

Nephrology Fellowship Program Handbook

By

Kenneth D. Abreo, M.D.
Chief and Program Director

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Mission Statement

1. To offer state of the art training in Nephrology to prepare our graduates for practice as Nephrologists.
2. To provide excellent patient care for the patients of LSU Health Sciences Center, Veterans Administration Medical Center, and Willis-Knighton Medical Center North at Shreveport.
3. To serve as a resource for continuing medical education for the physicians in our region.

We believe the training of a good Nephrologist involves:

- a. faculty dedicated to the teaching of Nephrology.
- b. the ability of the Fellow to provide both consultative and primary care to patients with renal insufficiency and end-stage renal disease on dialysis.
- c. an academic environment that fosters education in the traditional format as well as preparing the house officer for lifelong learning.
- d. an opportunity to be involved in clinical or basic research with a faculty mentor.

Philosophy of the Division of Nephrology

The Division of Nephrology is committed to all aspects of training in the broad field of Nephrology, based upon a foundation of excellence in patient care, research, and education.

Ours is a close-knit, people-oriented program, emphasizing all aspects of nephrology – consultation, primary care, dialysis, and interventional. We provide a major portion of the education of our medical students, as well as extensive post-graduate training in Nephrology. Our Fellows assume primary, hands-on responsibility for patient care under the guidance of experienced clinicians. While we are proud of our training program and the quality of our trainees, we are constantly striving to make the program better, and to adapt to the forces of change in our society.

Nephrology Faculty and Staff

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Benefits

The following is a list of benefits provided by the Division of Nephrology .

- A. During the second year of training, each fellow will be reimbursed expenses needed to attend the American Society of Nephrology meeting. This meeting is usually held in October.
- B. Upon completion of the fellowship, the trainees have their choice of textbooks or Nephrology Up-To-Date Computer program (not to exceed \$500).
- C. The fellow will receive reimbursement for a meeting if they are presenting a scientific abstract or poster presentation. This trip must be approved by the Program Director.

Leave Policy

Vacation - Four weeks.

Vacation must be requested in writing to the Program Director three months prior to the time requested. Requests submitted after this date may not be allowed.

A written vacation request must be submitted to the Medical Education office.

No more than two weeks may be taken consecutively. Exceptions may be made, but only with approval from the Program Director. As stated in the Resident's Handbook, all requests for vacation must be initiated in the Medical Education office.

Educational Leave - Educational leave will be granted for the following functions:

1. USMLE licensure examinations
2. American Society of Nephrology Meeting
3. Any meeting at which the fellow makes a scientific presentation.

Maternity Leave - See the LSU House Officer Handbook for guidelines.

Sick Leave - It is the responsibility of the fellow to contact their assigned Attending Physician and the Program Director if sick leave is requested. Failure to notify appropriate personnel as described above may result in disciplinary action. This will include a minimum action of charging annual leave for any sick days missed if appropriate notification procedures have not been followed.

Leave Without Pay (LWOP) - Special circumstances may warrant the fellow being granted leave without pay. This must be arranged with the approval of the Program Director. During the period of time of LWOP, no credit for training will be given.

Emergency Leave

Emergency leave will be approved as needed by the Program Director.

Proximity Card Application

Important Phone Numbers

Nephrology Faculty

	Pager/Phone	Email
Dr. Abreo	621-3267/675-5916	kabreo@lsuhsc.edu
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Other

Nephrology Fax Number	675-5913	
Nephrology Clinic	813-2500	
LSU Renal Unit	675-6385/6386/6387	
Renal Unit Fax Number	675-6384	
Renal Procedure Room	675-6387	
10K West Nurses Station	675-7366	
Special Procedures	675-6230/7910	

VA Numbers

VA Main Number	221-8411	
Main Medicine Office	424-6066	
Nephrology Office	424-6076	
Medicine Fax Number	424-6179	

Willis-Knighton Numbers

WK Main Number	212-4300	
WK Transplant Clinic	212-4275	
Transplant Clinic Fax	212-8255	
Nancy Noles (Tx Coord.)	212-4275	
Elaine Kilpatrick (Tx Coord.)	212-4275	

Outside Dialysis Units

Bossier Regional Dialysis	746-8440	
Buckner Square	227-9767	
DCI	226-1020	
DCI East	861-5051	
DCS	869-3016	
Jewella Avenue Dialysis	687-3315	
Mansfield Dialysis Unit	871-8700	
Minden Dialysis Unit 2	371-9400	
Minden dialysis Unit 1	371-1532	
South Shreveport Dialysis	868-8320	
West Shreveport	621-0750	
DCI Homer	927-5990	

City Map

LSUHSC Map

Suggested Educational Materials

Suggested Reading

- I. Up-To-Date on CD, Nephrology Section. Editor-in Chief Burton Rose, M.D.
- II. Diseases of the Kidney by Schrier and Gottschalk
- III. The Kidney by Brenner and Rector
- IV. Clinical Physiology of Acid-Base and Electrolyte Disorders by Burton Rose

Computer Programs

The following computer programs are either installed on the computer in the Medicine Library or available for checkout on CD ROM from the Chief Resident:

1. EKG Interpretation
2. Generx Drug Interaction and Pharmacology CD ROM
3. A Scientific American CD ROM
4. Pulmonary Medicine CD ROM
5. Heart Sounds and Physiology CD ROM
6. ACLS Practice Program
7. MKSAP 11

Details on running the above software programs are available from either the Chief Resident or Program Director. New software is being added periodically.

