

HANDOUT FOR THE GOALS AND OBJECTIVES OF THE CONSULTATION ROTATION

Clinical Curriculum Introduction

The Nephrology Fellowship Clinical Training Program is designed to provide individuals with the opportunity to achieve the fundamental knowledge, procedural skills, practical experience, and professional and ethical behavior necessary for the subspecialty of Nephrology. Fellows care for patients with the full spectrum of renal disorders at all stages of the disease process. Efforts are made at every point to emphasize the integration of fundamental medical knowledge, disease prevention, social, psychological, and economic issues.

This section describes the clinical curriculum. The first part presents an outline of the Clinical Program goals and objectives. Subsequently, the full clinical curriculum is described, relating Clinical Program goals and objectives to the manner in which they are achieved.

Overview of Clinical Program Goals and Objectives

The Nephrology Fellowship Clinical Training Program is structured around goals and objectives derived from three major sources: 1) the ACGME Core Competencies; 2) the ACGME subspecialty requirements for Nephrology training programs; and 3) additional input derived from Harbor-UCLA Medical Center Nephrology and Hypertension faculty. These various components are combined to achieve an integrated set of goals and objectives that cover all aspects of the training program.

In this first section, an overview of the training program's goals and objectives is presented, broken down by the six core competencies and then the specific Nephrology areas. This should be reviewed so that Fellows understand each of these components. The following section, devoted to the detailed curriculum, then combines the core competencies and specific nephrology issues into an integrated and comprehensive set of goals and objectives.

Core competencies

- 1) **Patient care** – Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows are expected to:
 - Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
 - Gather essential and accurate information about their patients
 - Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
 - Develop and carry out patient management plans
 - Counsel and educate patients and their families
 - Use information technology to support patient care decisions and patient education
 - Perform competently all medical and invasive procedures considered essential for the area of practice
 - Provide health care services aimed at preventing health problems or maintaining health
 - Work with health care professionals, including those from other disciplines, to provide patient-focused care

- 2) **Medical knowledge** - Fellows must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care. Fellows are expected to:
- Demonstrate an investigatory and analytic thinking approach to clinical situations
 - Know and apply the basic and clinically supportive sciences which are appropriate to their discipline
- 3) **Practice-based learning and improvement** – Fellows must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Fellows are expected to:
- Analyze practice experience and perform practice-based improvement activities using a systematic methodology
 - Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
 - Obtain and use information about their own population of patients and the larger population from which their patients are drawn
 - Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
 - Use information technology to manage information, access on-line medical information; and support their own education
 - Facilitate the learning of students and other health care professionals
- 4) **Interpersonal and communication skills** - Fellows must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates. Fellows are expected to:
- Create and sustain a therapeutic and ethically sound relationship with patients
 - Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
 - Work effectively with others as a member or leader of a health care team or other professional group
- 5) **Professionalism** - Fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Fellows are expected to:
- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supercedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
 - Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
 - Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities
- 6) **Systems-based practice** - Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Fellows are expected to:
- Understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
 - Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
 - Practice cost-effective health care and resource allocation that does not compromise quality of care

- Advocate for quality patient care and assist patients in dealing with system complexities
- Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

Specific renal competencies - Fellows will acquire expertise in:

1) An understanding of normal renal biology including:

- Renal anatomy and histology
- Renal physiology, including in the elderly
- Fluid, electrolyte and acid-base regulation
- Mineral metabolism
- Blood pressure regulation - normal and abnormal
- Renal drug metabolism and pharmacokinetics, including drug effects on renal function and including in the elderly
- Renal function in pregnancy
- Basic immunologic principles, including mechanisms of disease and diagnostic laboratory testing relevant to renal diseases
- Medical genetics

2) Prevention, evaluation, and management of general nephrologic disorders including:

- Acute renal failure
- Chronic renal failure
- End-stage renal disease
- Fluid, electrolyte, and acid-base disorders
- Disorders of mineral metabolism including nephrolithiasis and renal osteodystrophy (including use of lithotripsy)
- Urinary tract infections
- Hypertensive disorders
- Renal disorders related to pregnancy
- Primary and secondary glomerulopathies including infection-related glomerulopathies. This also entails a basic understanding of immunologic mechanisms of renal disease and the laboratory tests necessary for their diagnosis.
- Diabetic nephropathy
- Tubulointerstitial nephritis including papillary necrosis
- Genetic and developmental renal diseases including renal cystic diseases, hereditary glomerulopathies and interstitial nephritis, phakomatoses, systemic diseases with renal involvement, congenital malformations of the urinary tract, maternally inherited mitochondrial diseases, and renal cell carcinoma.
- Vascular diseases including atheroembolic disease
- Disorders of drug metabolism and renal drug toxicity
- Renal disorders associated with the elderly including altered drug metabolism
- Renal cystic diseases without a recognized genetic basis
- Nutritional management of general nephrologic disorders

3) Dialysis and extracorporeal therapy including:

- Evaluation and selection of patients for acute hemodialysis or continuous renal replacement therapies
- Evaluation of end-stage renal disease patients for various forms of therapy and their instruction regarding treatment options
- Drug dosage modification during dialysis and other extra-corporeal therapies
- Evaluation and management of medical complications in patients during and between dialyses and other extra-corporeal therapies, and an understanding of their pathogenesis and prevention

- e. Long-term follow-up of patients undergoing chronic dialysis including their dialysis prescription modification and assessment of adequacy of dialysis
- f. An understanding of the principles and practice of peritoneal dialysis including the establishment of peritoneal access, the principles of dialysis catheters, and how to choose appropriate catheters.
- g. An understanding of the technology of peritoneal dialysis including the use of cyclers
- h. Assessment of peritoneal dialysis efficiency using peritoneal equilibration testing and the principles of peritoneal biopsy
- i. An understanding of how to write a peritoneal dialysis prescription and how to assess peritoneal dialysis adequacy
- j. The pharmacology of commonly used medications and their kinetic and dosage alteration with peritoneal dialysis
- k. An understanding of the complications of peritoneal dialysis including peritonitis and its treatment, exit site and tunnel infections and their management, hernias, plural effusions and other less common complications and their management
- l. An understanding of the special nutritional requirements of the hemodialysis and peritoneal dialysis patient
- m. An understanding of the psychosocial, economic and ethical issues of dialysis
- n. An understanding of dialysis water treatment, delivery systems and dialyzer reuse
- o. An understanding of end-of-life care and pain management in the care of patients undergoing chronic dialysis.

