

NEPHROLOGY FELLOWSHIP GENERAL CURRICULUM

I. General Description/ Educational Purpose of the Program:

The Nephrology Fellowship offered by the Division of Nephrology of the Department of Medicine provides an opportunity to pursue advanced training in clinical nephrology and to undertake training in basic science research or clinical research. The program is designed for trainees who wish to receive outstanding training in order to pursue a career in academic medicine (basic science, clinical research, or clinical education) or private practice.

The mission of the University of Michigan Nephrology Fellowship program is to produce physicians that 1) are clinically competent in the field of nephrology, 2) are capable of working in a variety of settings, 3) possess habits of life-long learning. In addition, the program aims to train a subset of fellows to become independent investigators in either clinical or basic science relevant to kidney disease.

This program provides fellows with the opportunity to become leaders in the organization and management of patient care, emphasizes scholarship and self-instruction, development of critical analysis of clinical problems, and the ability to make appropriate decisions.

The first year of the fellowship consists of intensive training in clinical nephrology in order to develop the fundamental skills and knowledge required to become an outstanding clinical nephrologist. First year fellows rotate assignments on the Nephrology Consultation Service, the Dialysis Consultation Service, and the Kidney Transplantation Consultation Service at the University of Michigan Hospitals, as well as on the VA Nephrology Consultation Service at the Ann Arbor VA Medical Center.

Fellows will become proficient in skills such as supervision of dialysis (hemodialysis, peritoneal dialysis and continuous renal replacement therapy), placement of temporary catheters for vascular access, performing native and renal transplant biopsies, and performance and interpretation of urinalysis.

Fellows participate in Nephrology Outpatient Continuity Clinic one half-day per week. Our continuity clinic is a referral center for patients who have renal transplants, glomerular diseases, recurrent kidney stones, refractory and secondary forms of hypertension, genetic kidney diseases, and other aspects of general nephrology. Patients are seen in the Taubman Clinics. Teaching faculty members provide supervision each week on a rotating schedule.

Second year rotations: The second year of training is designed by the trainee, mentors and program director. It seeks to build on the first basic clinical year and to provide the resident with the special skills she/he will need for her/his future career. The University of Michigan Nephrology Fellowship Program prides itself on providing a flexible experience that because of the program's large size and the expanse of clinical and scientific expertise represented on its faculty can prepare fellows well for both clinical and academic careers. Indeed, the fellowship program director is invested in using the resources of the entire University of Michigan community for this purpose. Depending on the individual, the training focus ranges from special training for adult clinical practice, clinical academic nephrology, or renal epidemiological or outcomes research, or clinical or basic science research. It is understood by the fellows and the Division that academic training requires more than the time available in a two year fellowship. As such, the Division typically promotes fellows after their second year to the junior faculty

position of Lecturer to allow them to continue their academic training. During the first fellowship year, the fellow selects both a research and a clinical mentor from the training program faculty who actively assist the resident in designing the second year training program. Fellows are asked to design their second year program using the following template:

A. Required of all second year fellows:

1. In-hospital service (2 week blocks x 3)
2. Continuity clinic (1/2 day per week all year)
3. Chronic dialysis continuity clinic (12 clinics minimum over 6 months for those doing research training; 24 minimum over 12 months for those planning career in primary nephrology or in clinical research related to dialysis; weekly attendance during the entire year strongly recommended)
4. Peritoneal Dialysis clinic (required for all fellows; minimum of 12 half day clinics during the second year; can be distributed as desired by fellows)
5. Transplant clinic ("combined" post-transplant clinic: 1/2 day/wk x 3 month minimum)
6. Research (6 months minimum/can include formal class work; can be scheduled concomitantly with weekly activities, but a total of 6 months time should be devoted to this activity by spreading it over the entire year)
7. Scheduled VA outpatient nephrology clinic (every other week)
8. Vacation (2 x 2 weeks)
9. Conferences
 - a. Clinical Conference/Research Conference/Journal Club (Wednesday: 2 hours per week)
 - b. Basic Science Seminar/Journal Club (Tuesday: 1 hour per week for those doing basic science)
 - c. Nephrology Topics Seminar (Tuesday: 1 hour per week excluding summer)

B. Electives:

1. Stone clinic (1/2 day per week; 1 month minimum)
2. Renal pathology (with Dr. Paul Killen, renal pathologist: 1 month)
3. Pediatric nephrology (1 month in patient or out-patient clinic)
4. Interventional nephrology (should overlap with other activities since not full day experience)

Each individual fellow program must be formally approved by the training program director.

