I. **Educational Purpose and Goals:**
Internists must be capable of managing patients with chronic and acute renal diseases. A general internist must be knowledgeable concerning preventable renal diseases, stages of chronic kidney disease and strategies to delay/prevent kidney deterioration, familial renal diseases, and common renal manifestations of systemic diseases. In addition, internists should be able to assess and manage acute and chronic renal failure, including determination of when consultative assistance of a nephrologist is appropriate.

The goal of this rotation is to train residents in the field of nephrology through practical and didactic training, such that residents will have the ability to manage common renal disorders at the level of a general internist.

II. **Principal Teaching Methods:**
Training will be primarily through directly supervised patient care activities, as well as through assigned readings. In addition, the resident will interact with ancillary staff to improve resident understanding of systems-based care for nephrology patients. Residents will be exposed to hemodialysis units, kidney biopsy procedures, urinalysis techniques, and consultative processes and principles.

1. **Supervised Direct Patient Care Activities:** Residents evaluate and manage Nephrology patients at Medical Center Hospital (MCH) and Midland Memorial Hospital (MMH) attended by physicians on faculty at both institutions, and patients referred to these physicians for Nephrology consultation. In addition, residents will participate in patient evaluation and care in the outpatient Nephrology clinics of supervising faculty and the inpatient and outpatient dialysis units. In the inpatient setting, each patient evaluated by the internal medicine resident will be seen with the nephrology attending during daily management rounds. All patients evaluated by the resident in the clinic will be subsequently evaluated with the nephrology faculty. Thorough assessment will be performed and a management plan will be formulated by the resident and discussed with the nephrology attending. In the hospital setting, the rounding team will consist of the attending and the rotating Texas Tech resident(s).

2. **Teaching rounds:** teaching rounds will occur after patient encounters in the hospital and during clinic period. Patients will be seen and examined by the residents, who will formulate a hypothesis and a treatment plan and present it to the attending faculty. Both the resident and the attending will examine the patient and discuss the patient’s care and the resident’s assessment.

3. **Didactic Lectures:** Nephrology lectures are part of the Core Curriculum series of the Department of Internal Medicine. Residents on the Nephrology rotation are required to attend all of the Core Curriculum lectures.
4. **Self-study:** all residents are expected to read independently about patients seen in the hospitals and in clinics, on nephrology topics assigned by faculty, and in preparation for core curriculum lectures.

III. **Educational Content:**

1. **Patient characteristics:** Patients are admitted from Ector and Midland county area, as well as surrounding West Texas counties. Patients encountered reflect the diverse nature of pathology present in the area with equal exposure to men and women of multiple ethnicities and socioeconomic backgrounds. Similar population sources are reflected in the outpatient nephrology clinics. Patients seen by the residents range from young adolescents with mild renal problems to elderly patients with advanced diseases.

2. **Disease Mix:** Diverse acute and chronic renal conditions are encountered both as admissions and as consults. Possible clinical conditions include: Possible diseases include:
   - I. Electrolyte, Acid/base, and Fluid abnormalities
   - II. Vascular renal disease
   - III. Glomerular and interstitial diseases
   - IV. Obstructive renal disease
   - V. Diabetic renal disease
   - VI. Nephrolithiasis
   - VII. Hereditary nephropathies and cystic kidney diseases
   - VIII. Drug dosing and management in renal disease
   - IX. Acute and chronic renal failure general evaluation including dialysis management
   - X. Pyuria, dysuria, and lower tract urinary diseases
   - XI. Hematuria and proteinuria differential diagnosis and management
   - XII. Hypertensive Kidney Disease

3. **Learning venues, type of clinical encounters, and services:** The inpatient component of the nephrology rotation is based at Medical Center Hospital in Odessa and Midland Memorial Hospital, both serving as major referral centers for West Texas residents. Residents work with faculty nephrologists at both facilities. Residents perform rounds in the hospital, where they admit patients and see new consults. Residents gain valuable insight into the indications, contraindications, and performance of commonly ordered diagnostic procedures and interventions. Cost-effective health issues are regularly addressed in this setting. Residents will participate in analysis of urinary studies, may also observe performance of renal biopsies and placement of dialysis catheters, and will participate in the evaluation of pathological evaluation renal biopsies at both hospitals. The evaluation and care of patients with renal problems in the outpatient setting is performed through resident’s participation in the outpatient clinics of the supervising clinical pulmonary faculty and in the dialysis units.