4) Personally conducting the following procedures:

- a. Urinalysis
- b. Percutaneous biopsy of native
- c. Peritoneal dialysis
- d. Placement of temporary vascular access for hemodialysis and related procedures including use of vascular ultrasound guidance
- e. Acute and chronic hemodialysis
- f. Continuous renal replacement therapies

5) Understanding indications, complications (if relevant), and interpretation of the following procedures:

- a. Placement of peritoneal catheters
- b. Renal imaging - ultrasound, CT, IVP, MRI, angiography, and nuclear medicine studies
- c. Therapeutic plasmapheresis
- d. Radiology, angioplasty and declotting of vascular access

6) Special areas in the management of patients of renal diseases including:

- a. Psychosocial and economic issues confronting patients with renal disease
- b. Ethical issues relevant to care of patients with renal disease
- c. Optimizing the relationship of the nephrologist with other health care providers
- d. Optimizing mechanisms towards achieving life-long learning as a nephrologist
- e. Quality assessment and improvement, patient safety, risk management, preventative medicine, and physician impairment as it relates to the nephrologist
- f. Psychosocial and medical issues pertaining to the transition of the pediatric and/or adolescent renal patient to adulthood

Progressive objectives

The objectives of the nephrology fellowship program are designed to reflect a progressive increase in learning and independence. The learning principles are based on Bloom's taxonomy, describing progression through the six learning domains: knowledge, comprehension, application, analysis, synthesis and evaluation. In practice, the program's objectives change at the completion of the first year of the 2-year training period. The progressive change in objectives are summarized in the sections addressing the **four**

major rotations: Consultation, Transplantation, Research, and Outpatient Nephrology. These progressive objectives are provided to the fellows at the start of training and reviewed by the Program Director at the beginning of the second 12 months of training. Major areas in which a graduated level of function are anticipated in year 2 include:

- Consultation
 - Greater responsibility for teaching residents and medical students on the Nephrology Consultation service, including participating in the Core Curriculum lecture series for residents and greater oversight of resident cases on service
 - Conjoint responsibility with faculty in instructing and certifying first year fellows in internal jugular and femoral vein catheterization
 - Greater independence in deciding which cases to present to the on-call attending over weekends

Educational training

Handouts - At the beginning of the Fellowship, Fellows are provided with associate membership to the American Society of Nephrology and the National Kidney Foundation, providing them with their own subscriptions to JASN, NephSap, CJASN and AJKD journals. Fellows are also given access to UpToDate on the hospital computer system, and in their on-call room. Hundreds of additional journals and thousands of textbooks are available at the Parlow Library adjacent to the hospital.

Didactic sessions - While normal renal biology is discussed during more informal sessions (attending rounds, renal clinics) it is recognized that a structured approach is necessary to guarantee coverage of the basics of normal renal biology and pathology. The following didactic lecture and conference series covers the full range of Nephrology education as they relate to the four core rotations, Consultation, Transplantation, Research, and Outpatient clinics.

Introductory General Nephrology Course. At the beginning of the Fellowship, a 2 day course is given to provide trainees with a basic level of instruction regarding several issues in Nephrology. While it is geared primarily towards a basic level of instruction regarding topics in Nephrology that the fellow is unlikely to have covered during residency and will need to understand immediately at the outset of their fellowship (mechanics of dialysis and transplant protocols), some general nephrology issues are also discussed. The course continues over the first month of the fellowship.

Introductory Renal Pathology Course. Held for 3 hours during the first few weeks of the beginning of the fellowship, an introductory course is provided by the Renal Pathologists covering technical issues of fixation and staining and the interpretation of renal biopsy material by light, immunofluorescent, and electron microscopies.

Pathophysiology Conference is held each Friday from 7-8 AM for 1 year. This conference is given by the faculty of all of the UCLA-affiliated training programs, including Harbor-UCLA Medical Center, the David Geffen School of Medicine at UCLA, the West Los Angeles VA Medical Center, Olive View Medical Center, and Cedars-Sinai Medical Center, and is attended by all of the first-year fellows in these programs. A yearly schedule is provided and an inservice examination is given at the end of the year. At least a one-hour session is devoted to each of the following normal renal biology topics: water handling, potassium balance, sodium and volume, acid-base balance, Ca/Mg/PO₄ metabolism, renal immunology, blood pressure regulation, and renal function in pregnancy. Drug metabolism is discussed during several sessions dealing with antihypertensives, immunosuppressants, and other topics. Renal anatomy and histology are extensively discussed during several sessions on glomerular and interstitial diseases in which diseased kidneys are compared to normal kidneys. Mechanics of peritoneal and hemodialysis are discussed, as are topics in the evaluation and management of

transplant recipients and donors. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions. A locally administered inservice examination is given at the end of the year-long course.

Renal Pathology Conference is held one Wednesday a month from 4:30 to 6PM covering 3-4 cases recently biopsied by the fellows. Fellows present the clinical data and the light, immunofluorescent and electron microscopy images are presented by the Renal Pathologist. A discussion of the clinical course, plans and follow-up are discussed for each case. Nature of supervision - Faculty members (Nephrology and Renal Pathology) facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to interpret the images presented and receive immediate feedback regarding their interpretations.

Nephrology Grand Rounds is held each Monday from 1:30 to 2:30 PM. A faculty member or invited speaker covers an area of relevance in nephrology as a didactic lecture or as a case-based discussion. Nature of supervision - Faculty members give the didactic lecture and/or facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions.

Practice-based Learning and Improvement and System-based Practice Conference is held each Monday from 1:00 to 1:30 PM. Fellows may present one of two types of presentation. 1. Fellows may pose a specific question stimulated by a patient-based therapeutic or diagnostic problem posed in a pre-test form, discuss the answer to this question based on a review of the literature and/or other sources, define the sources used to answer the question, and then pose a post-test question for answer by the audience. 2. Alternatively, Fellows may use this conference to present the results of their personal System-based Practice study. Each fellow is required to carry out one System-based practice study each year. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions. A post-test question(s) is included in the structure of this didactic exercise to measure the success of the learning experience.

Comprehensive Renal Ultrasonography Course. Fellows receive a practicum comprised of four lectures coupled with hand-on experience in renal and vascular ultrasonography. Practicum is carried out each year in the first 6 months of the start of training of the PGY4 fellows. Practicum is required for the PGY4 fellows. Repeat attendance is optional for the PGY5 fellows. Practicum includes using simulation models for invasive procedures in nephrology including renal biopsy and venous catheter placement. Nature of supervision - Faculty member facilitates discussion of the material during the didactic sessions and provides hands-on learning with the fellows. Means of Fellow evaluation – Fellows participate actively in learning through question and answer interchange, interpretation of ultrasound images, and through hands-on use of the ultrasound machine in simulation. They receive immediate feedback on their knowledge base and interpretative skills during these didactic sessions.