Special features of these programs include:

- A program designed for those wishing to enter adult nephrology practice in the community emphasizes clinical experiences including dialysis, transplantation, and pediatric nephrology, and includes a clinical research project.
- The Nephrology Training Program was awarded a renewal of its NIH sponsored institutional training grant in July 2005. This was the sixth consecutive 5-year grant for this program. This provides funding for 4 training fellowships in either clinical research training or basic science research training. As described elsewhere in this document, the NIH peer review group of this program lauded the program for its breadth and rigor and for the use of the resources of the larger University of Michigan community. Fellows interested in training for an academic career are entered into this program.

- For fellows interested in clinical trial design or in epidemiology or outcomes research training, the program strongly encourages training leading to a Master's or Ph.D. degree in the School of Public Health. Formal class work is carried out in a unique program that meets only 4 days per month; this allows fellows to combine formal education with a project mentored by a faculty member in the specific area of the fellow's interest. The University of Michigan Division of Nephrology is associated with the Kidney Epidemiology and Cost Center and University Renal Research Education Associates that are internationally renowned for their research in chronic kidney disease and solid organ transplantation. These groups created and managed the United States Renal Data System for many years and presently manage the SRTR or solid organ transplant registry of the United States. This serves as an outstanding training environment for our fellows.
- A three month hands-on cell and molecular biology course followed by intensive basic science research training in the laboratory of a nephrology faculty mentor or other basic science faculty mentor is designed to train fellows for a career in basic science as an independent basic science investigator.
- A mentored clinical research experience in post-graduate education or bioengineering including Masters' level coursework in the School of Education or the Bioengineering Department.

The University of Michigan Division of Nephrology is committed to diversity in our fellowship program.

II General Description of Nephrology Conferences:

The University of Michigan Nephrology Fellowship Program requires that both first and second year nephrology fellows participate in the following conferences:

A. The Nephrology Core Curriculum Seminar Series (Tuesdays at 12-1 PM, 12 months per year) This comprehensive seminar series presented by Nephrology and guest faculty to both first and second year fellows provides didactic seminars on topics that cover the broad field of Nephrology and include basic sciences relevant to the topics being discussed. This seminar series follows a two year cycle during the two year fellowship to allow the presentation of a broader number of topics. It includes monthly sessions on renal pathology taught by a renal pathologist, Dr. Paul Killen. This seminar series follows the curriculum recommended by the ACGME for nephrology and incorporates a variety of topics that enhance the fellow's education including relevant topics in basic science and clinical literature review. This conference is required and is attended regularly by first and second year fellows and often by junior faculty. Lunch is served to encourage attendance. During July and August, the seminar series includes a series of preparatory "Nuts and Bolts" lectures aimed at incoming first year fellows that provides the basics of nephrology emergency medicine, dialysis medicine, and transplantation medicine. PowerPoint presentations prepared for these seminars are collected in pdf file format and are made available to fellows via the internet.

B. The Nephrology Clinical Conference (Wednesday at 5-6 PM, four weeks per month). This is the central clinical conference for the Nephrology Division that is attended by pediatric and adult nephrology fellows at all levels, medical students, internal medicine residents, adult and pediatric nephrology faculty, and renal pathology faculty and fellows. Cases are selected and presented by two first or second year fellows per week (with faculty input) from those encountered by the fellow in hospital and in outpatient clinics. Fellows prepare a half hour

PowerPoint presentation for the conference in which the case is presented and analyzed in order to make key teaching points. These presentations employ recent literature to support conclusions. Cases are discussed by faculty and fellows in attendance. Renal pathology also is frequently presented and discussed by a renal pathologist in attendance. There is also discussion of basic science concepts/topics in most of the presentations. Fellows' presentations also incorporate important literature review associated with the case. Attendance is taken.

C. A rotating Nephrology Clinical Journal Club, Clinical Research Conference, and Basic Science Conference (every Wednesday from 4-5 PM) directly follows the weekly Nephrology Clinical Conference. This conference is required of first and second year fellows and all faculty. All will participate in all aspects of the program.

