# Nephrology Rotation Curriculum with Goals & Objectives

SARH and Clinics — Inpatient and Outpatient Nephrology — Internal Medicine Residency

*Goals & Objectives Stratified by Level of Training (Mandatory and Elective for PGY-1 / PGY-2 / PGY-3)*

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## Organization and Lines of Responsibility

Organization / Site: SARH and Clinics (inpatient and outpatient nephrology).

Subspecialty Rotation Directors: Team A Director-Dr. Abid Rizvi & Team B Director- Dr. Nima Naimi;

Rotation Faculty: Dr. Christopher Wong, Dr. Michael Bien, Dr. Eduardo Nam, Dr. Shahid Syed, Dr. Nitin Bhasin, Dr. Minna Huang, Dr. Saman Sarani, Dr. Chirag Vaidya, and Dr. Solomon C. Huang.

The Internal Medicine resident functions as a key member of the medical team whose primary objective is to provide compassionate, evidence-based care for patients with kidney and related illnesses. The team comprises an attending nephrologist, medical residents, and medical students, and is led by the attending, who bears final responsibility for patient management. The resident works closely with the attending and gradually assumes more autonomous decision-making responsibility in a graded fashion. Residents are also expected to teach junior residents and medical students, collaborate with other specialty providers, and help deliver care in a multidisciplinary environment.

## General Goals and Educational Objectives

General Goal: During the Nephrology rotation, the resident is responsible for the care of outpatient and inpatient teaching-service patients.

### Overarching objectives (developed progressively across all three years):

- Practice evidence-based medicine.
- Work effectively as part of a multidisciplinary team.
- Care for a panel of patients across the three years of training, assuming responsibility in a graded fashion toward independent practice, and achieve competence in all six ACGME areas.
- Promote individual health for patients with kidney conditions and achieve competence in their initial management.
- Serve the community.
- Achieve competence in serving all genders, ethnic, and socioeconomic groups and understand their unique needs.
- Evolve as teachers of students, co-residents, nurses, patients, families, and the community.
- Become proficient in caring for patients with the conditions listed in this document.

## Levels of Supervision

Residents are supervised by an attending nephrologist for all patients. Levels of supervision include:

- Direct Supervision — the supervising physician is physically present with the resident and patient; residents are initially directly observed to build history-taking and examination skills.
- Indirect Supervision, with direct supervision immediately available — the supervising physician is within the site and immediately available.
- Indirect Supervision, with direct supervision available — the supervising physician is immediately available by phone or electronic means.

As residents become more proficient, they interact independently with patients and present cases to faculty, progressing from diagnosis and basic management toward independent medical decision-making.

## Assessment Scale — Entrustment

The basic evaluation unit is entrustment. Attendings determine the level at which they trust the resident to perform each skill:

- 1 — Cannot perform the skill even with assistance (critical deficiency).
- 2 — Can perform the skill under proactive, full supervision.
- 3 — Can perform the skill with reactive supervision (readily available upon request).
- 4 — Can perform the skill independently.
- 5 — Can act as a supervisor and instructor for the skill.

## The Six ACGME Core Competencies — Objectives by Level of Training

Objectives are stratified for PGY-1, PGY-2, and PGY-3 residents, reflecting increasing entrustment: PGY-1 residents build foundational skills under supervision; PGY-2 residents evaluate and manage independently and handle complexity; PGY-3 residents lead, supervise, and teach. Senior objectives are cumulative.

### 1. Patient Care

*Residents will provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.*

#### PGY-1 — Build foundational skills under supervision

- Perform complete and problem-focused histories and physical examinations in a time-efficient manner.
- Formulate differential diagnoses and initial management plans for acute complaints and chronic kidney disease follow-up, under supervision.
- Interpret basic renal diagnostics (urinalysis, basic metabolic panel, renal ultrasound) and recognize acute kidney injury.
- Provide preventive care and address social determinants of health.

#### PGY-2 — Manage independently (in addition to PGY-1)

- Independently manage common nephrology conditions (AKI, CKD, electrolyte and acid-base disorders) with indirect supervision.
- Develop and adjust management plans for complex or multi-system renal disease.
- Recognize renal emergencies (e.g., severe hyperkalemia, hypertensive emergency, indications for dialysis) and initiate timely management.
- Coordinate specialty referrals and community-resource utilization.

#### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Independently manage complex, undifferentiated, and critically ill renal patients and lead the care plan.

- Supervise and teach junior residents and students in renal assessment and management.
- Apply shared decision-making to advanced decisions (dialysis initiation, goals of care) and model high-value care.

***Instructional / Training Methods:*** *Supervised patient care in inpatient and outpatient settings, direct observation, case-based learning.*

***Evaluation Methods:*** *Bedside Mini-CEX, direct observation and feedback, faculty entrustment ratings.*

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## 2. Medical Knowledge

*Residents will demonstrate knowledge of established and evolving biomedical, clinical, and cognate sciences and apply it to the care of patients with kidney disease.*

### PGY-1 — Build foundational skills under supervision

- Develop an understanding of the pathophysiology and initial approach to the common nephrology conditions listed in the Clinical Topics section below.
- Stay current with clinical guidelines (e.g., KDIGO, American Society of Nephrology, USPSTF), using resources such as UpToDate.

### PGY-2 — Manage independently (in addition to PGY-1)

- Apply knowledge to atypical and complex presentations and correlate laboratory, imaging, and clinical findings.
- Justify, based on best evidence, diagnostic and treatment decisions for common renal disease.

### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Demonstrate comprehensive knowledge across the breadth of nephrology.
- Integrate conflicting data to reach a diagnosis in ambiguous cases and teach the underlying evidence to the team.

***Instructional / Training Methods:*** *Case-based learning, specialty-specific didactics, journal and textbook reading, guideline review.*

***Evaluation Methods:*** *Case-based questioning, chart review, faculty written evaluation.*

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## 3. Practice-Based Learning and Improvement

*Residents will investigate and evaluate their patient-care practices, appraise and assimilate scientific evidence, and improve their practices.*

### PGY-1 — Build foundational skills under supervision

- Identify knowledge gaps through patient encounters and seek evidence-based resources.
- Seek, receive, and act on feedback and reflect on performance.

### PGY-2 — Manage independently (in addition to PGY-1)

- Review and apply relevant guidelines, studies, and literature to improve patient care.
- Perform focused literature searches and appraise study quality; integrate self-reflection.

### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Participate in or lead outpatient quality-improvement or population-health projects.
- Facilitate the learning of junior residents, students, and other health professionals.

***Instructional / Training Methods:*** *Feedback on rounds, focused literature searches and presentations, QI/population-health projects.*

***Evaluation Methods:*** *Self-assessment and reflection, Mini-CEX, teaching and QI project evaluations.*

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## 4. Interpersonal and Communication Skills

*Residents will demonstrate communication skills that result in effective information exchange and collaboration with patients, families, and professional associates.*

### PGY-1 — Build foundational skills under supervision

- Communicate clearly and empathetically with patients, families, and interdisciplinary team members.
- Provide timely, accurate documentation.

### PGY-2 — Manage independently (in addition to PGY-1)

- Educate patients on disease processes, management plans, and preventive measures.
- Develop skills in motivational interviewing and behavior-change counseling; provide concise consult answers.

### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Lead difficult conversations (e.g., dialysis initiation, prognosis, goals of care).
- Model effective communication and coach junior residents and students.

***Instructional / Training Methods:*** *Direct observation, supervised patient encounters, case presentations to faculty.*

***Evaluation Methods:*** *Direct observation, Mini-CEX, faculty and multisource feedback.*

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## 5. Professionalism

*Residents will demonstrate a commitment to professional responsibilities, ethical principles, and sensitivity to a diverse patient population.*

### PGY-1 — Build foundational skills under supervision

- Demonstrate respect, compassion, and cultural humility in patient care.
- Maintain patient confidentiality and professionalism in documentation.

### PGY-2 — Manage independently (in addition to PGY-1)

- Address ethical issues and manage difficult conversations professionally.
- Model professional behavior for students and interns.

### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Serve as a professional role model and address lapses constructively within the team.
- Lead ethically complex discussions and advocate for patients.

***Instructional / Training Methods:*** *Role modeling by attendings, direct patient care, patient and family encounters.*

***Evaluation Methods:*** *Faculty ratings, multisource feedback, self-reflection.*

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## 6. Systems-Based Practice

*Residents will demonstrate awareness of the larger health-care system and provide care of optimal value.*

### PGY-1 — Build foundational skills under supervision

- Utilize the electronic medical record effectively for documentation and care coordination.