Clinical Journal Club is held each Wednesday from 4:30 to 5:00 PM. All faculty and fellows rotate on a weekly basis as the presenter. The paper is chosen by the presenter and may be a paper from the recent medical literature, a landmark paper, a NephSap issue, or a recent set of guidelines. It is the responsibility of the presenter to review the clinical problem addressed as well as the design, implementation, results, and statistical analysis, and critique the overall validity of the conclusions drawn. Over the 2 year period,, the broad range of Nephrology topics are covered including general nephrology and transplantation, ethical issues, normal physiology in health and pregnancy, issues relating to care of the aged, and special pharmacology concerns in patients with CKD and ESRD. Robust audience participation in the discussion is encouraged and expected. Nature of supervision -

Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Evaluation forms are distributed at the start of the journal club for the formal evaluation of this activity.

Basic Science Journal Club is held each Wednesday from 5:00 to 5:30 PM. All faculty and fellows rotate on a weekly basis as the presenter. A paper from the recent medical literature is chosen by the presenter, whose responsibility is to review the basic science pathway addressed as well as the design, implementation, results, and statistical analysis, and critique the overall validity of the conclusions drawn. Robust audience participation in the discussion is encouraged and expected. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Evaluation forms are distributed at the start of the journal club for the formal evaluation of this activity.

Comprehensive Advanced Dialysis Course is held every other year, so that each PGY4 and PGY5 fellow participates once in the course of his/her training. The course is given by the faculty, and proceeds weekly for approximately 24 weeks. It includes lectures on the peritoneal and hemodialysis urea kinetics, vascular and peritoneal dialysis access, nutrition in ESRD, management of anemia and metabolic bone disease, and general medical care of the ESRD patient. The full curriculum is accessible on the Harbor-UCLA Division of Nephrology and Hypertension website at www.nephrology.labiomed.org Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions.

Transplant-Infectious Disease Combined Conference is held quarterly. A recent case of a renal transplant patient with an infectious complication is presented and discussed by the Renal and Infectious disease fellows with active audience participation by the fellows and faculty of both Divisions. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions.

Medical Grand Rounds is held each Tuesday from 8:30 to 9:30 PM. A faculty member or invited speaker covers an area of relevance in Internal Medicine as a didactic lecture or as a case-based discussion. Nature of supervision - Faculty members give the didactic lecture and/or facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to attend and participate actively.

Pediatric Nephrology Lecture Series. Harbor-UCLA Medical Center has on faculty two Pediatric nephrologists, who participate actively in Nephrology Grand Rounds, Journal Club, Pathology conference, and Research conference as presenters and as audience participants. The Pediatric Nephrologist give lectures series throughout the year on topics including renal pathophysiology, genetics, pharmacology, and adolescent nephrology. Nephrology fellows in the Adult Nephrology program attend those lectures that are relevant to their educational needs. The latter are identified by the Program Director.

Means of Fellow evaluation

In addition to the fellow evaluations accompanying each of the didactic and clinical activities of fellow trainees, comprehensive quarterly formal evaluations are provided during which fellows are counseled on areas of weakness and strength by the Program Director. Procedure logs are reviewed quarterly at this time.

General Consultative Nephrology:

1) Goal

Fellows will become competent in caring for patients with general nephrology problems.

2) Objectives

Detailed objectives for general nephrology are described in the General Nephrology table. There are 4 separate tables that address objectives for each rotation on general nephrology. A rotation is defined as a 1-month period on one of the four Core Rotations – Consultation, Transplantation, Research, and Outpatient Nephrology, so there are separate objectives for these four rotations during Years 1 and 2. These objectives reflect a progressive increase in expectations for fellows' competency achievement.

3) Patient characteristics (number, demographics)

1. **Inpatients** - The average inpatient General Nephrology consult service census ranges from 12 to 40 patients. The consultation service generally is comprised of 2-3 fellows and 1-2 internal medicine residents, plus the Attending physician. Approximately 30% of the consult requests come from the intensive care units. There is equal gender representation with ages ranging from 18 to 90 years. The patients are largely indigent and uninsured, and the clinical problems presented represent the full spectrum of general nephrology problems.

Consultation rotation

1. **Months 1-12** - Fellows progress from initially reporting the history, physical and other data, to understanding and comprehending this information, organizing, reviewing and reporting the relevant facts efficiently. Fellows learn to perform urinalysis accurately. Fellows begin to apply this information to make diagnostic and therapeutic decisions, and hone their ability to design a diagnostic plan and therapeutic interventions proceed to perform this function in an increasingly sophisticated and thoughtful manner.
2. **Months 13-23** – Fellows are expected to take on greater responsibility for teaching residents and medical students on the Nephrology Consultation service, including participating in the Core Curriculum lecture series for residents and providing greater oversight of resident cases on service. Fellows are expected to develop conjoint responsibility with faculty in instructing and certifying first year fellows in internal jugular and femoral vein catheterization. While in Year 1, fellows are expected to present all the patients seen over the weekend to the faculty attending, during Year 2 fellows will be permitted greater independence consistent with clinical maturity in deciding which follow-up cases to present to the on-call attending over weekends and the degree of detail necessary to present new consults.
3. **Month 24** - Fellows are competent in all six core competencies. They function as self-educators, reading and analyzing the literature, and adjusting their care based on this analysis. They also function as educators in a larger context, using their clinical experience and information they have obtained from the literature to teach their juniors, colleagues, staff and faculty.

Types of clinical encounters and supervision

Consultation encounters – Fellows spend approximately 8 months/year on the inpatient consultation service. Fellows receive consultation requests from the primary care teams of Surgery, Obstetrics-Gynecology, Family Practice, Internal Medicine, Cardiology, Adolescent Medicine, and Psychiatry. The Fellow is the first person from the Nephrology Service to evaluate a new inpatient, including a history, physical examination, and urinalysis (the latter faculty-supervised, especially in the first few months). The

Fellow follows all nephrology inpatients with daily history and examinations and, after discussion with faculty, charts recommendations. The fellow writes all dialysis orders under the supervision of the Attending Nephrologist. The Attending conducts didactic sessions each day on material relevant to the in-house cases in concert with the clinical reviews of the patients. The Fellow arranges for outpatient renal follow-up to ensure continuity of care. An Attending is on-call with the Fellow 24 hours a day.