Format:

- A. Clinical Journal Club (first Wednesday of month). This conference follows a traditional journal club format in which clinical papers are selected by the assigned fellow or faculty member. Two papers are presented; one by a fellow and a second by a faculty person. The presenter provides a brief review of the scientific context of the paper, the primary data, an analysis thereof, and a critique/discussion of the experimental approach and results. Clinical papers of immediate significance to current practice will be generally selected for presentation although papers of lesser importance will sometimes be presented to illustrate a source of clinical controversy or emphasize problems in experimental design. Multiple faculty members within the division of nephrology are formally trained in statistics and clinical trial design; these individuals use this venue to teach these concepts to participants.
- B. Nephrology Clinical Science Research Conference (second and fifth Wednesdays). This conference will provide an opportunity for:
 1. Hour long presentations of clinic science research done by Nephrology division senior faculty;
 2. Hour long presentation of clinical science research by visiting professors;
 3. Half hour presentations of personal research by second year fellows and lecturers given late in the second half of year.
- C. Nephrology Basic Science Conference (fourth Wednesday). This seminar series will be presented by basic science faculty of the division of Nephrology or by visiting scientists. During the last month of the academic year trainees will present their own research in this formal setting.
- D. Morbidity and mortality cases are included approximately four times per year. These sessions are conducted by either faculty members or fellows or both and are aimed at constructively reviewing adverse events and using these occurrences to improve division practice and are based on literature and discussion.
- E. Ethics conferences: These sessions occur four times per year in this setting. Cases that illustrate ethical dilemmas are presented to the group for discussion. Literature is reviewed. A bioethics professor is invited to these sessions to facilitate discussion.

Other conferences:

1. The George O'Brien Renal Center Seminar Series (every Tuesday at 9-10 AM except July and August). Seminars are presented by basic science research faculty from the

greater University of Michigan community and by basic science faculty of the division of nephrology. These seminars are intended to cover a broad spectrum of science relevant directly or indirectly to nephrology and are assembled in order to stimulate thought. This has been an extremely successful seminar series that has existed for many years that is attended by science faculty, staff, and laboratory trainees. Due to its content that includes a wide variety of biological science topics, it continues to be an optional educational experience for first year fellows and second year fellows not interested or training in the basic sciences. Second year fellows and junior faculty participating in basic science training are required to attend.

2. Epidemiology Conference (Friday, 12-1PM). These weekly meetings cover new and important topics in the epidemiology of end-stage renal disease (including renal transplantation) and chronic renal disease, cost and outcomes research, biostatistics and other relevant topics. Research findings of the nephrology faculty members and residents are also presented in this conference. The conferences are presented by faculty members and nephrology residents involved in clinical outcomes and epidemiology research. Nephrology residents interested in a career in clinical outcomes and epidemiology are required to attend this conference. It is optional for other residents.
3. Multi-Disciplinary Educational Transplant Conference (Thursday, 3:30-4:30PM). This weekly meeting is designed to bring together researchers and clinicians involved in solid organ transplantation at the University of Michigan for multi-disciplinary education involving all aspects of transplantation medicine. Its format includes presentations of recent articles, pathology discussions, case presentations, and lectures from University of Michigan faculty members and outside speakers. Nephrology residents periodically give case presentations when they are rotating on the Nephrology Transplant service. Nephrology residents on the Nephrology Transplant service and those interested in a career in transplantation medicine are required to attend this conference. It is optional for other residents.
4. Cardio-renal group conference (Every-other Monday, 12:30-2:00 PM). These conference are intended for faculty and fellows in nephrology and cardiology and in relevant basic science departments with interest in the relationship between kidney and heart in disease. This is an optional conference.
5. Internal Medicine Grand Rounds (Friday, Noon-1PM). This is not a required conference.

CME credit is available for all conferences described.

III. Specific Formal Instruction:

Please see specific rotations for more details regarding educational purpose, teaching methods, mix of diseases, patient characteristics, types of clinical encounters, procedures and services, reading lists and other educational resources, methods of evaluation, and supervision and lines of responsibility. The curriculum is reviewed at the start of each rotation. Medical problems, health promotion, cultural, socioeconomic, ethical, occupational, environmental, and behavioral issues in rotations are integrated for learning goals and objectives for each rotation and learning experience. Other educational resources will be provided such as funding for educational materials and attendance at national conferences.

Instruction will be given on social and economic impact of medical decision on patient and society, quality assessment and improvement and risk management. The Nephrology Program will give the Fellow the opportunity to achieve cognitive knowledge, procedural skills,

interpersonal skills, professional attitudes and behaviors, humanistic qualities, and practical experience to develop into an outstanding nephrologist.