Internet access is available from the Department of Medicine computer as are e-mail and other services. MedLine searching may be performed on the computer in room 6-201 or through the Library. A core lecture will be provided on these computer services to all interns.

Video Programs

The Mayo Internal Medicine Board Review course on videotape is available to the Housestaff. The tapes are the property of the Department of Medicine and may be checked out from the Chief Resident. An informal schedule for group viewing of these tapes is currently being devised.

Conferences

Attendance will be recorded and used in evaluations for the fellows.

Nephrology Didactic Conferences

1st, 2nd, and 3rd Thursdays 8:00 AM

Topics from the curriculum will be assigned to Faculty and Fellows

DCI Conference Room

Board Review Questions

1st Thursday Every other month 12 Noon

Preparation for Nephrology Board Examination

8th Floor BRI Conf. Rm

Salt and Water Club

2nd and 4th Thursdays 7:00AM

Mandatory for fellows; Discuss renal physiology, electrolytes and acid base

Reference: Burton Rose

8th Floor BRI Conf. Rm

Research Conference

4th Thursday of each month 8:00 AM

Topics assigned by Dr. Ram

DCI Conference Room

Biopsy Conference

1st Friday of each month, 1:15 PM

Review native, pediatric and transplant biopsies with pathologists

Pathology Conf. Room

Morbidity&Mortality

2nd Friday of each month 1:15 PM

One case from the LSU Consult service (10 minutes)

One case from the VA Consult service (10 minutes)

One case from the LSU Intervention service (10 minutes)

8th Floor, BRI Conf.Rm

Journal Club

3rd Friday of each month 1:15 PM

One fellow/one attending will present an article. Article to be distributed one week prior to conference.

8th Floor BRI Conf. Rm

Morbidity&Mortality

4th Friday of each month 1:15 PM

One case from the LSU Consult service (10 minutes)

One case from the WK Transplant service (10 minutes)

Problems/Concerns Fellows (10 minutes)

8th Floor, BRI Conf.Rm

Fellow Schedule 2006-2007

LSUHSC Holiday Schedule 2005-2006

Independence Day	July 4 (Monday)
Labor Day	September 4 (Monday)
Columbus Day	October 9 (Monday)
Thanksgiving Day	November 23 (Thursday) and November 24 (Friday)
Christmas	December 25 (Thursday) and December 26 (Friday)
New Years	January 1 (Monday) and January 2 (Tuesday)
Martin Luther King, Jr.	January 15 (Monday)
Mardi Gras	February 19 (Monday)
Easter	April 6 (Friday) and April 9 (Monday)
Memorial Day	May 28 (Monday)

Duty Hours

Fellow duty hours and on call assignments must not be excessive. Fellows shall on the average have at least one out of seven days free of responsibility and no more than one in every three days on call. Fellows shall not work more than eighty hours per week (when averaged over a four week rotation).

Typical Daily Schedule

Schedule

1. Monday through Friday

8:00 – 9:00 am – Thursdays and Fridays - Conferences

9:00 - 11:00 am – Consult Rounds

11:00 - 12:00 - Consult Rounds with Faculty

12:00 - 1:00 pm – Lunch/Noon Conferences

12:00 - 3:00 pm – Consult Rounds

3:00 – 5:00 pm – Consult Rounds with Faculty

The above schedule is suggested and is subject to change upon the discretion of faculty attending.

2. Weekends and Holidays

The attending physician will make work rounds on Saturday, Sunday, and any other holiday. Weekend call starts at 5:00 pm Friday.

3. Call Responsibilities

Each fellow will be on call approximately once every fourth night from 5:00 PM until 8:00 AM the next morning.

4. Special Conferences

None, other than mandatory conferences.

5. On-call Hours

After hours fellows take call from home.

6. Patient Assignments

All patients on whom a consult is requested will be seen within twenty-four hours of the request.

NEPHROLOGY CURRICULUM

GLOMERULAR DISEASES

I. Program Content

- A. Trainees should acquire a general understanding of the following:
 - 1. Structure and function of the normal glomerulus and how alteration of these leads to the cardinal features of glomerular injury (proteinuria and reduced GFR);
 - 2. The principle immunologic mechanisms causing human glomerular diseases and the features that distinguish them by immunofluorescence and electron microscopy;
 - 3. The fundamental features of the normal immune response and an awareness of the current concepts of immunity and the factors that may be responsible for and mediate immunologic glomerular injury.
- B. Trainees should be familiar with and develop an in-depth knowledge of:
 - 1. The causes, clinical decision making, and treatment of common and uncommon causes of hematuria and proteinuria
 - 2. Etiology and clinical findings of glomerular syndromes including nephrosis, nephritis, rapidly progressive glomerulonephritis manifesting as renal-limited processes or associated with systemic disease.
- C. Trainees should develop an in-depth knowledge of idiopathic glomerular diseases with respect to pathology, clinical features, and response to treatment of:
 - 1. Minimal change nephropathy presenting in adolescents and adults, especially the response to corticosteroid treatment, the development of acute renal failure in adults, and the association with malignant tumors
 - 2. Membranoproliferative glomerulonephritis, including type I, II and III. The clinical and pathological association with hepatitis C and cryoglobulinemia.
 - 3. Focal segmental glomerulosclerosis including its various pathological and clinical syndromes and the association with conditions of reduced renal mass. The demographics, clinical course, and outcomes of clinicopathological syndromes of "primary" focal sclerosis, including collapsing FSGS, glomerular tip lesion, and perihilar FSGS
 - 4. Membranous nephropathy including the clinical, pathological, and diagnostic features of both idiopathic membranous nephropathy and secondary membranous disease. In-depth knowledge of the controversies regarding the treatment of this disease.
 - 5. IgA nephropathy, especially its clinical course, natural history, and prognostic markers.
 - 6. Post-infectious glomerulopathies including bacterial, viral, parasitic, rickettsial, and fungal infections. The epidemiology, clinical course, and response to therapy, especially with respect to HIV infections.
- D. Trainees should develop in-depth knowledge of glomerular diseases associated with systemic diseases with respect to pathology, clinical and serologic features, and response to treatment of:
 - 1. Necrotizing and crescentic glomerulonephritis
 - a. Anti-glomerular basement membrane disease