Procedural training

Percutaneous biopsy of native kidneys – Performed by the Fellow on inpatients in conjunction with a Nephrology consultation and on outpatients in whom the decision is made after a diagnostic evaluation by the fellow in the General Nephrology Continuity clinic, or on occasion, in the Hypertension clinic. Each Fellow performs about 10 native renal biopsies yearly. Every renal biopsy is performed under the direct supervision of a Nephrology faculty member during the entire clinical training period.

Urinalysis – Performed by the Fellow on most new inpatients and outpatients, and on follow-up evaluation as necessary. One didactic lecture per year is given. Urinalyses are also reviewed with fellows by faculty on the Consultation service and in the General Nephrology Continuity clinic.

Renal ultrasound – Fellows receive didactic training in the performance of renal ultrasonography and of vascular ultrasonography for the performance of venous catheter placement for dialysis. They are certified for the use of ultrasonography for venous catheter placement either by Nephrology faculty and/or by the previously certified PGY5 fellow(s) on the service. This certification process involves the observation of at least 5 catheter placements at the internal jugular and femoral vein sites, or observation until the fellow is deemed competent to perform these procedures independently and without observation. For native renal biopsies, fellows receive instruction in ultrasonography interpretation during the performance of the renal biopsy, as well as didactic lectures and hand-on experience as described above. The Division of Nephrology and Hypertension has its own Ultrasound machine for teaching and clinical use.

Therapeutic plasmapheresis – Performed by the Blood Bank staff. Fellows are given didactic instruction in its indications, contraindications and outcomes.

Acute hemodialysis – Fellows are trained to evaluate patients, determine the indications for acute hemodialysis, and to write appropriate dialysis prescriptions.

Peritoneal dialysis – Fellows are trained in performing peritoneal dialysis including CAPD and CCPD, to write appropriate dialysis prescriptions, and to longitudinally evaluate and address dialysis complications and its comorbidities.

Chronic hemodialysis – Fellows are trained to evaluate patients, determine the indications for chronic hemodialysis, to write appropriate dialysis prescriptions, and to longitudinally evaluate and address dialysis complications and its comorbidities.

CRRT – Fellows are trained to evaluate patients, determine the indications for acute CRRT, and to write appropriate anticoagulation (eg citrate vs heparin).

Assessment and evaluation of Fellows

Clinical encounters – A variety of instruments are used to assess Fellow performance. The specific evaluation utilized is indicated in the General Nephrology Table. These include:

Checklist

- 1) Fellows are evaluated on a quarterly basis based on interactions with the attending in a 2-week Consultation block with a given attending and on the basis of a quarterly interaction with the

attendings on the Outpatient rotation. The attending uses a scale from 1-7 to assess patient care knowledge, skills, attitudes and behaviors. Fellows review these orally with the Program Director and both individuals sign the review form. If significant issues are noted, the attending immediately communicates this to the Program Director who meets with the attending and fellow to develop an action plan to address the issue. The Fellow's performance in this area is then reassessed, by Checklist by the inpatient attendings, in one month and reviewed with the Program Director. During the first 6 months of fellowship, all scores must be "4" (satisfactory) or higher; scores under this will be reviewed with the Program Director, specific problem areas identified, and the appropriate corrective action taken. The problem areas are re-evaluated in one month.

- 2) Fellows are evaluated by the Program Director quarterly. The Director uses a scale from 1-7 to evaluate the Fellow's patient care, medical knowledge, professionalism, interpersonal and communication skills, practice-based learning and improvement, and systems-based practice as it pertains to general nephrology. Fellows review this with the Program Director. These assessments are based on a composite of the assessments of all of the teaching faculty, 360 degree evaluations (see below), and any other pertinent information. If any significant issues exist, an action plan is developed and the fellow re-evaluated by the Program Director in 3 months using the same evaluation measurements as above. Importantly, this evaluation is also based on discussions among all of the clinical faculty and the Program Director. In addition, even if no significant issues are identified, goals are established for the fellow to work on over the next 3 months. These goals typically do not reflect needed attention to sub-par performance, but instead are intended to help the Fellow focus efforts. For example, faculty may note that the fellow did relatively few native kidney biopsies or that attending comments reflected a need to increased general nephrology knowledge base – appropriate recommendations to work on these areas would be made, and progress evaluated at the next quarterly Program Director review.
- 3) 360 evaluation – This evaluation is completed by patients, administrative assistants, secretaries, renal social workers, renal dieticians, nurses, and technicians in order to give a broad sense of how the Fellow delivers patient care and interacts with members of the general nephrology health care interdisciplinary team. It is completed yearly. Fellows review this with the Program Director. Problem areas (scores under "4") are identified and an action plan developed. Fellows with unsatisfactory ratings are reassessed in 6 months with particular attention to these problem areas.
- 4) Written exam – At the end of the first year, Fellow's are given a multiple choice test covering the curriculum of the Friday morning Pathophysiology course. Their performance is reviewed with the Program Director. General nephrology areas in need of improvement are identified and an action plan is developed to address these. Fellow's fund of knowledge in these areas is reassessed during the quarterly reviews by the Program Director.
- 5) Fellow portfolio - This is partly intended to evaluate Fellow's practice-based learning and improvement. The Monday 1PM conference time is utilized for this purposed. Several approaches are utilized:
 - 1) **Faculty or fellow-initiated CQI project.** The Fellow catalogues over time questions and issues that arose during patient care activities and identifies, with a faculty mentor, any issue to address. Once identified, an action plan is developed, the rationale expounded (including identifying data sources used), actions taken, and the effect of such interventions assessed. This is presented at the Practice-based learning improvement and continuous quality initiative conference (Mondays at 1PM).
 - 2) **Practice Improvement Module (PIM)** from ABIM. In place of a fellow or faculty-initiated CQI project, fellows may participate in the PIM in Hypertension, Specialty Referrals, or other areas.
 - 3) **Morbidity and mortality conference.** Identification of practice and/or system-based problems contributing to morbidity and mortality is an important aspect of meeting these core competencies. Fellows attendance at these conferences, and identification of the issues discussed and actions

taken, is documented and included in the portfolio. These cases are also presented at the Monday 1PM conference.