The following topics will be covered by formal instruction in the 2 years of Nephrology training:

- Disorders of fluid, electrolyte, and acid-base regulation
- Acute renal failure
- Chronic renal failure and its management including nutritional management of uremia
- Hypertensive disorders – normal and abnormal blood pressure regulation
- Renal disorders of pregnancy
- Urinary tract infections
- Tubulointerstitial renal diseases, inherited diseases of transport, cystic diseases, and other congenital disorders
- Glomerular and vascular diseases, glomerulonephritides, diabetic nephropathy
- Renal anatomy, physiology, and pathology
- Congenital and acquired diseases of the kidney and urinary tract renal diseases associated with systemic disorders, diabetes and collagen-vascular diseases
- Normal mineral metabolism, metabolic bone disease, renal osteodystrophy and nephrolithiasis
- Clinical pharmacology, drug metabolism and pharmacokinetics and the effects of drugs on renal structure and function; disorders of drug metabolism and renal drug toxicity

Immunology

1. Basic principles
2. Immunologic mechanisms of renal disease; and
3. Fundamental aspects of diagnostic laboratory immunology relevant to renal diseases

Transplantation

1. Biology of transplantation rejection
2. Indications for and contraindications to renal transplantation
3. Principles of transplant recipient evaluation and selection
4. Principles of evaluation of transplant donors, both live and cadaveric, including histocompatibility testing
5. Principles of organ harvesting, preservation, and sharing
6. The pathogenesis and management of urinary tract infections
7. The pathogenesis and management of acute renal failure
8. Indications for and interpretations of radiologic tests of the kidney and urinary tract; and
9. Disorders of fluids and electrolytes and acid-base balance specific to transplantation

Indications for and interpretations of radiologic tests of the kidney and urinary tract

End-stage renal disease/dialysis

1. The kinetic principles of hemodialysis and peritoneal dialysis
2. The indications for each mode of dialysis
3. The short-term and long-term complications of each mode of dialysis and management

4. The principles of dialysis access (acute and long-term vascular and peritoneal), including indications, placement techniques, complications, diagnosis (radiology), and treatment of complications (e.g. angioplasty of vascular access)
5. Urea kinetics and protein catabolic rate
6. Dialysis modes and their relation to metabolism
7. Nutritional management of dialysis patients
8. Dialysis water treatment, delivery systems, and reuse of artificial kidneys
9. The artificial membranes used in hemodialysis and biocompatibility; and
10. The psychosocial and ethical issues of dialysis
11. Aspect of long term-care (e.g. renal osteodystrophy-bone biopsy) for longitudinal follow up.

Geriatric aspects of Nephrology

Core Competencies:

The Program Director will send fellows information regarding educational materials which pertain to core competencies which may be sent by the Graduate Medical Education Committee or other sources. Fellows are required to complete HIPAA on line courses (General Privacy Issues, Conflict of Interest and Commitment) relating to Professionalism.

IV. Methods of Evaluation of Fellow's Performance:

Methods used for evaluation are summarized in the table below:

Tool	Consult Services	Clinic	Dialysis Ambulatory	Research	Didactics	Procedure
	q 2 wks	q 6 mo	q 6 mo	q 6 mo		
Attending Eval Form	X	X		X		X
360 degree Survey			X			
Conference Attendance					X	
In-service Exam					X	
Procedure Log						X
ABIM Training Eval	X	X	X	X	X	X
Summative Letter	X	X	X	X	X	X

The following table outlines the tools and the competencies they are used to assess.

Tool	Patient Care	Knowledge	Practice-Based Learning	Communication & Interpersonal Skills	Professionalism	System-Based Practice
Attending Eval Form	X	X	X	X	X	X
360 degree Survey	X	X	X	X	X	X
Conference Attendance				X	X	
In-service Exam		X				

Tool	Patient Care	Knowledge	Practice-Based Learning	Communication & Interpersonal Skills	Professionalism	System-Based Practice
Procedure Log	X	X				
ABIM Training Eval	X	X	X	X	X	X
Summative Letter	X	X	X	X	X	X

The fellow's performances in the Nephrology Continuity Clinic and Chronic dialysis Ambulatory Experience are reviewed by supervising attending physicians every 6 months.

Second year Nephrology Research Evaluation is reviewed with the fellows by the supervising mentor.

The Program Director may receive informal comments regarding fellows which may merit documentation.

Fellows may be able to view their written evaluations at anytime on MedHub. Fellows meet with the Program Director semi-annually to review progress. Fellows will be advanced to positions on the basis of satisfactory progressive scholarship and professional growth as determined by the fellowship advancement committee annually. In the event of an adverse annual evaluation, fellows are offered the opportunity to address judgments of academic deficiencies or misconduct as discussed in the GME policy regarding this issue which can be found on line. The Division maintains a policy on line regarding advancement.

