

Pediatric Nephrology Rotation	
All Goals and Objectives for this rotation are identical across all PL years	
Primary Goals for this Rotation	Competencies
GOAL I: Hypertension. Understand the general pediatrician's role in diagnosis and management of hypertension in children.	
1. Classify a patient with hypertension as to severity according to current national guidelines, e.g., mild, moderate or severe.	K
2. Develop a diagnostic plan for a child with hypertension that accounts for severity of the condition, including recognition and management of hypertensive emergencies.	K, PC
3. Manage a patient with hypertension using a step-wise approach that includes the role of diet, exercise, weight control and medications.	K, PC
4. Compare the commonly used antihypertensive drugs, considering indications and contraindications for use, mechanism of action and side effects.	K
5. Identify the indicators for a cardiology or nephrology referral in a child with hypertension.	K, PC
GOAL II: Prevention, Counseling and Screening (Nephrology). Understand the role of the pediatrician in preventing renal disease, and in counseling and screening individuals at risk for these diseases.	
1. Provide routine prevention counseling about kidney health and disease to all parents and patients, addressing: <ul style="list-style-type: none"> a) Normal voiding, toilet training and attainment of bladder control b) Female hygiene c) Urinary tract infections and non-specificity of physical complaints in infants and young children d) Strategies to assure normal bowel and bladder habits e) Importance of routinely measuring blood pressures in children, especially overweight children and those with a family history of hypertension 	K, PC, IPC, P
2. In conjunction with a specialist, provide specific prevention counseling to parents and patients with renal diseases, addressing: <ul style="list-style-type: none"> a) Need for medication adjustments in patients with impaired renal function, including many over-the-counter medicines b) Need for prophylactic medications for certain renal conditions c) Altered immunization schedule for children with specific renal diseases (e.g., those immunocompromised following renal transplantation, with chronic renal failure, nephritic syndrome, etc.) d) Importance of continued home and office monitoring in children with specific diseases (e.g., blood pressures in children with hypertension or urine protein for children with nephrotic syndrome) e) Risks of contact and other sports in children with a single kidney 	K, PC, IPC, P
3. Provide routine nephrologic screening. <ul style="list-style-type: none"> a) Use blood pressures beginning at age 3 to screen for hypertension, using age- and height-specific BP norms and blood pressure cuffs appropriate for 	K, PC

<p>patient's height and weight; discuss criteria for repeated measurements and further evaluation or referral.</p> <p>b) Obtain and accurately interpret urine for dipstick examination to screen for blood and protein</p>	
GOAL III: Normal Vs. Abnormal (Nephrology). Differentiate between normal and pathological states related to the renal system.	
1. Discuss the normal physiological development of the kidneys and bladder, including renal concentrating ability, glomerular filtration and sodium handling, normal voiding pattern, urine output and attainment of bladder control.	K
2. Describe age-related changes in blood pressure and normal ranges from birth through adolescence.	K
3. Differentiate transient or physiological proteinuria and/or orthostatic proteinuria from clinically significant (i.e. pathological) persistent or intermittent proteinuria.	K, PC
4. Differentiate transient hematuria from clinically significant gross or microscopic hematuria.	K, PC
5. Explain the findings on clinical history and examination that suggest renal disease and require further evaluation and treatment.	K, PC
6. Discuss indications for, order and interpret clinical and laboratory tests to identify renal disease. Tests should include: urinalysis (dipstick and microscopic), 24-hr urine studies, spot urine calcium/creatinine, protein/creatinine and albumin/creatinine ratios, serum electrolytes, BUN, creatinine (and methods to estimate glomerular filtration rate), calcium, phosphorous and albumin; complete renal ultrasound (kidneys, collecting systems, bladder), intravenous pyelography, voiding cystourethrogram (radiographic and radionuclide), renal nuclear scans.	K, PC
GOAL IV: Undifferentiated Signs and Symptoms (Nephrology). Evaluate, treat, and/or refer patients with presenting signs and symptoms that may indicate a nephrologic disease process.	
<p>1. Create a strategy to determine if the following presenting signs and symptoms are caused by a renal disease process and determine if the patient needs treating, consultation or referral.</p> <p>a) Hypertension</p> <p>b) Edema</p> <p>c) Hematuria</p> <p>d) Proteinuria</p> <p>e) Growth retardation</p> <p>f) Vasculitic ashes.</p> <p>g) Arthritis and arthralgia.</p> <p>h) Urinary frequency and/or dysuria</p> <p>i) Oliguria</p> <p>j) Polyuria and/or polydipsia</p> <p>k) Abdominal pain</p> <p>l) Abdominal mass</p> <p>m) Acidosis</p> <p>n) Enuresis</p> <p>o) Deteriorating school performance</p> <p>p) Nausea, poor appetite, weight loss</p> <p>q) Pruritus</p> <p>r) Unexpected fractures</p>	K, PC

