstructive uropathy, posterior urethral valves, ureteropelvic junction obstruction, ureterovesical junction obstruction)
- Nephrotic syndrome (e.g., minimal change disease, focal segmental glomerulosclerosis, membranous nephropathy)
- Primary glomerulonephritides (e.g., mesangial proliferative glomerulonephritis, C3 glomerulopathy, IgA nephropathy)
- Secondary glomerulonephritides (e.g., post-infectious glomerulonephritis, IgA nephropathy, mesangioproliferative glomerulonephritis, membranoproliferative glomerulonephritis)
- Glomerulonephritis associated with systemic disease (e.g., Henoch Schonlein purpura, systemic lupus erythematosus, vasculitis, Goodpasture syndrome, diabetes)
- Hereditary glomerular diseases (e.g., Alport syndrome, Fabry disease, Nail-Patella syndrome)
- Thrombotic microangiopathies (e.g., Shiga toxin associated Hemolytic Uremic Syndrome (HUS), complement disorder associated HUS, post-Bone Marrow Transplant associated Thrombotic Microangiopathy, Thrombotic Thrombocytopenic Purpura)
- Essential hypertension
- Secondary hypertension (including renovascular causes)
- Nephrolithiasis and nephrocalcinosis

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- Disorders of renal tubular function (e.g., Dent disease, glucosuria, nephrogenic diabetes insipidus)
- Syndrome of Inappropriate Anti-Diuretic Hormone
- Renal tubular acidosis
- Fanconi syndrome and causes (e.g., cystinosis)
- Pseudohypoaldosteronism type 1
- Bartter and Gitelman syndrome
- Disorders of vitamin D metabolism

Aspects of disease management generally within the scope of pediatric nephrology practice include:

- Initiation, monitoring and adjustment of medications for treatment
- Appropriate follow-up recommendations for monitoring disease progress
- Recognition of expected complications of disease and therapy
- Recognition and appropriate management of comorbidities seen with chronic kidney disease (e.g., anemia, metabolic bone disease, short stature, hypertension)
- Appropriate referral of patients approaching end stage renal disease (see Pediatric Nephrology EPA 3)

Problems/situations that generally require consultation where the role of the pediatric nephrologist is to recognize, provide preliminary evaluation and refer:

- Conditions that require co-management with pediatric urology (e.g., vesicoureteral reflux, nephrolithiasis, obstructive uropathy, patients requiring catheterization)
- Conditions that require co-management with pediatric rheumatology (e.g., systemic lupus erythematosus, pauci-immune vasculitis)
- Conditions that require co-management with genetics and/or metabolism (e.g., cystinosis, Fabry disease)
- Conditions that require co-management with cardiology (e.g., hypertension, congestive cardiac failure, pericardial effusion, aortic root dilation, vascular health)
- Conditions that require co-management with endocrinology (e.g., short stature, hypothyroidism)
- Conditions that require co-management with hematology /oncology: (e.g., chemotherapeutic medication nephrotoxicity, SIADH)
- Conditions that require co-management with surgery (e.g., suboptimal weight gain or fluid intake necessitating G-tube placement)
- Conditions that require co-management with reproductive endocrinology/gynecology (e.g., patients requiring medications that affect fertility)
- Conditions where co-management with either developmental-behavioral specialists and/or child psychiatrists is essential to address comorbid conditions



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#### 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)

**Commented [BN1]:** Why was this replaced with utilizes. 'Identifies' is on the original document.

#### 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, including diuretics
  - Immunosuppressive and immunomodulatory agents
  - Antihypertensive medications
  - Other agents required in kidney disorders (e.g., phosphate binders, vitamin D analogues, erythropoiesis stimulating agents)
- Incorporates proper recognition of prognostic and long term follow up/chronic issues for children with chronic electrolyte and kidney disorders

#### 4. Recognizing the impact of chronic electrolyte and kidney disease on the physical, mental, and emotional development of the child in the context of the child/family unit and engaging allied health professionals to address adjustment issues

- Explores and identifies effects and impact of chronic kidney conditions on the physical, mental, and emotional development of the child
- Addresses the context of the family, community, and society in influencing and promoting the health and psychosocial outcomes of the child with CKD
- Functions as part of a multidisciplinary team to promote the best psychosocial outcomes for these children
- Knows that the essence of providing chronic care involves care delivery that is multidisciplinary, comprehensive, coordinated, accessible and patient-centered, meeting the medical, social, developmental, behavioral, mental health, educational, and financial needs of the patient and family

#### 5. Providing effective care of such children through participation and/or direction of an effective interprofessional health care team



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- Functions as part of a multidisciplinary team to manage pediatric patients with kidney disease (nurse, dietician, social worker, psychologist, play therapist, music therapist)
  - Identifies conditions which require co-management with other pediatric subspecialists
6. Constructing and communicating appropriate follow-up plans and providing follow-up care as necessary
- Formulates initial plan for evidence-based care and engages patient/family as well as other key team members in shared decision making
  - Communicates final plan effectively to patients, their families (taking health literacy and family values into account) and other members of the health care team
7. Demonstrating caring, compassionate, empathetic, effective communication and principled professional behavior with patients, families, and the health care team in 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

#### Curricular Components Author

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#### References

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.