A. American Board of Internal Medicine Form for evaluation of Clinical Competence-Guidelines for Evaluation

At the completion of required training, the ABIM states that the trainee should be competent to provide comprehensive and specialized medical care based on a high standard of demonstrated component skills. Specifically, the Board asks program directors and their faculties to evaluate the following components of clinical competence:

1. Patient Care

These refined abilities include a) obtaining appropriately directed medical histories that are precise, logical, thorough and reliable; b) conducting expert, focused physical examinations that elicit subtle findings and are directed toward the patient's problems; and c) demonstrating understanding and proficiency while minimizing risk and discomfort to patients in the performance of diagnostic and technical procedures.

Evaluation of key procedures include percutaneous renal biopsy of both native and transplanted kidneys, placement of temporary vascular access for hemodialysis or continuous renal replacement therapy, acute and chronic hemodialysis, peritoneal dialysis, continuous renal replacement therapy, and urinalysis. The evaluation will take into account the length of the fellow's training. See procedures section of specific criteria in evaluation.

2. Medical Knowledge

This is defined as the specialized, current basic and clinical science knowledge necessary to function as an expert clinical nephrologist. (This includes a broad base of knowledge of the pathogenesis, natural history and management of congenital and acquired diseases of the kidney and urinary tract; renal physiology; disorders of fluid, electrolyte and acid base regulation; normal and disordered mineral metabolism; acute and chronic renal failure; the management of patients receiving immunosuppressive therapy; and the management and diagnosis of severe hypertension. The clinical nephrologist also must be proficient in the principles and applications of various forms of renal replacement therapy including the management and systems operations of hemodialysis, peritoneal dialysis and renal transplantation.) The resourceful development of knowledge and comprehensive understanding of complex relationships in patient care

3. Practice-Based Learning and Improvement

These are demonstrated skills that include a) the ability to self-evaluate and improve upon one's own performance, b) incorporation of feedback into improvement, and c) effective use technology to manage information for both patient care and self-improvement.

4. Interpersonal and Communication Skills

The Nephrology Program emphasizes of the humanistic qualities of this component of clinical competence. This includes the ability establish highly effective, humanistic and therapeutic relationships with patients and families. This includes demonstration of listening to patients, as well as narrative and non verbal skills. This also includes education and counseling of patients, families, and colleagues as well.

5. Professionalism

This includes demonstrating respect, compassion, integrity, and honesty. It includes teaching and role modeling responsible behavior. This also involves commitment to self -assessment, where the fellow willingly acknowledges errors; consistently considers needs for patients, families and colleagues, and the need to be the patient's primary care advocate.

6. Systems-Based Learning

This includes demonstration of effective access/utilization of outside resources; effective use of systematic approaches to reduce errors and improve patient care; and enthusiastic assistance in developing systems' improvement.

7. Moral and Ethical Behavior

A high standard of moral and ethical behavior is expected of the medical professional. The standard of ethical and moral behavior is evaluated as satisfactory or unsatisfactory.

8. Overall Clinical Competence as a Specialist in Nephrology

This represents the supervising attending physician's overall assessment of the degree to which the fellows possesses the knowledge, skills, and attitudes essential for certification by the American Board of Internal Medicine also taking into context the amount of training.

In the evaluation of these competencies there is an implicit commitment to scholarship. This encompasses the commitment to maintain and update clinical skills throughout one's professional career, to acquire new knowledge through computer access and by reading the current medical literature, to participate in the design and conduct of clinical studies or related research, to attend scientific and clinical meetings for nephrologists and to evaluate critically the new medical scientific information relevant to the subspecialty.

B. American Board of Medical Specialties Generic Form for Global Ratings of Resident Performance

This Rating Sheet was adapted for use during fellowship training.