- b. Immune complex diseases including lupus nephritis, post-infectious glomerulonephritis and Henoch-Schonlein purpura
- c. Pauci-immune glomerulonephritis and small vessel vasculitis
- 2. Renal manifestations of other rheumatic disorders including systemic sclerosis, Sjogren's syndrome, mixed connective tissue disease, rheumatoid arthritis, Behcet's syndrome, relapsing polychondritis, and familial Mediterranean fever.
- 3. Renal disease in dysproteinemias including multiple myeloma, amyloidosis, fibrillary glomerulopathy/immunotactoid glomerulopathy, and mixed cryoglobulinemia

II. Patient Care Experience

- A. Trainees should be familiar with and have experience in:
 - 1. The diagnosis and management of patients with isolated proteinuria, hematuria, nephrotic syndrome, and acute glomerulonephritis
 - 2. The serological evaluation of glomerulonephritis, including the diagnostic value and limitations of anti-GBM, ANCA, anti-nuclear and anti-microbial antibodies, hypocomplementemia, and cryoglobulinemia
 - 3. The indications for and complications of renal biopsy, as well as the morphologic and immunohistological features of the major glomerular diseases
 - 4. The treatment of patients with nephrotic syndrome and acute glomerulonephritis, both renal limited and secondary systemic diseases, including indications, complications and value of various immunosuppressive protocols

DIABETES MELLITUS AND DIABETIC NEPHROPATHY

I. Program Content

- A. Trainees should acquire a general understanding of the current concepts of the pathophysiology of diabetic glomerulosclerosis (DGS):
 - 1. Epidemiology and course of nephropathy in IDDM and NIDDM
 - 2. Pathophysiologic mechanisms and histologic manifestation of DN
 - 3. Strategies for prevention of DN
 - 4. Therapy of established DN
 - 5. Modalities of therapy for ESRD in DN, including hemo and peritoneal dialysis, kidney transplantation, and kidney pancreas transplantation
- B. Trainees should develop an in-depth knowledge of:
 - 1. The various ways DM may affect the kidney and the urinary tract
 - 2. The cardinal clinical and histologic features, as well as the epidemiology and course of DGS in patients with IDDM and NIDDM
 - 3. The results of clinical trials designed to prevent DN or slow its progression
 - 4. The relative merits of different modalities of ESRD in diabetic patients, including hemo- and peritoneal dialysis, kidney transplantation, and kidney pancreas transplantation
- C. Trainees should be familiar with:
 - 1. The definition, interpretation, prognostic value and clinical use of "microalbuminuria"
 - 2. Unique medical and surgical problems facing patients with advanced DN as well as their management

II. Patient Care Experience

- A. Trainees must have experience in the evaluation and management of patients with progressive diabetic nephropathy both insulin-dependent and non-insulin dependent. Experience with the treatment of blood pressure, fluid and electrolyte disorders, glycemia, and non-renal diabetic complications is needed.
- B. Trainees must have experience in the evaluation and management of patients with end-stage diabetic nephropathy receiving hemodialysis and peritoneal dialysis.
- C. Trainees must have experience with the evaluation of patients with diabetic nephropathy for renal transplantation.
- D. Trainees must have experience managing patients with diabetic nephropathy during and after renal transplantation

HYPERTENSION

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 - 1. Epidemiology of hypertension
 - 2. Pathogenesis and natural history of primary hypertension
 - 3. Evaluation of the hypertensive patient
 - 4. Nonpharmacologic therapies of hypertension
 - 5. Pharmacology and clinical use of antihypertensive agents
 - 6. Hypertension in renal parenchymal disease during chronic dialysis and after renal transplantation
 - 7. Renovascular hypertension: pathogenesis, causes, clinical features, and screening and diagnostic tests, and management
 - 8. Oral contraceptive-induced hypertension
 - 9. Pheochromocytoma: pathophysiology, clinical features, diagnosis, and management
 - 10. Primary aldosteronism: pathophysiology, clinical features, diagnosis, and management
 - 11. Other forms of secondary hypertension: Cushing's syndrome; congenital adrenal hyperplasia; coarctation of the aorta; thyroid disease; hyperparathyroidism; acromegaly; sleep apnea; and drugs
 - 12. Hypertensive emergencies and urgencies

