Curricular area: Nephrology
Specific Rotations: Nephrology Outpatient Elective
Responsible faculty: Roberto Mangoo-Karim, MD
Reviewed and revised by Dr. Amer Malas, Program Director, on 12/1/2013
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Goals: Nephrology involves diseases of the kidney, its contiguous collecting system, and its vasculature. The kidneys play a key role in fluid, electrolyte, and acid-base regulation and are affected by a wide range of systemic disorders, drugs, and toxins.

During the course of the three year residency, residents will develop the necessary knowledge base, medical interviewing and examination skills, procedural skills, and clinical acumen to diagnose and manage common renal disorders at the level of a board certified general internist.

Residents will learn to identify problems requiring joint management with a nephrologist or routine or emergency referral to a nephrology specialist. Residents will learn to work collaboratively with nephrologists and other specialists in the management of patients with renal diseases.

Setting: Residents are exposed to the broad field of nephrology in a variety of clinical settings, including the inpatient wards and critical care units, the ambulatory care setting and the emergency center (see curriculae for these areas). Residents may also choose a more in-depth experience on the Nephrology Outpatient Elective described below, and/or the Nephrology Inpatient Consult elective (see curriculum for that rotation).

On the Nephrology Outpatient Elective, residents will further enhance knowledge and understanding of nephrology in a variety of outpatient settings including South Texas Kidney Specialists and pre-dialysis centers.

Key to Competencies: PC = Patient care  MK = Medical Knowledge  I/C = Interpersonal/communication skills  PR = Professionalism  PBL = Practice based learning  SBP = System based practice

Teaching activities: Topics relevant to nephrology are covered in the resident lecture series, the intern learning groups, and in selected M and M conferences.

On the Nephrology Outpatient Elective rotation attendings provide direct case-based teaching on all patients seen by the resident in the clinics.

Residents also attend the following conferences (see sample schedule for days and times):
Renal Grand Rounds: Weekly conference on renal topics conducted by faculty or an invited speaker.
Renal Biopsy Conference: Monthly conference to review renal biopsies and review relevant topics such as vasculitis, acute renal failure
Clinical Journal Club: Weekly conference to review articles relevant to renal disease

Residents are expected to read independently about renal conditions encountered during the rotation. Residents have access to online textbooks and databases at all clinical sites. Attending physicians provide supplemental reading material related to specific cases discussed during the rotation.
Level of supervision:
All clinic patients are discussed with an attending physician. The attending physician provides face-to-face feedback to the resident physician at the end of the rotation, and as needed during the course of the rotation. The resident physician is expected to ask for specific feedback at the midpoint of the rotation.

Patient characteristics:
Patients cared for at the outpatient clinics at Doctors Hospital at Renaissance and their affiliated faculty offices are a diverse group which includes men and women, age 16 and over with acute and chronic renal diseases commonly encountered in internal medicine practice. Many patients are indigent and may be Spanish speaking or come from other linguistic or ethnic backgrounds.

Reading lists/resources: suggested reading:
Renal and Electrolyte Disorders, R.W. Schrier, Lippincott, Williams, Wilkens 2003
On line: Brenner and Rectoris, The Kidney

Sample schedule: (please contact the attending prior to the start of the rotation to confirm specifics of the month’s schedule).

| Thursday AM 7:00 -8:00 | 8:00-9:00 housestaff conference | 9:00 – 12:00 Monday, Thursday: South Texas Kidney Specialists (Dr. Mangoo-Karim) 9:00- 12:00 Tuesday: reading 9:00 – 12:00 Wed: ESRD clinic for evaluation/management of predialysis patients 9:00 – 12:00 Friday South Texas Kidney Specialists (Dr. Mangoo-Karim) | 12:00-1:00: lunch | Mondays 1:00 – 2:00 Renal physiology/pathology conference Tuesday 1:00 – 5:00: South Texas Kidney Specialists (Dr. Mangoo-Karim) Wednesday 4:00-6:00pm Renal Grand Rounds Residents have general medicine continuity clinic 2 x per week. |
Residents will learn to evaluate patients presenting with nephrology-related conditions by history and physical examination. Residents will be able to convey these findings to consultants, attendings and other members of the team.

**PGY-1:**
- Obtain history as relevant to renal diseases. Identify key elements as they relate to nephrology.
- Recognize physical exam findings in common renal diseases.
- Utilize appropriate resources to obtain historical information important to the diagnosis and management of patients with renal diseases, including accessing medical records, data from other health care facilities, physicians and family members as appropriate.
- Demonstrate the ability to convey key information to other residents, attendings, consultants and other members of the health care team in a logical, coherent manner.

**PGY-2**
- Increase the ability to recognize important elements of the CC, HPI and other aspects of history, as they related to a patient’s renal condition.
- Increase skills in physical examination to include recognition of signs of renal disease and more advanced interpretation of findings.
- Be able to synthesize key elements of the history and physical in a logical, coherent manner leading to the development of an appropriate differential diagnosis.
- Show the ability to demonstrate key findings to learners.