1. Patient Care

- Medical Interviewing (History Taking)
- Physical Examination
- Diagnostic Studies (selection, implementation)
- Synthesis of clinical data, differential diagnosis
- Develop management plan
- Prescribe, perform essential procedures
- Counsel patients, providing information needed to understand illness, prevent disease
- Demonstrate clinical judgment
- Provide care sensitive to culture, social circumstances
- Use information technology to optimize care
- Respect the patient's privacy and autonomy

2. Medical Knowledge

- Possess appropriate fund of medical knowledge
- Know, critically evaluate, and use current medical information
- Commitment to scholarship
- Respect the patient's privacy and autonomy

3. Professionalism

- Demonstrate high standards of ethical/moral behavior
- Demonstrate honesty/integrity
- Demonstrate compassion/empathy
- Demonstrate reliability/responsibility
- Be respectful of others: patients, families and colleagues
- Respect dignity of patients including gender, age and culture
- Demonstrate work habits which support effective role performance as physician
- Communicate/collaborate effectively with patients, families and colleagues
- Demonstrate dependability/commitment

- No documented current abuse of alcohol or use of illegal drugs
- No cognitive, physical, sensory or motor impairment precluding function in current medical role
- Demonstrate self awareness/knowledge of limits
- Have no restriction, condition, limitation or revocation of license to practice medicine

4. Practice Based Learning and Improvement

- Demonstrate continuous practice improvement
- analyze one's practice experience
- Recognize gaps in knowledge and expertise
- Use evaluation of performance to improve practice
- Engage in life-long learning to improve knowledge, skill
- Seek ways to improve quality of patient care
- Use information technology to optimize learning
- Facilitate learning by teaching patients, families, students

5. Interpersonal and Communication Skills

- Communicate effectively with patients, families
- Communicate effectively with physicians and other health professionals or agencies
- Work effectively as member or leader of health care team
- Be available as consultant to other professionals
- Maintain comprehensive and legible medical records (written and electronic)

6. Systems-Based Practice

- Work effectively in various health care delivery settings and systems
- Incorporate cost-awareness and risk-benefit analysis
- Possess business skills important for effective practice management
- Advocate for quality care in interest of one's patients
- Promote health and prevent disease in populations

D. 360 Degree Evaluation:

Fellows are evaluated in the chronic dialysis unit by nurses, social worker, and patients in addition to the faculty attending.

1. Social Workers evaluate each of the following on a scale of 1-9:

PATIENT CARE

Provides care that is sensitive to age/gender/culture
 Displays sound judgment
 Concerned about seeking patient input when making decisions
 Develop and carry out patient management plans

PRACTICE-BASED LEARNING AND IMPROVMENT

Efficiently and effectively manages information
 Demonstrates ability to reflect & grow from clinical encounters

INTERPERSONAL AND COMMUNICATION SKILLS

- Explains information to patients and families effectively in words they can understand
- Keeps patients and social work staff informed of changes in the care plan
- Creates a therapeutic relationship with patients
- Participates in multidisciplinary care rounds

PROFESSIONALISM

- Respects confidentiality of patient information
- Courteous and receptive to social work and ancillary staff

SYSTEMS-BASED PRACTICE

- Acts as a patient advocate
- Partners with other health care providers to coordinate and improve health care

2. Patients evaluate each of the following on a scale of 1-9:

PATIENT CARE

The fellow greeted you warmly, made eye contact, and listened to your concerns and symptoms carefully?

The fellow respected your privacy when conducting examinations?

The fellow was concerned about seeking your input before making decisions?

INTERPERSONAL AND COMMUNICATION SKILLS / PROFESSIONALISM

The fellow was able to discuss your condition and treatment effectively in words you could understand

The fellow updated you on your recent labs/tests?

The fellow addressed your questions?

SYSTEMS-BASED PRACTICE

The fellow acted as your advocate?

3. Nurses evaluate each of the following on a scale of 1-9:

PATIENT CARE

- Provides care that is sensitive to age/gender/culture
- Displays sound judgment
- Concerned about seeking patient input when making decisions
- Develop and carry out patient management plans

PRACTICE-BASED LEARNING AND IMPROVEMENT

- Efficiently and effectively manages information
- Demonstrates ability to reflect & grow from clinical encounters

INTERPERSONAL AND COMMUNICATION SKILLS

- Explains information to patients and families effectively in

words they could understand

Keeps patients and nursing staff informed of changes in the care plan

Writes orders that are clear and legible

Participates in multidisciplinary care rounds

PROFESSIONALISM

Respects patients privacy when conducting exams

Courteous and receptive to nursing and ancillary staff

SYSTEMS-BASED PRACTICE

Acts as a patient advocate

Partners with other health care providers to coordinate and improve health care

V. Evaluation of Teaching

Fellows evaluate Supervising faculty members by filling out a standardized evaluation form after every rotation for Supervising Attendings involved in hospital rotations, Nephrology Continuity Clinic and the Outpatient Dialysis Ambulatory Care Experience.