- 4) **Case-based presentations** with targeted question, a pre-test, a post-test, and documentation of the literature cited to answer the question. These presentations assist in improving the fellow's practice, detailing how they researched a topic relevant to a case they encountered and how such research impacted their care, or plan for subsequent care. The topics covered are listed in the portfolio and the actual presentations are maintained as files in the portfolio.
- 5) **Log of adverse events** and actions taken. Fellows keep a log of this, independent of their M&M presentations.
- 6) **Summative evaluations.** Each fellow is provided a copy of their evaluation from the Program Director on a quarterly basis and a meeting to discuss the fellow's progress.
- 7) **Mini-clinical examination (Mini-CEX)** – These provide formative input on the fellow's progression towards obtaining clinical competence relevant to general nephrology patient care.
- 8) **Procedures** – Fellows are required to keep a log of all native and allograft kidney biopsies, and femoral and internal jugular vascular access catheters, indicating date, attending, patient identifier, indication and complications. Biopsies are always done in the presence of an attending, regardless of fellow competency and experience. Catheter placements are performed under supervision until competency is achieved, and then may be placed unsupervised. Most renal fellows begin Nephrology fellowship having been certified for central line placement by their Internal Medicine programs. Nevertheless, we re-ascertain competence at the start of the fellowship program. Procedure logs are reviewed with the Program Director on a quarterly basis. Copies of the Procedure logs are kept in the Fellow's file. Fellows are not required to keep a log of urinalyses, but must be certified as competent in these by the Program Director, based on faculty input, prior to being able to conduct these unsupervised.
- 9) **End of first year evaluation** - This evaluation includes a review of the Fellow's performance during the first year of education, and verifies that the Fellow demonstrated sufficient professional ability to advance to a greater degree of autonomy. This includes the opportunity to proctor catheter placement by first year fellows, participation as a lecturer in the Core Lecture series that the Division gives to Internal Medicine residents rotating on the Nephrology consultation service, more autonomy in deciding which patients to present to the attending during weekend call, more oversight of the assignment of patients and initial evaluation of the Internal Medicine residents who rotate on the consultation service, and an expectation to complete a didactic Nephrology Grand Rounds.
- 10) **Final (summative) evaluation** - This evaluation includes a review of the Fellow's performance during the final period of education, and verifies that the Fellow demonstrated sufficient professional ability to practice competently and independently.
- 11) **Assessment and evaluation of attendings by Fellows** - discussed in section below devoted to this topic.

General Nephrology Table (Consultation rotations) - Months 1-12

Competency category	Competency objectives	General Nephrology objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards general nephrology patients	Attending teaching Conferences Orientation Core lectures	360 evaluation Mini-CEX	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter Quarterly checklist
	Gather essential and accurate information about their patients	Gather essential information about fellow's general nephrology patient	Attending teaching Conferences Core lectures	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Make informed decisions about diagnostic and therapeutic interventions	Begin to understand the basics of making informed decisions about diagnostic and therapeutic interventions in general nephrology patients	Attending teaching Conferences Core lectures	Post-tests Quarterly checklist	Correct ≥ 3 first quarter ≥ 4 last quarter
	Develop and carry out patient management plans	Begin to develop general nephrology patient management plans	Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Counsel and educate patients and families	Counsel and educate, with direct attending supervision, general nephrology patients and families with regard to their disease, socioeconomic, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Use information technology	Use information technology to assist caring for general nephrology patients, including UpToDate, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Orientation Conferences	Quarterly checklist Evaluations of Journal Clubs and PBLI conferences	≥ 3 first quarter ≥ 4 last quarter
	Perform: Physical exam	Examine the general nephrology patient, particularly with regard to the renal examination and organ systems affected by renal dysfunction	Attending teaching Conferences Core lectures	Mini-CEX Quarterly checklist	≥ 3 first quarter ≥ 4 last quarter
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and understand the correct procedural techniques for: 1. Percutaneous native and allograft renal biopsy, catheters Understand interpretation and the correct technique for: 2. Urinalysis	Attending teaching Conferences Core lectures	Procedure logs and review Quarterly checklist	Satisfactory ≥ 3 first quarter ≥ 4 last quarter
	Provide preventative health care services	Understand preventative health care services relevant to general nephrology patients	Conferences Attending teaching	PBLI post-tests Quarterly checklist	Correct ≥ 3 first quarter ≥ 4 last quarter
Work within a team of health care professionals	Work within the general nephrology health care team, including attendings, nurses, dietitians, social workers, physician extenders, pharmacists and administrative assistants	Conferences Attending teaching Orientation	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter	

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Begin to demonstrate investigatory and analytic thinking about clinical general nephrology situations	Attending teaching Core lectures Conferences Journal club Clinical meetings Orientation	Mini-CEX Local inservice exam	≥ 3 first quarter ≥ 4 last quarter Pass
	Know and apply the basic and clinically supportive sciences	<p>Fellows will gather the data and begin to develop the fund of knowledge necessary for prevention, evaluation, and management of general nephrologic disorders in:</p> <ul style="list-style-type: none"> a. Acute renal failure b. Chronic renal failure c. Fluid, electrolyte, and acid-base disorders d. Disorders of mineral metabolism including nephrolithiasis and renal osteodystrophy (including use of lithotripsy) e. Urinary tract infections and pyelonephritis f. Hypertensive disorders g. Renal disorders related to pregnancy h. Primary and secondary glomerulopathies, including understanding of immunologic mechanisms of renal disease and the laboratory tests necessary for their diagnosis i. Diabetic nephropathy j. Tubulointerstitial nephritis including papillary necrosis k. Genetic and developmental renal diseases including renal cystic diseases, hereditary glomerulopathies and interstitial nephritis, phakomatoses, systemic diseases with renal involvement, congenital malformations of the urinary tract, maternally inherited mitochondrial diseases, and renal cell carcinoma l. Vascular diseases including atheroembolic disease m. Disorders of drug metabolism and renal drug toxicity, including in geriatric patients n. Renal disorders associated with geriatric patients o. Renal cystic diseases without a recognized genetic basis <p>Understand nutritional management of general nephrologic disorders</p> <p>Understand indications and interpretation of renal imaging, including ultrasound, CT, IVP, MRI, angiography, nuclear medicine studies</p> <p>Understand indications, complications and outcomes in therapeutic plasmapheresis</p>	Attending teaching Core lectures Conferences Journal club Clinical meetings Orientation	Mini-CEX Local inservice exam	≥ 3 first quarter ≥ 4 last quarter Pass