s) Unusual cravings for salt or potassium	
GOAL V: Common Conditions Not Referred (Nephrology). Diagnose and manage patients with common renal conditions who generally do not require referral.	
1. Diagnose, explain, and manage the following renal conditions: <ul style="list-style-type: none"> a) Urinary tract infection, uncomplicated b) Minor electrolyte disturbances c) Dehydration d) Orthostatic and physiologic proteinuria e) Nonspecific urethritis f) Hypertension, mild g) Steroid-responsive nephrotic syndrome h) Nocturnal enuresis i) Urinary frequency without renal cause j) Hematuria without proteinuria, including resolving postinfectious glomerulonephritis k) Henoch-Schonlein purpura without persistent renal involvement 	K, PC
2. Describe how the primary care of children with chronic kidney disease differs from routine primary care, including changes in immunization schedules, management of growth and development, and learning and behavioral issues.	K, PC, SBP
GOAL VI: Conditions Generally Referred (Nephrology). Recognize, initiate management of patients with renal conditions who generally require referral.	
1. Identify, explain, initially manage, and refer the following renal conditions: <ul style="list-style-type: none"> 1. Acute and chronic renal failure 2. Hemolytic uremic syndrome 3. Hypertension, moderate to severe 4. Renal mass, cyst, hydronephrosis, dysplasia 5. Diabetes insipidus 6. Urolithiasis and/or nephrocalcinosis/hypercalcinuria 7. Tubular defects (e.g., renal tubular acidosis, Fanconi's, Bartter's) 8. Glomerulonephritis 9. Steroid-resistant nephrotic syndrome 10. Severe electrolyte imbalance 11. Abnormal renal function in the acutely ill 12. Vesicoureteral reflux 13. Obstructive uropathy 14. Henoch-Schonlein purpura (persistent renal involvement) 15. Autoimmune diseases with potential for renal involvement (e.g., systemic lupus erythematosus, Wegener) 16. Urinary tract infections with vesicoureteral reflux, hypertension, or other renal abnormalities 17. Unexplained hematuria 18. Proteinuria, other than orthostatic and physiologic 	K, PC, IPC

2. Identify the role and general scope of practice of nephrologists and contrast with that of urologists; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals to care for children with renal disease.	K, PC, IPC, P, SBP
3. Discuss the indications for, basic principles and complications of substitution therapy in renal failure, e.g., hemodialysis, peritoneal dialysis and continuous hemofiltration.	K, PC
GOAL VII: Fluid and Electrolytes. Understand the physiology of body fluids and electrolytes, abnormalities, and treatment.	
1. Discuss the normal physiology of body fluids (water) and salts, including: intracellular vs. extracellular component, composition of salt in each (Na, K), intake and output, measured and insensible losses, and normal daily requirements.	K
2. Recall the composition of commonly used intravenous and oral rehydration solutions.	K
3. Implement maintenance and replacement fluid therapy (either oral or IV) in patients and make changes based on changes in the clinical condition, taking into account fluid and electrolyte deficits, maintenance needs, insensible losses, output, and intracellular vs. extracellular components.	K, PC
4. Diagnose dehydration in a child, classify as to type and amount of dehydration, and evaluate the etiology.	K, PC
5. Discuss the different types of dehydration, methods of fluid replacement based on the type, and initial need for frequent assessment.	K, PC
6. Interpret acid-base laboratory values and discuss the differential diagnosis of metabolic acidosis and alkalosis. Describe one's approach to diagnosis and treatment.	K, PC
GOAL VIII: Urinary Tract Infection (UTI). Appropriately manage and refer, when necessary, patients with urinary tract infections.	
1. Discuss findings on clinical history and examination that lead one to suspect a UTI.	K, PC
2. Compare and contrast the different methods of obtaining a urine specimen.	K, PC
3. Describe the method for making an appropriate diagnosis of a UTI prior to treatment and differentiate between pyelonephritis and cystitis.	K, PC
4. Implement appropriate antibiotic treatment of a suspected UTI and list indicators that would result in changes in therapy.	K, PC
5. Discuss the appropriate radiologic evaluation for a child presenting with a first UTI, taking into account the age and sex of the child.	K, PC
6. Describe indications for antibiotic prophylaxis for recurrent UTI and the long-term risks of recurrent UTIs.	K, PC
7. Identify indicators for a nephrology or urology consult or referral of a child with a UTI.	K, PC
GOAL IX: Nephrotic Syndrome. Understand the pediatrician's role in the management of nephrotic syndrome.	
1. Discuss findings on clinical history and physical examination that would lead one to suspect nephrotic syndrome.	K
2. Discuss the different types of nephrotic syndrome, the current therapy of each, and the need for consistent therapy.	K
3. Describe age-related differences in the etiology of nephrotic syndrome.	K