1. RELATIONSHIP WITH TRAINEES, SUPPORTIVE (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Was supportive
- Was approachable
- Was patient
- Was empathetic

2. FEEDBACK (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Provided effective feedback in a clear, timely, and specific manner
- No feedback to individuals from team
- Feedback presented in inappropriate, humiliating manner
- Gives specific and timely feedback on remediable problems
- Gives positive feedback when and where appropriate

3. TEACHING SKILLS, AUTONOMY (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Provided an appropriate balance between independence and supervision

4. TEACHING SKILLS, BEDSIDE TEACHING (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Skillfully demonstrated medical interview and physical diagnosis techniques at the bedside

5. TEACHING SKILLS, COMMUNICATION OF KNOWLEDGE (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Effectively communicated medical knowledge in presentations
- Effectively communicated medical knowledge in articulation of clinical reasoning
- Too much information, no summary points or poor flow of case discussion
- Explains clearly, presents material in an organized manner, summarizes, emphasizes what is important and communicates what is expected to be learned

6. TEACHING SKILLS, EXPECTATIONS (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Set clear expectations

7. TEACHING SKILLS, ENTHUSIASM (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Was enthusiastic about teaching
- Teaching appeared an additional chore; rounds were passive and uninteresting
- Dynamic and energetic, enjoys teaching; has an interesting style of presentation that stimulates interest in the subject

8. TEACHING SKILLS, ORGANIZATION (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Was organized for teaching

9. TEACHING SKILLS, PROBLEM SOLVING (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Stimulated problem solving, asked effective questions

10. ROLE MODELING, CLINICAL JUDGMENT (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Served as a role model for clinical judgment.

11. ROLE MODELING, COLLEAGIAL RELATIONSHIP (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Served as a role model for relationships with other health care professionals.
- Team functioned poorly, poor communication, low morale.
- Creates atmosphere which strengthens team work; goals of team clearly identified, encourages openness.

12. ROLE MODELING, EVIDENCE-BASED MEDICINE (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Served as a role model for use of medical evidence, e.g., from the medical literature.

13. ROLE MODELING, PATIENT CARE COORDINATION (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Served as a role model for coordination of patient care; cost-effective use of health care systems.
- Disregards input from health care team. Fails to use alternative sites of care.
- Uses resources of entire health care team. Demonstrates appropriate, effective communication.

14. ROLE MODELING, PATIENT RELATIONSHIPS (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Served as a role model for relationships with patients/families.
- Lacked humanism and sensitivity with patients/families; did not value patient perspective
- Demonstrated effective and compassionate care in communications with patients and families.

15. OVERALL TEACHING SKILLS (Narrative)

- What suggestions would you give this teaching faculty member to improve his/her teaching?

16. LECTURE SKILLS (Narrative)

- What suggestions would you give this teaching faculty member to improve his/her noon conference lectures?

16. TEACHING SKILLS, OVERALL. (evaluated as Not Applicable, Unsatisfactory, Satisfactory, or Superior)

- Overall teaching effectiveness.

17. CONFIDENTIAL COMMENTS (Narrative)

VI. Procedures

Fellows use an electronic online database (MedHub) to log procedures for vascular access placement and native and transplant renal biopsies and other assorted procedures. The supervising teaching faculty member evaluates the fellow's performance of the procedure and signs off on whether the procedure was performed competently.

Evaluation of key procedures include percutaneous renal biopsy of both native and transplanted kidneys, placement of temporary vascular access for hemodialysis or continuous renal replacement therapy, acute and chronic hemodialysis, peritoneal dialysis, continuous renal replacement therapy, and urinalysis. The evaluation will take into account the length of the fellow's training. At present, these evaluations are incorporated into the biweekly written evals that are performed by supervising faculty.

Satisfactory performance of percutaneous biopsy of native and transplant kidneys entails knowledge of indications for the procedure, obtaining informed consent, performance of the procedure itself including minimizing patient discomfort, and interpretation of results of the biopsy.

Satisfactory placement of vascular access entails knowledge of informed consent, proper Seldinger technique, knowledge of vascular anatomy, minimizing patient discomfort, as well as functional catheter placement.

Satisfactory performance of acute and chronic dialysis entails knowledge of proper indications for hemodialysis, knowledge of first dialysis precautions, writing of dialysis orders which includes choosing dialysis filters, estimating dry weight and modification during special circumstances (immediate allograft dysfunction), choosing dialysate composition, understanding and treatment of complications, and modifying dialysis prescription for inadequate kinetics in chronic hemodialysis patients.