II. Patient Care Experience

- A. Trainees should be familiar with and have experience in the direct diagnosis and management of the following areas in both the outpatient and inpatient setting:
 - 1. Trainees must be able to assess the severity of hypertension and end-organ damage. They should be familiar with the role of ambulatory blood pressure monitoring in the evaluation of the hypertensive patient.
 - 2. Trainees must be able to define goals of treatment, be familiar with the nonpharmacologic modalities as well as the use and side effects of antihypertensive agents, and be able to make appropriate therapeutic choices in the context of co-morbid conditions.
 - 3. Trainees must be familiar with the management of hypertension in renal parenchymal disease during chronic dialysis, and after renal

- transplantation.
4. Trainees must be able to identify symptoms and signs suggestive of secondary causes of hypertension, and be familiar with the various screening and diagnostic tests as well as the management of these disorders.
 5. Trainees must become familiar with the management of the various hypertensive emergencies and urgencies.

ACUTE RENAL FAILURE AND ICU NEPHROLOGY

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 1. Normal regulation of renal and glomerular hemodynamics
 2. Differential diagnosis of acute renal failure
 - a. Pathophysiology of prerenal azotemia
 - b. Pathophysiology of intrinsic renal failure, including acute glomerular disease, acute tubular necrosis and acute interstitial disease
 - c. Pathophysiology of obstructive renal failure
 3. Mechanisms of acute renal failure in the postoperative patient
 4. Mechanisms of acute renal failure in patients with hepatobiliary disease
 5. Causes of acute renal failure in patients with cancer and immunosuppression
 6. Causes of renal renal failure in patients with AIDS
 7. Metabolic consequences of acute renal failure
 - a. Hormonal
 - b. Nutritional
 - c. Electrolyte
 - d. Acid-base
 - e. Volume
 8. Evaluation and management of acute renal failure
 - a. Radiologic techniques in acute renal failure
 - b. Biochemical evaluation of ARF
 - c. Role of the renal biopsy in acute renal failure
 - d. Nondialytic therapy
 - e. Dialytic therapies
 - i. Role of hemodialysis
 - ii. Role of peritoneal dialysis
 - iii. Role of continuous therapy
 9. Hemodynamic monitoring of the critically ill patient
 10. Management of electrolyte/acid-base disturbances in the critically ill patient
 11. Fluid management of the critically ill patient
 12. The use of vasoactive drugs in the critically ill patient
 13. Role of extra corporeal therapy in the management of drug overdose, specifically ethylene glycol, methanol, lithium, theophylline, salicylate, and barbiturates.

II. Patient Care Experience

- A. Trainees must have experience in the evaluation and management of acute renal failure.
- B. Trainees must have experience in the evaluation and management of fluid-electrolyte and acid-base disturbances in the critically ill patient.
- C. Trainees should have experience in the evaluation of hemodynamics and the proper use of fluids and vasoactive drugs in critically ill patients.
- D. Trainees should have experience in the use of various dialytic techniques including hemodialysis, peritoneal dialysis, and continuous video-veno hemodialysis.
- E. Trainees should have experience in the use of extracorporeal therapy to remove specific toxins.
- F. Trainees should have experience in the placement of central lines and peritoneal catheters.

CHRONIC RENAL FAILURE

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training.
 - 1. Various etiologies of chronic renal failure
 - 2. The evaluation, diagnosis, and treatment of chronic renal failure due to glomerular, interstitial, vascular, and obstructive processes including:
 - a. Diagnosis of glomerular processes
 - b. Diagnosis of interstitial processes
 - c. Diagnosis of prerenal processes
 - d. Diagnosis of obstructive processes
 - e. Diagnosis of systemic processes that led to chronic renal failure, specifically:
 - i. Diabetes mellitus
 - ii. Hypertension
 - iii. Ischemic renal disease
 - 3. The current concepts and the results of clinical studies pertaining to the role of hypertension, dietary composition and divalent cations on the progression of chronic renal diseases.
 - 4. The predialysis management of CRF with particular regard to diet, anemia, metabolic bone diseases and drug dose adjustments.
 - 5. The role of anemia in the management of patients with chronic renal failure.
 - a. Management of the anemia of chronic renal failure with the use of iron, Epoprostenol and other appropriate agents
 - 6. The indications for initiation of end-stage renal disease therapy and placement of ESRD access in patients with chronic renal failure.
 - 7. The appropriate use of drugs, including dose modification, for patients with progressive chronic renal failure.
 - 1. Understand and interpret the appropriate role of radiographic tests including intravenous pyelography, computerized tomography, ultrasound, and radionuclide scan in patients with chronic renal failure.

II. Patient Care Experience

- A. Trainees must have at least one year of continuous outpatient clinic experience

- in the management of patients with chronic renal failure.
- B. Trainees must have sufficient number of patients evaluated and managed so they acquire expertise in the management of patients with glomerular, interstitial, and obstructive renal processes. In addition, trainees should have sufficient number of patients to be competent in the management of hypertension, anemia, and diabetes mellitus
 - C. Trainees must be competent to interpret intravenous pyelograms, radio pharmaceutical studies, renal arteriography, and renal ultrasound in the diagnosis of patients with chronic renal failure.
 - D. Trainees must be competent and must have performed a sufficient number of percutaneous renal biopsies.
 - E. Trainees must have interpreted an appropriate number of renal biopsies so that they are comfortable in reviewing histologic features and assigning appropriate diagnoses.