4. Differentiate between steroid-resistant and steroid-responsive nephrotic syndrome.	K
5. Identify indicators of the need for emergent management and urgent vs. non-urgent nephrology referral of a child with nephrotic syndrome.	K, PC
6. Along with a nephrologist, provide counseling to parents of children with nephrotic syndrome, addressing such issues as risk of infection, venous thrombosis and pulmonary edema, as well as treatment, medication side effects and importance of home monitoring.	K, PC, IPC
GOAL X: Systemic Conditions with Renal Involvement. Understand the pathophysiology and management of common systemic conditions that may present with renal involvement, and seek consultation or referral appropriately.	
1. Identify and explain the renal involvement seen in the following systemic conditions: a) Henoch-Schonlein purpura b) Systemic lupus erythematosus c) Sickle cell anemia d) Bacteremia and sepsis e) Shock f) Dehydration g) Vasculitis h) Diabetes mellitus	K
Procedures	
GOAL XI: Technical and therapeutic procedures. Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.	
Bladder: catheterization	K, PC
Bladder: suprapubic tap	K, PC
GOAL XII: Diagnostic and screening procedures. Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.	
Radiologic interpretation: abdominal ultrasound	K, PC
Radiologic interpretation: voiding cystourethrogram	K, PC
Renal biopsy	K, PC

Core Competencies: **K** - Medical Knowledge
PC - Patient Care and Procedural Skills
IPC - Interpersonal and Communication Skills
P - Professionalism
PBLI - Practice-Based Learning and Improvement
SBP - Systems-Based Practice

Performance Expectations by Level of Training

	Beginning	Developing	Accomplished	Competent
	Description of identifiable performance characteristics reflecting a beginning level of performance.	Description of identifiable performance characteristics reflecting development and movement toward mastery of performance.	Description of identifiable performance characteristics reflecting near mastery of performance.	Description of identifiable performance characteristics reflecting the highest level of performance.
Medical Knowledge	PL1	PL1, PL2	PL2, PL3	PL3
Patient Care and Procedural Skills	PL1	PL1, PL2	PL2, PL3	PL3
Interpersonal and Communication Skills	PL1	PL1, PL2	PL2, PL3	PL3
Professionalism		PL1	PL2, PL3	PL3
Practice-Based Learning and Improvement	PL1	PL1, PL2	PL2, PL3	PL3
Systems-Based Practice	PL1	PL1, PL2	PL2, PL3	PL3

Milestones assessed on this rotation are:

Patient Care 1: History				
Level 1	Level 2	Level 3	Level 4	Level 5
Gathers information strictly following a template	Adapts template to filter and prioritize pertinent positives and negatives based on broad diagnostic categories or possible diagnoses	Filters, prioritizes, and synthesizes the history to develop a differential diagnosis in real-time for uncomplicated or typical presentations	Filters, prioritizes, and synthesizes the history to develop a differential diagnosis in real time for complicated or atypical presentations	Recognizes and probes subtle clues from patients and families; distinguishes nuances among diagnoses to efficiently drive further information gathering

Patient Care 4: Clinical Reasoning				
Level 1	Level 2	Level 3	Level 4	Level 5
Presents clinical facts (e.g., history, exam, tests, consultations) in the order they were elicited	Generates an unfocused differential diagnosis based on the clinical facts	Organizes clinical facts to compare and contrast diagnoses being considered, resulting in a prioritized differential diagnosis	Integrates clinical facts into a unifying diagnosis(es); reappraises in real time to avoid diagnostic	Role models and coaches the organization of clinical facts to develop a prioritized differential diagnosis, including life threatening diagnoses, atypical presentations, and complex clinical presentations

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth

Level 1	Level 2	Level 3	Level 4	Level 5
Participates in feedback sessions	Demonstrates openness to feedback and performance data	Seeks and incorporates feedback and performance data episodically	Seeks and incorporates feedback and performance data consistently	Role models and coaches others in seeking and incorporating feedback and performance data
Develops personal and professional goals, with assistance	Designs a learning plan based on established goals, feedback, and performance data, with assistance	Designs and implements a learning plan by analyzing and reflecting on the factors which contribute to gap(s) between performance expectations and actual performance	Adapts a learning plan using long-term professional goals, self-reflection, and performance data to measure its effectiveness	Demonstrates continuous self-reflection and coaching of others on reflective practice

Interpersonal and Communication Skills 1: Patient and Family Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates respect and attempts to establish rapport	Establishes a therapeutic relationship in straightforward encounters	Establishes a culturally competent and therapeutic relationship in most encounters	Establishes a therapeutic relationship in straightforward and complex encounters, including those with ambiguity and/or conflict	Mentors others to develop positive therapeutic relationships
Attempts to adjust communication strategies based upon patient/family expectations	Adjusts communication strategies as needed to mitigate barriers and meet patient/family expectations	Communicates with sensitivity and compassion, elicits patient/family values, and acknowledges uncertainty and conflict	Uses shared decision making with patient/family to make a personalized care plan	Models and coaches others in patient- and family-centered communication