Satisfactory performance of peritoneal dialysis entails knowledge of proper indications of peritoneal dialysis, writing orders for peritoneal dialysis which includes dialysis prescription (volume of dialysate, frequency of exchanges, and use of different hypertonic solutions), understanding and treatment of complications, and modifying dialysis prescription for inadequate kinetics in chronic peritoneal dialysis patients.

Satisfactory performance of continuous renal replacement therapy entails knowledge of proper indications of continuous renal replacement therapy, writing orders for continuous renal replacement therapy (flow rate of dialysate, choosing ultrafiltration rate, choosing dialysate composition including the use of bicarbonate based solutions), understanding and treatment of complications, and modifying dialysis prescription for inadequate clearance in patients undergoing continuous renal replacement therapy.

Satisfactory performance of urinalysis includes correct performance of urinalysis and interpretation of findings, and knowledge of limitations of interpretation as applied to patient care.

VII. Supervision and Lines of Responsibility for Nephrology Fellows

The program director coordinates all aspects of the nephrology fellows' education and training, including their supervision by faculty members. Fellows are provided with responsibilities consistent with their level of training. Every patient examined, and every procedure or test performed is either done under the direct supervision of a faculty member or is reviewed with a faculty member. Faculty members are directly responsible for ensuring that resident procedures are performed to the high standards set by the Program and that appropriate documentation is completed (including documentation for resident credentialing). Appropriate faculty supervision is provided during all educational experiences. The specific mechanisms for proper supervision of residents are as follows:

A. Clinical Training

Nephrology fellows round and present clinical cases in teaching rounds, Nephrology Continuity experience, and Outpatient Dialysis Ambulatory experience and receive one-on-one instruction and feedback in history taking, physical examination and in-patient and outpatient management of nephrology patients. These case presentations may include review of clinical data, urinalysis, review of pathologic specimens, and imaging data. Nephrology teaching faculty members interview, examine and discuss assessment and plans with the nephrology fellows for all inpatient consultations, nephrology continuity clinic outpatients, and outpatient dialysis ambulatory patients. All inpatient consultations and follow up care, Nephrology Outpatient Clinic

visits, and Outpatient Dialysis patients are discussed and supervised by Nephrology teaching faculty members. All outpatient supervision, whether in the Nephrology Outpatient clinic or for Outpatient Dialysis Ambulatory experience is directly supervised with the attending present. During the Nephrology Consultation rotations, the Nephrology fellow directs a team of residents, and medical students. The nephrology fellow is responsible for organization of rounds, assisting the attending physician with the education of the Internal Medicine residents and medical students, and supervising the Internal Medicine residents and medical students.

The teaching faculty member on-call schedule is structured such that the three separate supervising faculty members are on-call at all times (except weekends) for the rotation which they are supervising (Dialysis rotation, Consultation rotation and Nephrology Transplant rotation). Dialysis faculty are assigned to specific shifts at the two out patient dialysis units who fellows consult with directly. Nephrology fellows are expected to present all new patient encounters with the appropriate attending on nights and weekends. On weekends, the on-call attendings conduct formal rounds with the on-call fellows to assure appropriate supervision.

A chain of supervision has been established and is published monthly. Generally, the chain of supervision moves from service attending, to clinical chief (Joseph Messana), to Division Chief (Frank Brosius).

B. Procedural Supervision

Procedures such as renal biopsy, urinalysis, placement of the temporary vascular access catheters, and hemodialysis and peritoneal dialysis procedures are directly supervised. The placement of vascular access catheters is supervised at the beginning of each year until the fellows is deemed competent to place lines independently. Fellows' advancement to independent performance of procedures is based upon successful completion of procedures as well as review with attending physicians who must certify residents based upon clinical and procedural competency.

Direct supervision of hemodialysis and peritoneal dialysis treatments are not performed if the attending is not present on site, i.e. at a time when it is after hours; however, the Nephrology fellow discusses any placement of a vascular access catheter and hemodialysis, peritoneal dialysis, or continuous renal replacement therapy with the nephrology teaching faculty member prior to the initiation of these procedures.

Fellows receive formal feedback to procedural competence as part of each post rotational evaluation. An on-line log of procedures or equivalent which nephrology fellows are credentialed to perform is maintained.

C. Research Supervision

Throughout the course of any research project, Nephrology fellows meet regularly with their faculty research mentor to report their progress and discuss the design and content of their projects. Every Nephrology fellow research project is supervised by a faculty mentor who is available to discuss any issues that may arise. Residents also discuss their progress with other residents and other interested attending faculty at various research conference and clinical conferences.