4. **Procedures:** The residents are not required to perform procedures during the nephrology rotation, but they are welcome to attend the procedures scheduled as their time allows.
5. **Structure of Rotation**: On the first Monday of the rotation, residents meet at the attending discretion for orientation. Residents will have flexible office hours appropriate to the outpatient and inpatient weekly activities planned by Drs.... Residents are scheduled for patient care duties ... during the four weeks, with the remaining weekends off to average at least 4 days off during the 4 week block. Resident training may extend before 8 AM or after 5 PM at the discretion of Drs. ... for patient care reasons, but overall resident duty hours may not exceed 80 hours/week, and there will be no in-hospital overnight call. Residents continue to attend mandatory Medicine Grand Rounds and continuity primary care clinics.

IV. **Principal Ancillary Educational Materials**
   a. At the beginning of the rotation, each resident receives a copy of the Nephrology curriculum’s Goals and Learning Objectives.
   d. MKSAP – Nephrology Booklet

V. **Methods of Evaluation**
   1. Resident Performance: Nephrology faculty complete written resident evaluation forms provided by the Internal Medicine Residency coordinators. The evaluation is competency-based, and uses a detailed assessment of resident’s effort, progress and achievement on each core competency component. Faculty review the written evaluation in person with each resident and provide detailed feedback on resident’s performance. In addition, the following sources and methods of evaluation are included in assessing residents performance: a) mini-CEX and CEX. b) all other (verbal, written) evaluation comments provided to the Program Director/Associate Program Director by faculty and community physicians interacting with the resident during nephrology rotation are documented in writing. f) performance on the periodic Nephrology exam administered as part of the monthly subspecialty exams. All evaluations are available for resident review (excluding direct review of evaluations completed by resident colleagues). All evaluations are part of the resident file and are incorporated into the semiannual performance review for directed resident feedback.

VI. **Institutional Resources: Strengths and Limitations:**
   1. Strengths
      I. The available patient population will give the resident an excellent opportunity to learn about commonly-seen renal disease and those which account for the majority of the morbidity and mortality seen in the United States.
   2. Limitations:
      I. Kidney transplantation is not performed at either of the teaching hospitals, limiting resident exposure to the immediate pre- and post-transplant care.
VII. Rotation Specific Competency Objectives:

1. Patient Care
   I. By the conclusion of the rotation, PGY-1 rotating residents will demonstrate ability to perform an appropriate nephrologic history and physical, documenting their findings in an appropriate consultative summary, with appropriate generation of a differential diagnosis list.
   II. By the conclusion of the rotation, PGY2 or 3 residents will perform the above skills, and will also evidence appropriate ability to independently generate an appropriate management plan.
   III. All rotating residents will demonstrate ability to satisfactorily evaluate a urinalysis/sediment.

2. Medical Knowledge
   I. All residents will be evaluated by the supervising faculty for appropriate analytic approach to nephrologic conditions, and residents will be evaluated for satisfactory basic and clinical knowledge of renal function and pathophysiology, including identification, interpretation and management of common electrolyte problems and acid-base imbalance. Residents will also demonstrate working knowledge of indications, contraindications, and application of commonly used methods of renal replacement therapy.

3. Practice Based Learning and Improvement
   I. Residents will demonstrate self-initiative in the use of information technology to access and retrieve materials for self-education regarding nephrology cases and demonstrate skills of critically appraising medical literature, and apply evidence to the care of patients
   II. Residents will be expected to show progressive learning throughout the rotation, with emphasis on learning from any cognitive or procedural errors. They are also expected to facilitate any quality improvement initiatives in place.

4. Interpersonal and Communication Skills
   I. Residents are expected to demonstrate professional communication skills throughout their interactions with nephrology patients and their families, Nephrology attending and other clinicians and non clinical staff involved in patients’ care. Residents are expected to act as a constructive and proactive member of the nephrology rounding team.
   II. The resident will develop and demonstrate skill communicating with patients who severe and life threatening renal conditions and communicate effectively with the families of very ill patients.

5. Professionalism
   I. Throughout the rotation, residents are expected to exhibit reliability in their clinical duties, as well as integrity and respect in their interactions with patients and colleagues.
   II. Residents will be able to demonstrate appropriate consultative principles of communication and responsiveness to professional consultative requests.
   III. Residents must respond to pagers, staff requests, and consultation requests in a timely manner.
6. **Systems Based Practice**

   I. Residents are expected to interact with the MCH and MMH care systems, as well as gain insight and experience with systems of care of outpatient clinical setting, and appropriately access different facets of the health care system necessary for the care of their patients.

   II. By the completion of the rotation, all rotating residents will demonstrate ability to interact with dialysis unit systems, and will be able to assist patients with access to dialysis.

   III. PGY-2 and PGY-3 residents must demonstrate understanding of cost-effectiveness of care by incorporating cost-effectiveness into their development of diagnosis and treatment plans.