DIALYSIS

- I. Program Content
 - A. Types, advantages, disadvantages, complications, and management of acute and chronic hemodialysis and peritoneal dialysis access
 - B. Available water treatment and dialysis delivery machines for hemodialysis and connection and cycling systems for peritoneal dialysis
 - C. Currently available hemodialyzers, advantages and disadvantages with emphasis on differences in membrane composition, biocompatibility, and solute and water flux
 - D. Importance of, and correct method of determining the dialysis prescription for hemodialysis and peritoneal dialysis, and of monitoring the actual delivered dose of dialysis
 - E. The most common complications of hemodialysis including hypotension, cramps, arrhythmias, hemolysis, and air embolism
 - F. The most common complications of peritoneal dialysis including peritonitis, hypotension, hernias, dialysate leaks, and inadequate dialysis
 - G. Available techniques, advantages, and possible drawbacks of dialyzer reprocessing
 - H. Continuous dialytic therapies including CAVH(/D), CVVH(/D)
 - I. Nutritional considerations and management of ESRD patients
 - J. Evaluation and management of complications of ESRD including anemia, renal osteodystrophy, dialysis amyloidosis, hypertension, hyperlipidemia, acquired cystic disease
 - K. Appropriate use of drugs, including those modifications for dialysis patients.
 - L. Role of Medicare, HCFA, Networks, USRDS, and voluntary organizations/societies (e.g. NKF, ASN, RPA, AAKP) in the delivery and financing of care for ESRD patients.
- II. Patient Care Experience
 - A. Trainees must manage patients with acute renal failure requiring dialysis treatment including intermittent hemodialysis, continuous peritoneal dialysis, and the extracorporeal continuous renal replacement therapies.
 - B. Trainees must manage patients with chronic renal failure on maintenance hemodialysis longitudinally for a sufficient time to participate in the prescription of

- and monitoring of the dose of delivered dialysis, assessment and adjustment of the need for and dose of EPO, evaluation and treatment of renal osteodystrophy, and ongoing evaluation of the dialysis access.
- C. Trainees must manage patients with chronic renal failure on maintenance peritoneal dialysis longitudinally as outlined above for hemodialysis patients. In addition, trainees must participate in the assessment of patients for suitability of various forms of dialytic therapy, along with a multi-disciplinary team.

ACID-BASE DISORDERS

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
1. Acid-base chemistry and buffering
 2. Determinations of arterial carbon dioxide tension and carbon dioxide balance
 3. Determinants of plasma bicarbonate concentration and hydrogen ion balance, including renal acidification processes and the physiology of bicarbonate reabsorption, titratable acid excretion, and ammonium excretion
 4. Clinical evaluation of acid-base disorders
 5. Renal tubular acidosis: pathogenesis, clinical features, causes, diagnosis, and management
 6. Uremic acidosis. Acid-base hemostasis in end-stage renal disease
 7. Other types of metabolic acidosis: pathogenesis, clinical features, causes, diagnosis, and management
 8. Metabolic alkalosis: pathogenesis, clinical features, causes, diagnosis, and management
 9. Respiratory acidosis, pathogenesis, clinical features, causes, diagnosis, and management
 10. Respiratory alkalosis: pathogenesis, clinical features, causes, diagnosis, and management
 11. Mixed acid-base disturbances

II. Patient Care Experience

- A. Trainees should be familiar with and have experience in the direct diagnosis and management of the following areas in both the outpatient and inpatient setting:
1. Trainees must assess the accuracy of the acid-base parameters and interpret serum and urine acid-base data including the anion gap.
 2. Trainees must determine from the patient's history physical findings and laboratory data the nature of the prevailing acid-base disorder and whether a simple or mixed acid-base disorder is present.
 3. Trainees must have experience managing renal tubular acidosis, uremic acidosis, and acid-base hemostasis in end-stage renal disease.
 4. Trainees must have experience managing all other types of metabolic acidosis.
 5. Trainees must have experience in the management of metabolic alkalosis.
 6. Trainees must have experience in the management of respiratory acidosis and alkalosis.
 7. Trainees must have experience in the management of mixed acid-base

disorders.

FLUID AND ELECTROLYTE DISORDERS

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 - 1. Physiology of sodium balance, including sensors of extracellular volume, effector systems, tubular sodium transport processes, and the regulation of renal sodium excretion
 - 2. Hypovolemia: pathophysiology, causes, clinical features, diagnosis, and management
 - 3. Edematous disorders: pathophysiology, causes, clinical features, diagnosis, and management
 - 4. Clinical use and complications of diuretics
 - 5. Physiology of water balance, including tonicity sensors, effector systems, the countercurrent mechanism for urine concentration, the cellular physiology of collecting duct water reabsorption, and the regulation of water excretion by the kidney
 - 6. Hyponatremia: pathophysiology, causes, clinical features, diagnosis, and management
 - 7. Hypernatremia: pathophysiology, causes, clinical features, diagnosis, and management
 - 8. Evaluation and management of the polyuric patient
 - 9. Physiology of potassium balance, including the regulation of transcellular potassium movement, tubular transport processes for potassium
 - 10. Hypokalemia: pathophysiology, causes, clinical features, diagnosis, and management
 - 11. Hyperkalemia: pathophysiology, causes, clinical features, diagnosis, and management
 - 12. Disorders of sodium, water, and potassium balance in end-stage renal disease