**PGY-3**
- Master the elements of history-taking and physical examination of the patients suspected of having an renal disorder at the level expected of a board-certified general internal medicine specialist
- Demonstrate the ability to guide learners to acquire these skills
Residents will acquire the medical knowledge relevant to the diagnosis and management of common renal diseases. Residents will demonstrate the medical knowledge and skills required to triage patients with urgent or intensive care needs.

| PGY-1: | Residents will understand basic principles in the physiology and biochemistry of nephrology, and be able to use this knowledge to recognize common renal diseases and initiate appropriate diagnostic and therapeutic plans.  
| Residents will have the knowledge to be able to recognize and initiate appropriate management of patients with renal conditions requiring urgent intervention. |
| PGY-2: | Resident will have the medical knowledge to recognize and manage common renal conditions presenting in ambulatory patients.  
| Resident will have the medical knowledge required to appropriately follow outpatients with end-stage renal disease who may require dialysis in the near future, including management of fluid and electrolytes, recognition and management of complications related to renal disease, and when to refer for initiation of dialysis.  
| During the outpatient nephrology elective residents will learn the indications for renal transplant and learn how to follow and manage patients in conjunction with a renal specialist after renal transplant. |
| PGY-3: | Master the knowledge base required to evaluate and manage outpatients with renal disease at the level of a board certified general internist.  
| (see Nephrology appendix A for list of renal diseases commonly seen by general internists) |

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Residents will learn the indications for diagnostic tests relevant to the evaluation of outpatients with renal diseases. Residents will be able to interpret results and apply to patient care.

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**PGY-1:**
- Know indications for and interpretation of diagnostic tests commonly used to evaluate outpatients with renal diseases.
- Be able to use the results of diagnostic tests to clarify the differential diagnosis and initiate appropriate management.

**PGY-2:**
- Demonstrate increased understanding of diagnostic tests, including more specialized and less commonly performed tests, and how to apply the results to the care of patients with renal diseases.

**PGY-3:**
- Demonstrate mastery of diagnostic testing in the assessment of patients with renal disorder at the level of a board certified general internist.
- Be able to explain the purpose and meaning of diagnostic tests to other members of the health care team.

(See Nephrology appendix B for common diagnostic tests used in the evaluation of patients with renal diseases)

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<td>Resident lecture series Nephrology conferences</td>
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Global eval Inservice examination
Residents will learn to communicate and collaborate with nephrology consultants, physicians from other specialties and other members of the health care team, providing optimal patient care in a cooperative team effort.

| PGY-1: | Demonstrate effective communication with consulting services for the benefit of the patient, including effective use of the written medical record/consult note. | Direct instruction and demonstration by attendings |
| PGY-2: | Demonstrate increasing skills in effective communication with consulting services, specialists, and other members of the health care team in the care of patients with renal disease. | Nephrology conferences |
| PGY-3: | Master all aspects of communication skills and interpersonal relationships to evaluate and manage patients with renal diseases, including communication with patients and families and other members of the health care team. | |
| | Master the communication and interpersonal skills required to provide collaborative care to patients with renal diseases requiring consultation with a nephrology specialist. | |
### Residents will demonstrate skills in practice-based learning required to evaluate and manage patients with renal diseases.

| PGY-1: | Resident will demonstrate evidence of study to improve knowledge of renal diseases commonly encountered by general internists.  
Demonstrate the ability to access appropriate resources, including practice guidelines, online textbooks, and other medical literature to increase understanding of renal diseases disease.  
Seek feedback from attendings and other members of the health care team to improve performance.  
Show evidence of reflection and the ability to learn from errors.  |
| PGY-2: | Increase ability to generate questions based upon clinical encounters and to access and use the medical literature to answer these questions. |
| PGY-3: | Demonstrate increasing competence in the use and interpretation of the medical literature.  
Demonstrate an understanding of how to analyze medical errors and poor outcomes and use this experience to improve performance. |

### Residents will demonstrate skills in systems-based practice required to care for outpatients with renal disease.

| PGY-1: | Learn the role of ancillary services such as dietary, physical and respiratory therapy, and other available services. Learn to use these services effectively to enhance patient care.  
Learn the role of consultants and demonstrate the ability to use consultants appropriately to enhance patient care.  
Learn when patients with renal disease require consultation with a nephrology specialist and initiation of dialysis.  
Maintain appropriate professional relationships with nurses, pharmacists, clerks, and all other members of the health care team.  
Demonstrate patient advocacy within the system of care. |
| PGY-2: | Upper level residents should be able to teach students and junior residents when to involve ancillary services and consultants in the care of the patients, and the appropriate role for these services. |
| PGY-3: | Master aspects of systems-based practice needed to ensure optimal patient care and utilization of available resources for patients with renal disorders. |

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| PBL MK PC SBP | Direct instruction and demonstration by attendings  
Nephrology conferences  
Journal club |
| SBP PC | Direct instruction and demonstration by attendings  
Nephrology conferences |
| Global eval | Global eval  
Resident portfolio |