



# Entrustable Professional Activities

## EPA 3 for Pediatric Nephrology

### EPA 3: Care of the Pediatric Patient with ESKD and Kidney Transplant

#### 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

Pediatric nephrologists are specifically trained to care for children of all ages who have or are progressing to end stage renal disease (ESRD). The appropriate evaluation and management of children who have ESRD treated with dialysis or kidney transplantation is the specific responsibility of pediatric nephrologists. Pediatric nephrologists must be effective in the selection and provision of all chronic dialysis and kidney transplantation therapies including long-term care. The provision of appropriate counseling, modality selection, and follow up to children with ESRD treated with dialysis or kidney transplants are important responsibilities of the pediatric nephrologist.

The specific functions which define this EPA include:

1. Applying clinical, epidemiologic, and regulatory knowledge in the care of children with ESRD and/or kidney transplantation, including interactions with regulatory bodies, organ procurement organizations, transplant teams, and national organizations
2. Directing appropriate evaluation for children with or approaching ESRD, including evaluation and selection for various dialysis modalities and identification of suitable candidates and preparation for transplantation
3. Identifying and providing appropriate management plans, including selection of dialysis modality for children undergoing chronic dialysis, management of all perioperative issues, and implementation and supervision of dialysis treatments and other extracorporeal filtration and dialysis-related therapies (all renal replacement therapies)
4. Identifying and providing appropriate management plans, including all ESRD therapies, and addressing care issues for children undergoing kidney transplantation, management of all perioperative issues, and implementation and supervision of immunosuppression and other kidney transplantation therapies
5. Demonstrating effective communication and principled professional behavior with patients, families, and the interprofessional health care team including surgeons, interventional radiologists, histocompatibility laboratory scientists, and allied health professionals

#### Judicious Mapping to Domains of Competence

- Patient Care
- Medical Knowledge
- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills



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- 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
PC 9:	Counseling patients and families
MK 1:	Demonstrating knowledge
ICS 1:	Communicating with patients/families
SBP 1:	Working in care delivery settings and systems
SBP 2:	Coordinating care
SBP 5:	Working in interprofessional teams
PPD 2:	Using healthy coping mechanisms

### Context for the EPA

**Rationale:** Pediatric nephrologists must be able to care for children of all ages with end stage renal disease (ESRD) treated with dialysis and/or who are candidates for or recipients of kidney transplantation. They must collaborate with the patient, family, surgeons, and dialysis staff to select appropriate treatment modalities and provide appropriate counseling both acutely and during long term follow-up. The pediatric nephrologist has the responsibility of managing all aspects of the chronic care of patients requiring renal replacement therapy (RRT), including the transition between modalities, as necessary.

**Scope of Practice:** Care of the ESRD patient begins with recognition of the progressive nature of the patient's renal failure towards ESRD. Preparation of the patient and family for the need to initiate formal ESRD therapy includes determination of optimal timing as well as selection of a renal replacement modality for an individual patient from choices including hemodialysis, peritoneal dialysis, and both living donor and deceased donor renal transplantation. Management of the initiation and the chronic delivery of dialysis and transplant care includes: regular assessment of adequacy of therapy and assessment and treatment of complications, identification of modality failure and management of a smooth transition between modalities, and attention to the general medical, psychological, and social health of the ESRD patient. While care is focused on patients ranging in age from newborn to the 21st birthday, the pediatric nephrologist must anticipate lifelong ESRD care needs, including special needs resulting from developmental delay or other circumstances, and facilitate transition of care to adult providers to meet the needs of the individual patient.

### Curricular Components That Support the Functions of the EPA

1. Applying clinical, epidemiologic, and regulatory knowledge in the care of children with ESRD and/or kidney transplantation including interactions with regulatory bodies, organ procurement organizations, transplant teams, and national organizations
  - Determines the level of renal function and anticipates changes of function to provide safe timing of renal replacement and adequate preparation of the patient and family