II. Patient Care Experience

- A. Trainees should be familiar with and have experience in the direct diagnosis and management of the following areas in both the outpatient and inpatient setting:
 - 1. Trainees must be able to assess the validity and relevance of serum and urine electrolyte measurements for patient management.
 - 2. Trainees must be able to assess volume status (including the interpretation of central venous pressure and Swan-Ganz measurements) and recognize and manage hypovolemic and edematous disorders.
 - 3. Trainees must be familiar with the use and complications of diuretic therapy.
 - 4. Trainees must be able to evaluate and manage hyponatremia in the acute and chronic setting.
 - 5. Trainees must be able to evaluate and manage hypernatremia in the acute and chronic setting.
 - 6. Trainees must be able to evaluate and manage the polyuric patient.
 - 7. Trainees must be able to evaluate and manage the patient with

- hypokalemia and hyperkalemia. They must be familiar with the acute as well as the long-term management of these disorders.
8. Trainees must be able to evaluate and manage disorders of sodium, water, and potassium in patients with end-stage renal disease.

CYSTIC AND INHERITED DISEASES OF THE KIDNEY

I. Program Content

- A. Trainees should acquire knowledge of the following areas with emphasis on:
 1. Genetics of inherited diseases
 - a. Understanding of Mendelian genetics
 - b. Understanding of gene linkage analysis
 - c. Knowledge of chromosomal localization and characteristics of the gene responsible for the more common inherited renal disorders
 2. The clinical, diagnostic and epidemiologic differences between simple, acquired, and inherited cystic disorders and their potential for renal malignancies
 3. Diagnosis of inherited and cystic disease
 - a. Use of gene link analysis and mutational analysis in the screening
 - b. Role of urinalysis, renal function testing and radiologic-testing
 - c. Possibilities of prenatal diagnosis and pretest counseling
 4. Approach to symptomatic patient
 - a. Familiarity with the natural history of inherited cystic and non-cystic disease
 - b. Knowledge of clinical presentations
 - c. Familiarity with extrarenal manifestations
 5. Treatment
 - a. Knowledge of strategies to manage progression of renal failure, proteinuria, and hypertension in non-cystic inherited disease
 - b. Knowledge of management of pain, hypertension, renal stone, hematuria, infection, and progressive renal failure in patients with cystic disease
- B. Familiarity with management of extrarenal manifestations of ADPKD - mitral valve prolapse diverticular disease, intracranial aneurysm and hepatic cystic disease

II. Patient Care Experience

- A. Trainees should have experience in the diagnosis and management of:
 1. Various forms of cystic renal disease with particular emphasis on ADPKD and its various renal and extrarenal complications.
- B. Trainees should have experience in the diagnosis and management of patients with non-cystic inherited diseases with emphasis on Alport's syndrome and its renal and extrarenal complications.
- C. Trainees should be familiar with the principles of genetic counseling of patients with inherited renal disorders.

TUBULOINTERSTITIAL DISEASE AND URINARY TRACT INFECTIONS

I. Program Content

- A. Trainees should acquire a general understanding of:
 - 1. The structure and function of the normal renal tubules and interstitium
 - 2. The pathophysiological mechanisms of acute and chronic interstitial diseases including:
 - a. Immunologically mediated interstitial nephritides
 - b. Interstitial scarring as a consequence of primary glomerular and vascular diseases
 - c. Reflux nephropathy
 - d. Obstructive nephropathy
 - 3. Pathophysiology of interstitial disease
 - a. Immunopathogenetic and non-immune mechanisms
 - b. Relationship to glomerular function
 - c. Association with major tubular defects-diabetes insipidus, acidification, and potassium excretion
 - d. Effects of acute and chronic urinary obstruction
 - 4. Diagnostic procedures
 - a. Assess tubular defects
 - b. Evaluate obstruction
 - c. Define acute and chronic interstitial nephritis
 - 5. Pathogenesis and treatment of bacterial urinary infections
 - a. Major pathogenic species, routes and course of infection
 - b. Appropriate antibiotic choices
- B. Appropriate workup of the patient with multiple or resistance infections

II. Patient Care Experience

- A. Trainees should develop an in-depth knowledge of:
 - 1. Clinical features, causes, course and treatment of acute allergic interstitial nephritis
 - 2. The clinical features, predisposing factors, complications, bacteriological profile and treatment of acute pyelonephritis
 - 3. The management of patients with symptomatic and asymptomatic bacteriuria, including familiarity with:
 - a. The major pathogenic species, routes and course of infection
 - b. Appropriate antibiotic choices
 - c. Appropriate workup and treatment of patients with recurrent or resistant infections
 - d. Related syndromes such as nonspecific urethritis, prostatitis, or hemorrhagic cystitis
 - 4. Clinical and radiological features, course and treatment of reflux nephropathy (chronic pyelonephritis) and analgesics nephropathy, and the differential diagnosis of papillary necrosis
- B. Trainees should be familiar with:
 - 1. Pathological features of acute and chronic interstitial nephritides
 - 2. Clinical laboratory tests to evaluate aspects of tubular function, concentrating ability, urine acidification, potassium handling and various reabsorptive functions.
- C. Trainees should be aware of unusual syndromes affecting the renal interstitium such as xanthogranulomatous pyelonephritis, lymphomatous infiltration and various granulomatous diseases.