Practice-based learning and improvement	Analyze own practice and perform practice-based improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Monitoring their practice b. Reflecting on or analyzing their practice to identify learning or improvement needs c. Begin a learning or improvement plan	Attending teaching Case-based presentations on fellow's own pts. Journal club Participation in CQI activities Exit rounds on patient discharge M&M on fellow's own patients Conferences Log of significant events and plan to address Assigned faculty mentor PIM Dialysis CQI	Resident portfolio (Fellow catalogues over time questions and issues that arose during patient care activities along with copies of the data sources used, and actions taken, to address the specific question or issue). Quarterly checklist	Case-based talks* Journal clubs* Mortality/ Morbidity Procedure log reviews CQI project started *Conference performance evaluated by TPD and other faculty and fellows ≥ 3 first quarter ≥ 4 last quarter
	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to general nephrology patients' health problems	Attending teaching Case-based presentations on fellow's own pts. Journal club	PBLI/CQI/M&M conference evaluations Quarterly checklist	Correct ≥ 3 first quarter ≥ 4 last quarter
	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Begin to understand study designs and statistical methods to appraising clinical studies and other information	Statistics and epidemiology course Conferences Journal club Assigned faculty mentor	Quarterly checklist Evaluations of lectures and Journal clubs	≥ 3 first quarter ≥ 4 last quarter on Journal club evaluation
	Use information technology	Use information technology as itemized in Patient Care above	Attending teaching Orientation Conferences	Checklist evaluations Resident portfolio	≥ 3 first quarter ≥ 4 last quarter
	Facilitate the learning of others	Facilitate the learning of others, including, residents, fellows, physician extenders, nurses and dialysis technicians. Initially, this is based on assigned literature review.	Role models Attending teaching Conferences	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Interpersonal & communication skills	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with general nephrology patients	Role models Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist
Demonstrate effective listening and writing skills		Demonstrate effective listening and writing skills	Role models Attending teaching	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter

Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	360 evaluation Mini-CEX	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice	Role models Attending teaching Conferences	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4 ≥ 3 first quarter ≥ 4 last quarter
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
Systems-based practice	Understand interaction of their practices with the larger system	Begin to understand interaction between fellow's practice and the hospital and clinic staff, administration, surgical service, radiology, and medical consult services	Conferences Attending teaching ESRD QA	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Practice cost-effective health care	Begin to understand how to practice cost-effective general nephrology patient care	Conferences Core lectures Attending teaching	Post-test 360 evaluation Quarterly checklist	Correct ≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Advocate for quality patient care	Begin to understand how to advocate for general nephrology patient quality care	Attending teaching Participation in CQI Conferences	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter

General Nephrology Table (Consultation and Outpatient rotations) - Months 13-23

Competency category	Competency objectives	General Nephrology objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards general nephrology patients	Attending teaching Conferences Core lectures	Quarterly checklist Mini-CEX 360 evaluation	≥4.5 ≤10% unacceptable
	Gather essential and accurate information about their patients	Gather essential information about fellow's general nephrology patient	Attending teaching Conferences Core lectures	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 4.5
	Make informed decisions about diagnostic and therapeutic interventions	Synthesize data to begin to make informed decisions about diagnostic and therapeutic interventions in general nephrology patients	Attending teaching Conferences Core lectures	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥4.5
	Develop and carry out patient management plans	Develop general nephrology patient management plans. Understand how to carry out such plans.	Attending teaching Conferences Core lectures	Post-tests Quarterly checklist	Correct ≥ 4.5
	Counsel and educate patients and families	Counsel and educate general nephrology patients and families with regard to their disease, socioeconomics, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
	Use information technology	Use information technology to assist caring for general nephrology patients, including UpToDate, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Conferences	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 4.5
	Perform: Physical exam	Examine the general nephrology patient, particularly with regard to the renal examination and organ systems affected by renal dysfunction	Attending teaching Conferences Core lectures	Checklist evaluations of Journal Clubs and PBLI conferences Quarterly checklist	≥ 4.5
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and demonstrate the correct procedural techniques for: 1. Percutaneous native renal biopsy Understand interpretation and demonstrate the correct technique for: 2. Urinalysis	Attending teaching Conferences Core lectures	Mini-CEX Quarterly checklist	≥ 4.5
	Provide preventative health care services	Provide preventative health care services relevant to general nephrology patients	Conferences Attending teaching	PBLI post-tests 360 evaluation Quarterly checklist	Correct ≤10% unacceptable
Work within a team of health care professionals	Work within the general nephrology health care team, including attendings, nurses, dietitians, social workers, physician extenders, pharmacists and administrative assistants	Conferences Attending teaching	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5	

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Demonstrate investigatory and analytic thinking about clinical general nephrology situations	Attending teaching Core lectures Conferences Journal club Clinical meetings	Mini-CEX Quarterly checklist National inservice exam	≥ 4.5 Pass
	Know and apply the basic and clinically supportive sciences	<p>Fellows will continue to acquire the fund of knowledge necessary for prevention, evaluation, and management of the general nephrologic disorders below. They will begin to apply this information.</p> <ol style="list-style-type: none"> a. Acute renal failure b. Chronic renal failure c. Fluid, electrolyte, and acid-base disorders d. Disorders of mineral metabolism including nephrolithiasis and renal osteodystrophy (including use of lithotripsy) e. Urinary tract infections and pyelonephritis f. Hypertensive disorders g. Renal disorders related to pregnancy h. Primary and secondary glomerulopathies, including understanding of immunologic mechanisms of renal disease and the laboratory tests necessary for their diagnosis i. Diabetic nephropathy j. Tubulointerstitial nephritis including papillary necrosis k. Genetic and developmental renal diseases including renal cystic diseases, hereditary glomerulopathies and interstitial nephritis, phakomatoses, systemic diseases with renal involvement, congenital malformations of the urinary tract, maternally inherited mitochondrial diseases, and renal cell carcinoma l. Vascular diseases including atheroembolic disease m. Disorders of drug metabolism and renal drug toxicity, including in geriatric patients n. Renal disorders associated with geriatric patients o. Renal cystic diseases without a recognized genetic basis <p>Understand nutritional management of general nephrologic disorders</p> <p>Understand indications and interpretation of renal imaging, including ultrasound, CT, IVP, MRI, angiography, nuclear medicine studies</p> <p>Understand indications, complications and outcomes in therapeutic plasmapheresis</p>	Attending teaching Core lectures Conferences Journal club Clinical meetings	Mini-CEX Quarterly checklist National inservice exam	≥ 4.5 Pass