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- Incorporates patient-specific risk factors as well as the outcome variables of the different renal replacement modalities to inform appropriate modality selection for individual patients
  - Engages the major systems structure surrounding the provision of maintenance dialysis, including the role of dialysis units, vascular access specialists, dialysis providers, Centers for Medicare & Medicaid Services and other payer regulations
  - Utilizes the major system structures surrounding the provision of renal transplants, including the roles of nephrologists in collaboration with transplant surgeons, the roles of organ procurement organizations, organ preservation, organ allocation criteria, and the National Organ Procurement and Transplantation Network (OPTN). Navigates the listing process for a deceased donor kidney and the process of paired donation to enhance living-donor transplantation
  - Leads a multidisciplinary care team to provide coordinated acute and chronic care
2. Directing appropriate evaluation for children with or approaching ESRD including evaluation and selection for various dialysis modalities and identification of suitable candidates and preparation for transplantation
- Incorporates the impact of the underlying renal diagnosis, concomitant medical conditions, anatomic abnormalities, and psychosocial and economic issues of the patient and family on choice of dialysis modality and engages the patient/family in shared decision making
  - Articulates the advantages and disadvantages of different dialysis modalities to facilitate a patient-centered selection process
  - Compares and discusses the outcome differences of chronic dialysis versus transplant with the patient and family
  - Uses regulatory criteria for referral/evaluation and listing for renal transplantation
  - Identifies risk factors for successful transplantation and communicates these effectively to patients/family
  - Incorporates special preparations for successful transplantation including control of nutritional status, hypertension, anemia, and electrolyte disorders as well as indications for native nephrectomies into management plans
  - Recognizes risk for disease recurrence post-transplant and possible prevention or treatment strategies and communicates such risks to patients and families
3. Identifying and providing appropriate management plans including selection of dialysis modality for children undergoing chronic dialysis, management of all perioperative issues, and implementation and supervision of dialysis treatments and other dialysis-related therapies (all renal replacement therapies)
- Selects dialysis modality (hemodialysis vs. peritoneal dialysis) on the basis of individual risk factors, psychosocial circumstances, patient/family preference
  - Orders a customized dialysis prescription appropriate to the individual clinical situation
  - Monitors relevant response variables including dialysis adequacy, volume status, biochemical status, hematologic status, blood pressure, treatment tolerance, growth rate, and family stressors
  - Selects and monitors dialysis vascular access or catheter access devices, knows access risks and complications, and communicates access issues effectively to the patient and family and with surgical/interventional consultants
  - Recognizes dialysis complications (e.g., dialysis disequilibrium, peritonitis or membrane failure) and can manage these complications or refer as appropriate



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4. Identifying and providing appropriate management plans, including all ESRD therapies, and addressing care issues for children undergoing kidney transplantation, management of all perioperative issues, and implementation and supervision of immunosuppression and other kidney transplantation therapies
  - Communicates outcome differences in transplantation vs. dialysis to patient/family and facilitates family involvement in treatment selection
  - Educates patient and family about necessity for lifelong monitoring, adherence to medications and other recommendations, health insurance, and lifelong risks of transplantation related to infection, cancer, fertility, and cardiovascular health
  - Identifies appropriate chronic kidney disease (CKD) candidates for preemptive renal transplantation and manages appropriate timing of this strategy
  - Explains differences in living vs. deceased donor kidney transplant outcomes and counsels family accordingly
  - Incorporates appropriate transplant donor ABO and HLA compatibility issues and selects donors accordingly
  - Discusses the influence of kidney donor risk factors on transplant recipient outcome
  - Manages preoperative transplant patient preparations including evaluation of biochemical and volume stability, the need for/timing of dialysis, infectious disease issues, and psychosocial preparations
  - Coordinates with transplant surgery and anesthesia to determine optimal perioperative and intraoperative protocols addressing immunologic management, fluid management, and use of adjunctive agents such as diuretics or mannitol
  - Determines postoperative management including frequency of intake/output assessment, vital sign determinations, arterial and/or central pressure monitoring, post-operative fluid management, and biochemical, hematologic, immunological, and infectious disease monitoring
  - Recognizes, evaluates, and develops investigation and intervention in the presence of primary or secondary renal nonfunction
  - Determines immediate and long-term postoperative transplant immunosuppressive treatment and protocol for pharmacologic monitoring
  - Plans routine post-transplant protocol for monitoring of renal function and other monitoring (e.g., donor-specific antibodies, viral surveillance)
  - Recognizes common and uncommon transplant complications, such as allograft rejection or obstruction, and directs the diagnosis and management of these complications or refers as appropriate
  - Integrates CKD monitoring and provides appropriate care for nutritional concerns, growth restriction, hypertension, hematologic and biochemical status, CKD, mineral and bone disorders, vitamin D status, and lipid disorders. The above is accomplished in tandem with post-transplant immunosuppressive care, as appropriate, based upon level of renal function and patient specific risk factors
  
5. Demonstrating effective communication and principled professional behavior with patients, families, and the interprofessional health care team including surgeons, interventional radiologists, histocompatibility laboratory scientists, and allied health professionals
  - Effectively communicates with patients and families in a compassionate and professional manner
  - Acknowledges and appreciates the role of multidisciplinary team members and utilizes their input and skills to optimize patient care
  - Leads the multidisciplinary team within the boundaries of the transplant/dialysis nephrologist's role in perioperative and postoperative care



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- Demonstrates sensitivity to the complexity and difficulty of chronic ESRD care and anticipates and helps to provide the support required by families to affect the level of medical adherence necessary to successful long-term outcomes

### 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.

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