DISORDERS OF DIVALENT CATION AND MINERAL METABOLISM

- I. Program Content
 - A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 - 1. Calcium and phosphorus balance in humans
 - 2. Renal handling of calcium, magnesium and phosphorus
 - 3. Physiology of calcitropic hormones, specifically parathyroid hormone, vitamin D, calcitonin, and parathyroid hormone-related peptide
 - 4. An integrated view of calcitropic hormone regulation in normal situations and in the context of acute and chronic renal failure
 - 5. Bone physiology
 - 6. Methods of diagnose and treat different types of renal osteodystrophy, interpretation of bone biopsies, and an experience in the interpretation of bone biopsies in chronic renal disease
 - 7. Pathogenesis and treatment of calcium nephrolithiasis, urate nephrolithiasis, infected stones, and cystine stones
 - B. Surgical procedures necessary for the treatment of stone disease
- II. Patient Care Experience
 - A. Trainees should also be familiar with, and preferably have experience in, the direct diagnosis and management of the following areas, in both an outpatient and inpatient setting:
 - 1. Trainees must diagnose and manage patients with different types of renal osteodystrophy.
 - 2. Trainees should become familiar with the diagnosis and management of hyper- and hypocalcemia, hyper- and hypophosphatemia, and hypo- and hypermagnesemia.
 - 3. Training should include a significant exposure to the diagnosis and management of various forms of nephrolithiasis.
 - 4. Trainees should be familiar with the interpretation of bone biopsies.

TRANSPLANTATION

- I. Program Content
 - A. Immunology/Immunogenetics
 - 1. Normal immune response
 - 2. Immune response to allografts
 - 3. Inflammatory response to allografts
 - 4. Mechanisms of tolerance
 - 5. Immunogenetics and tissue typing, cross matching, and surveillance for panel reactive antibodies
 - B. Transplant Pharmacology
 - 1. Basic principles of pharmacology and the mechanisms of action of immunosuppressant agents including: glucocorticoids, azathioprine, mycophenolate mofetil, cyclosporine, tacrolimus, sirolimus, and monoclonal and polyclonal antibodies
 - 2. Basic principles of pharmacology of nonimmunosuppressive medications

used in transplant for the prophylaxis of infection and the treatment of concurrent illnesses with an emphasis on anticipating and managing drug interactions

- C. Organ Sharing and Allocation
 - D. Clinical Kidney and Pancreas Transplantation
 - 1. Historical perspective
 - 2. Pre-transplant evaluation of the recipient
 - 3. Pre-transplant evaluation of the living donor
 - 4. Pre-transplant evaluation of the cadaver donor/organ procurement
 - 5. Surgical technique and surgical management
 - 6. Physiology of the transplanted kidney
 - 7. Pathogenesis and pathology of allograft dysfunction
 - 8. Post-transplant care/in-hospital care
 - 9. Post-transplant care/out-patient care--short and long term
 - 10. Expected clinical outcomes/analysis of risk factors
 - 11. Special considerations in pediatric renal transplantation
 - 12. Special considerations for pancreas and kidney/pancreas transplantation
 - E. Infectious diseases in transplantation/pre- and post-transplantation
 - F. Pregnancy and transplantation
 - G. Cancer and transplantation
 - H. Ethics of Transplantation
 - I. Economics of transplantation
- II. Patient Care Experience
- A. Pre-transplant: Education, counseling, and evaluation of donor and recipient.
 - B. Immediate postoperative management: Evaluation and management of extracellular fluid volume, falling urine output, and primary nonfunction of the transplanted kidney.
 - C. Early post-transplant management: Establishment of adequate immunosuppression; diagnosis and therapy of rejection, infection, the hemolytic uremic syndrome, and urological and vascular complications; diagnosis and management of drug interactions and toxicities.
 - D. Long-term post-transplant management: Assessment for adequacy of immunosuppression; management of complications of long-term immunosuppression including medication-induced allograft dysfunction, recurrence of the primary disease, de novo post-transplant glomerulonephritis, post-transplant polycythemia, avascular necrosis, dyslipidemias, glucose intolerance, liver function abnormalities, lymphoproliferative diseases, and cancers affecting the skin and other organs.