Practice-based learning and improvement	Analyze own practice and perform practice-based improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Monitoring their practice b. Reflecting on or analyzing their practice to identify learning or improvement needs c. Engaging in a learning or plan improvement	Attending teaching Case-based presentations on fellow's own pts. Journal club Participation in CQI activities Exit rounds on patient discharge M&M on fellow's own patients Conferences Log of significant events and plan to address Assigned faculty mentor PIM Dialysis CQI	Resident portfolio (Fellow catalogues over time questions and issues that arose during patient care activities along with copies of the data sources used, and actions taken, to address the specific question or issue).	≥ 4.5
	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to general nephrology patients' health problems	Attending teaching Case-based presentations on fellow's own pts. Journal club	PBLI/CQI/M&M Conference evaluations Quarterly checklist	<u>Correct</u> ≥ 4.5
	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Statistics and epidemiology course Conferences Journal club Assigned faculty mentor	Evaluations of lectures and Journal clubs	≥ 4.5
	Use information technology	Use information technology as itemized in Patient Care above	Attending teaching Orientation Conferences	Checklist evaluations Resident portfolio	≥ 4.5
	Facilitate the learning of others	Facilitate the learning of others, including faculty, residents, fellows, physician extenders, nurses and dialysis technicians	Role models Attending teaching Conferences	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
Interpersonal & communication skills	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with general nephrology patients	Role models Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
	Demonstrate effective listening and writing skills	Demonstrate effective listening and writing skills	Role models Attending teaching	360 evaluation Mini-CEX Quarterly checklist	≤10% unacceptable ≥ 4.5

Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable
	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable
Systems-based practice	Understand interaction of their practices with the larger system	Understand interaction between fellow's practice and the hospital and clinic staff, administration, surgical service, radiology, and medical consult services	Conferences Attending teaching Dialysis QA	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
	Practice cost-effective health care	Understand cost-effective general nephrology patient care and begin to apply these principles	Conferences Core lectures Attending teaching	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
	Advocate for quality patient care	Advocate for general nephrology patient quality care by demonstrating proactive efforts towards general nephrology patient care	Attending teaching Participation in CQI Conferences	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable

General Nephrology Table (Consultation and Outpatient rotations) – Month 24

Competency category	Competency objectives	General Nephrology objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards general nephrology patients	Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 5
	Gather essential and accurate information about their patients	Gather essential information about fellow's general nephrology patient	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Make informed decisions about diagnostic and therapeutic interventions	Make informed decisions about diagnostic and therapeutic interventions in general nephrology patients	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Develop and carry out patient management plans	Develop and carry out general nephrology patient management plans	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable Formative
	Counsel and educate patients and families	Counsel and educate general nephrology patients and families with regard to their disease, socioeconomics, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Use information technology	Use information technology to assist caring for general nephrology patients, including UpToDate, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Conferences	Quarterly checklist	≥ 5
	Perform: Physical exam	Examine the general nephrology patient, particularly with regard to the renal examination and organ systems affected by renal dysfunction	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and demonstrate the correct procedural techniques for: 1. Percutaneous native and allograft renal biopsy and venous catheter placement Understand interpretation and demonstrate the correct technique for: 2. Urinalysis	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Provide preventative health care services	Provide preventative health care services relevant to general nephrology patients	Conferences Attending teaching	Quarterly checklist	≥ 5
	Work within a team of health care professionals	Work within the general nephrology health care team, including attendings, nurses, dieticians, social workers, physician extenders, pharmacists and administrative assistants	Conferences Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Demonstrate investigatory and analytic thinking about clinical general nephrology situations	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist National inservice examination	≥ 5 Obtain a passing grade
	Know and apply the basic and clinically supportive sciences	<p>Fellows have acquired the fund of knowledge necessary for prevention, evaluation, and management of general nephrologic disorders in the areas below. They will serve as educators for other fellows, faculty and staff in these areas, whenever possible.</p> <ol style="list-style-type: none"> a. Acute renal failure b. Chronic renal failure c. Fluid, electrolyte, and acid-base disorders d. Disorders of mineral metabolism including nephrolithiasis and renal osteodystrophy (including use of lithotripsy) e. Urinary tract infections and pyelonephritis f. Hypertensive disorders g. Renal disorders related to pregnancy h. Primary and secondary glomerulopathies, including understanding of immunologic mechanisms of renal disease and the laboratory tests necessary for their diagnosis i. Diabetic nephropathy j. Tubulointerstitial nephritis including papillary necrosis k. Genetic and developmental renal diseases including renal cystic diseases, hereditary glomerulopathies and interstitial nephritis, phakomatoses, systemic diseases with renal involvement, congenital malformations of the urinary tract, maternally inherited mitochondrial diseases, and renal cell carcinoma l. Vascular diseases including atheroembolic disease m. Disorders of drug metabolism and renal drug toxicity, including in geriatric patients n. Renal disorders associated with geriatric patients o. Renal cystic diseases without a recognized genetic basis p. Understand nutritional management of general nephrologic disorders q. Understand indications and interpretation of renal imaging, including ultrasound, CT, IVP, MRI, angiography, nuclear medicine studies r. Understand indications, complications and outcomes in therapeutic plasmapheresis 	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist National inservice exam	≥ 5 Pass

Practice-based learning and improvement	Analyze own practice and perform practice-based improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Monitoring their practice b. Reflecting on or analyzing their practice to identify learning or improvement needs c. Engaging in a learning or plan improvement d. Applying the new learning or improvement e. Monitoring the impact of the learning or improvement	Attending teaching Case-based presentations on fellow's own pts. Journal club Participation in CQI activities Exit rounds on patient discharge M&M on fellow's own patients Conferences Log of significant events and plan to address Assigned faculty mentor PIM	Resident portfolio (Fellow catalogues over time questions and issues that arose during patient care activities along with copies of the data sources used, and actions taken, to address the specific question or issue).	Case-base talks* Journal clubs* M&M ≥5 on checklists Log of ≥4 significant events and how addressed CQI project - analysis & reporting *Conference performance evaluated by TPD
	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to general nephrology patients' health problems	Attending teaching Case-based presentations on fellow's own pts. Journal club	Quarterly checklist	≥ 5
	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information. Apply knowledge of study design and statistical methods to the research project to be completed by the end of the fellow's training.	Statistics and epidemiology course Conferences Journal club Assigned faculty mentor	Evaluations at Journal Club and PBLI conferences	≥ 5 Correct
	Use information technology	Use information technology as itemized in Patient Care above	Attending teaching Conferences	Quarterly checklist Resident portfolio	≥ 5
	Facilitate the learning of others	Facilitate the learning of others, including faculty, residents, fellows, physician extenders, nurses and dialysis technicians. The degree of such education is one of the main differences from the preceding twelve months.	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
Interpersonal & communication skills	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with general nephrology patients	Role models Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Demonstrate effective listening and writing skills	Demonstrate effective listening and writing skills	Role models Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable

Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice Demonstrate a knowledge of HIPPA regulations and the laws and ethics surrounding medical research	Role models Attending teaching Conferences Research ethics reading and/or course	Quarterly checklist 360 evaluation HIPPA and IRB ethics test	≥ 5 ≤10% unacceptable Obtain passing grades and certificates
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
Systems-based practice	Understand interaction of their practices with the larger system	Understand interaction between fellow's practice and the hospital and clinic staff, administration, surgical service, radiology, and medical consult services	Conferences Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Understand types of medical practice and delivery systems	Understand how types of general nephrology practice and providers deliver care	Conferences Attending teaching	Quarterly checklist	≥ 5
	Practice cost-effective health care	Practice cost-effective general nephrology patient care	Conferences Core lectures Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Advocate for quality patient care	Advocate for general nephrology patient quality care by demonstrating proactive efforts towards dialysis CQI	Attending teaching Participation in CQI Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable

Educational training

Pathophysiology conference is held each Friday from 7-8 AM for 1 year. This conference is given by the faculty of all of the UCLA-affiliated training programs, including Harbor-UCLA Medical Center, the David Geffen School of Medicine at UCLA, the West Los Angeles VA Medical Center, Olive View Medical Center, and Cedars-Sinai Medical Center, and is attended by all of the first-year fellows in these programs. A yearly schedule is provided and an inservice examination is given at the end of the year. At least a one-hour session is devoted to each of the following normal renal biology topics: water handling, potassium balance, sodium and volume, acid-base balance, Ca/Mg/PO₄ metabolism, renal immunology, blood pressure regulation, and renal function in pregnancy. Drug metabolism is discussed during several sessions dealing with antihypertensives, immunosuppressants, and other topics. Renal anatomy and histology are extensively discussed during several sessions on glomerular and interstitial diseases in which diseased kidneys are compared to normal kidneys. Mechanics of peritoneal and hemodialysis are discussed, as are topics in the evaluation and management of transplant recipients and donors. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions. A locally administered inservice examination is given at the end of the year-long course.

Renal pathology conference is held one Wednesday a month from 4:30 to 6PM covering 3-4 cases recently biopsied by the fellows. Fellows present the clinical data and the light, immunofluorescent and electron microscopy images are presented by the Renal Pathologist. A discussion of the clinical course, plans and follow-up are discussed for each case. Nature of supervision - Faculty members (Nephrology and Renal Pathology) facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to interpret the images presented and receive immediate feedback regarding their interpretations.

Nephrology Grand Rounds is held each Monday from 1:30 to 2:30 PM. A faculty member or invited speaker covers an area of relevance in nephrology as a didactic lecture or as a case-based discussion. Nature of supervision - Faculty members give the didactic lecture and/or facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions.

Practice-based Learning and Improvement and System-based Practice conference is held each Monday from 1:00 to 1:30 PM. Fellows may present one of two types of presentation. 1. Fellows may pose a specific question stimulated by a patient-based therapeutic or diagnostic problem posed in a pre-test form, discuss the answer to this question based on a review of the literature and/or other sources, define the sources used to answer the question, and then pose a post-test question for answer by the audience. 2. Alternatively, Fellows may use this conference to present the results of their personal System-based Practice study. Each fellow is required to carry out one System-based practice study each year. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions. A post-test question(s) is included in the structure of this didactic exercise to measure the success of the learning experience.

Clinical Journal Club is held each Wednesday from 4:30 to 5:00 PM. All faculty and fellows rotate on a weekly basis as the presenter. The paper is chosen by the presenter and may be a paper from the recent medical literature, a landmark paper, a NephSap issue, or a recent set of guidelines. It is the responsibility of the presenter to review the clinical problem addressed as well as the design, implementation, results, and statistical analysis, and critique the overall validity of the conclusions drawn. Over the 2 year period,, the broad range of Nephrology topics are covered including general nephrology and transplantation, ethical issues, normal physiology in health and pregnancy, issues relating to care of the aged, and special

pharmacology concerns in patients with CKD and ESRD. Robust audience participation in the discussion is encouraged and expected. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Evaluation forms are distributed at the start of the journal club for the formal evaluation of this activity.

Basic Science Journal Club is held each Wednesday from 5:00 to 5:30 PM. All faculty and fellows rotate on a weekly basis as the presenter. A paper from the recent medical literature is chosen by the presenter, whose responsibility is to review the basic science pathway addressed as well as the design, implementation, results, and statistical analysis, and critique the overall validity of the conclusions drawn. Robust audience participation in the discussion is encouraged and expected. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Evaluation forms are distributed at the start of the journal club for the formal evaluation of this activity

Transplant-Infectious Disease Combined Conference is held quarterly. A recent case of a renal transplant patient with an infectious complication is presented and discussed by the Renal and Infectious disease fellows with active audience participation by the fellows and faculty of both Divisions. Nature of supervision - Faculty members facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to participate actively in learning through question and answer interchange and receive immediate feedback on their knowledge base during the didactic sessions.

Medical Grand Rounds is held each Tuesday from 8:30 to 9:30 PM. A faculty member or invited speaker covers an area of relevance in Internal Medicine as a didactic lecture or as a case-based discussion. Nature of supervision - Faculty members give the didactic lecture and/or facilitate discussion of the material during the didactic sessions. Means of Fellow evaluation – Fellows are encouraged to attend and participate actively.

General Consultation Rounds take place daily weekdays with the Consult attending and by telephone on weekends. Both didactic and clinical teaching take place during these times and contribute to the overall education of the fellow in the context of the provision of patient care.

Special Lecture Series are part of the curriculum and occur at scheduled times during the 2 years of training. These include Core curriculum for new Nephrology fellows during the first month of the first year of training; the weekly approximately 6-month lecture series, Comprehensive Advanced Dialysis Course; the Comprehensive Renal Ultrasonography course; the Introductory Renal Pathology course; and the Pediatric nephrology Pathophysiology lectures.