### PGY-2 — Manage independently (in addition to PGY-1)

- Incorporate cost-effective care principles when ordering tests and treatments.

- Understand billing, coding, prior authorizations, and insurance systems, and recognize healthcare disparities in patients with kidney disease.

### PGY-3 — Lead, supervise, and teach (in addition to PGY-1 and PGY-2)

- Lead care coordination across inpatient and outpatient settings.
- Champion high-value care and health-equity initiatives, including the appropriate reconsideration of race correction in estimates of kidney function.

***Instructional / Training Methods:*** *Supervised care across settings, cost-and-value case discussion, multidisciplinary collaboration.*

***Evaluation Methods:*** *Direct observation, chart review, faculty ratings, QI participation.*

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## Clinical Topics and Experiences

The conditions below are the focus of the Medical Knowledge objectives above and are encountered across the inpatient and outpatient nephrology experience. Responsibility is graded by complexity and training level.

**Acute Kidney Injury**

- Diagnosis of AKI, distinguishing etiology (pre-renal, intrinsic-renal, post-renal)
- Diagnostic studies: urinalysis, renal ultrasound evaluation
- Treatment strategies
- Dialysis initiation criteria

**Acid-Base Disorders**

- ABG interpretation
- Distinguishing disorders and etiologies (respiratory and metabolic acidosis, respiratory and metabolic alkalosis)
- Treatment strategies

**Hypertension**

- Review of current guidelines
- Blood pressure management in inpatient and outpatient settings
- Antihypertensive effectiveness, common dosing strategies, and side effects
- Hypertensive urgency and emergency

**Electrolyte Disorders**

- Hypernatremia — evaluation and treatment
- Hyponatremia — evaluation and treatment
- Hyperkalemia — evaluation and treatment
- Hypokalemia — evaluation and treatment

**ICU Nephrology**

- Common renal emergencies
- Hypertensive emergency and urgency
- Sepsis
- CRRT and hemodialysis criteria
- Intoxications and osmolar gap calculation

**Outpatient Nephrology**

- Evaluation and management of CKD
- Renal stones

- Proteinuria evaluation and glomerular disorders
- Hematuria evaluation
- Chronic UTI

**Renal Syndromes**

- Cardio-renal syndrome (pathogenesis and treatment)
- Hepato-renal syndrome (pathogenesis and treatment)
- Diuresis strategy
- Nephrotic syndrome and glomerular disease

**Therapeutic Agent-Induced Kidney Injury**

- Contrast nephropathy — evaluation and risk factors
- Acute interstitial nephritis
- Medication-induced AKI

# Teaching Methods

## Supervised Patient Care

- Residents are initially directly observed with patients to facilitate the acquisition of excellent history-taking and physical examination skills.
- As residents become more proficient, they interact independently with patients and present cases to faculty.
- Initial emphasis is on diagnosis and basic management; once mastered, focus shifts to medical decision-making and finalizing the care plan with supervising physicians.

## Conferences and Independent Study

- Specialty-specific didactics.
- Journal and textbook reading as assigned by the nephrology team.
- Case-based learning with nightly reading based on patients seen during the day.

## Online and Educational Resources

- American Society of Nephrology.
- American Board of Internal Medicine Nephrology Blueprint.
- International Society of Nephrology.
- National Kidney Foundation (KDOQI Guidelines).
- Reconsidering the use of race correction in clinical algorithms; removing race from estimates of kidney function (JAMA).
- UpToDate.

# Evaluation

- bedside evaluation.
- Verbal mid-rotation individual feedback.
- Attending written evaluation of the resident at the end of the month, based on rotation observations and chart review.

# Rotation Structure

- Residents should contact the supervising nephrologist three days prior to the rotation to determine start time and location.
- Residents divide their time between the hospital and nephrology clinic as appropriate to achieve the educational goals.
- Residents participate in patient presentation, generation of a differential diagnosis, development of a treatment plan, and patient follow-up, following the same patients when possible.
- Case-based learning is emphasized, with nightly reading based on patients seen during the day.
- When performing a nephrology consult, the resident should understand the question asked and provide a concise answer.
- Residents may be asked to perform focused literature searches or presentations during the rotation.
- Call and weekend responsibilities are determined by the attending. Hours must comply with ACGME requirements and are subject to approval by the Program Director.
- Residents have noon conferences and should be excused in a timely fashion to attend.