RENAL DISEASE IN PREGNANCY

- I. Program Content
 - A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 - 1. Changes in the anatomy and function of the urinary tract during pregnancy, focusing on the relevance of these changes to clinical circumstances, stressing alterations in the calyces and ureters, renal hemodynamics, and tubular function (principally potassium and glucose)
 - 2. Changes in acid-base metabolism in pregnancy, focusing on normal pH,

HCO₃ and PCO₂

3. An integrated view of volume homeostasis during pregnancy. This includes knowledge of the normal gestational changes in weight, intravascular and extracellular volume status, renal salt handling, and the production of volume regulating hormones
4. Altered osmoregulation in pregnancy, focusing on changes in plasma sodium and osmolality levels, as well as on certain disorders of water metabolism peculiar to gestation
5. The course and control of blood pressure in normal pregnancy
6. Tests of kidney function, including indications for renal biopsy during pregnancy
7. Be familiar with the clinical spectrum and management of renal disorders in gestation. This includes: pathogenesis and treatment of urinary tract infections; acute renal failure (especially those primarily associated with gestation, i.e., septic abortion, abruptio, preeclampsia, acute fatty liver, and idiopathic postpartum renal failure); and chronic glomerular and interstitial renal diseases antedating pregnancy.
8. Recognize the presentation of stone diseases during gestation, and be familiar with the effect of pregnancy on patients with nephrolithiasis
9. Be familiar with the administration of both acute and chronic renal replacement therapy in pregnancy women
10. Know the effects of pregnancy on the natural history of renal allografts, and conditions required for undertaking pregnancy in transplant recipients.
11. Recognize and treat the hypertensive disorders of pregnancy, particularly preeclampsia and its variants such as the "HELLP" syndrome. This includes the use in gravidas of antihypertensive drugs, and the prevention and treatment of eclampsia, including the administration of magnesium sulfate.
12. Be capable of performing preconception counseling pertinent for the maternal and fetal prognoses for women with chronic hypertension and/or underlying kidney disorders.

II. Patient Care Experience

- A. Trainees must diagnose and manage women whose pregnancy is complicated by acute or chronic renal dysfunction as well as gestations complicated by hypertension. They should have exposure to the presentation and management of gravidas experiencing acute hypertensive crises, especially those crises complicated by systemic manifestations such as liver dysfunction, thrombocytopenia, and microangiopathic hemolytic anemia.

RENAL FUNCTION TESTING

I. Program Content

- A. Trainees are encouraged to develop knowledge and expertise in the following areas including indications, contraindications, complications, interpretation of results, cost effectiveness, and application to patient care of:
 1. Urinalysis including dipstick and sediment
 2. Measurement of renal plasma flow and glomerular filtration rate, including interpretation of serum creatinine and calculation of its clearance

3. Measurement of renal concentrating and diluting capacity
4. Measurement of microalbuminuria
5. Measurements of proteinuria using semiquantitative and quantitative methods
6. Assessment of urinary acidification
7. Assessment of renal sodium and potassium handling
8. Renal radiology
 - a. Urography
 - b. Ultrasonography
 - c. Radionuclide scans
 - d. Computed tomography
 - e. Magnetic resonance imaging
 - f. Renal circulation imaging (angiography)

II. Patient Care Experience

- A. Trainees must be given sufficient direct experience to develop expertise in their performance and interpretation of:
 1. Urinalysis
 2. Accurate and timed complete collection of urine for renal function testing, proteinuria, and microalbuminuria
 3. Fractional excretion of electrolytes
 4. Renal function clearance studies

PHARMACOLOGY OF DRUGS IN RENAL DISEASE

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following areas during the course of their training:
 1. Principles of drug pharmacokinetics
 2. Renal handling of drugs and chemicals
 3. Mechanisms of drug metabolism
 4. Drug prescribing in disease states and during dialysis
 5. Relevant drug-drug interactions
 6. Mechanisms of drug nephrotoxicity
 7. Management of drug-induced renal diseases
 8. Therapeutic drug monitoring
 9. Renal transplant immunosuppression

II. Patient Care Experience

- A. Trainees should also be familiar with, and preferably have experience in, the direct diagnosis and management of the following areas, in both an outpatient and inpatient setting:
 1. Trainees must diagnose and manage patients with different drug-induced renal syndromes.
 2. Trainees should be able to prescribe for and adjust drug dosage in patients with renal dysfunction.
 3. Trainees should understand indications of therapeutic drug monitoring.
 4. Trainees should be able to access drug and poison information.
 5. Trainees should be familiar with common overdoses and the need for extracorporeal therapy.

6. Trainees should prescribe and manage immunosuppression for renal transplantation.

PROFESSIONALISM AND ETHICAL CONDUCT

I. Program Content

- A. Programs are encouraged to use the resource documents, Project Professionalism, from the American Board of Internal Medicine to assist trainees in the acquisition of knowledge and understanding of the following areas during the course of training:
 1. Understand the elements of professionalism
 - a. Altruism
 - b. Accountability, dependability, responsibility, and prudence
 - c. Excellence but humility; continued education; commitment
 - d. Duty, justice, collegial collaboration
 - e. Honor and integrity, honesty and fidelity, trustworthiness
 - f. Respect for others, compassion, empathy
 - g. Common sense
 2. Understand threats to professionalism
 - a. Abuse of power and position, sexual and other harassment
 - b. Arrogance, prejudice, bias
 - c. Greed and selfishness
 - d. Misrepresentation, clinical and scientific misconduct
 - e. Impairment, including substance abuse
 - f. Lack of conscientiousness
 - g. Conflicts of interest
- B. Methods of evaluation of professionalism and ethical conduct in trainees:
 1. Utilize ABIM peer evaluation professional associate rating forms from multiple evaluators
 2. Maintain a critical events file documenting positive and constructive comments
 3. Expand traditional performance evaluation forms to incorporate components of professional and ethical evaluation
 4. Provide for professionalism and ethics evaluation in research performance
 5. When necessary, provide a mechanism for remediation of professional and ethical deficiencies

RESEARCH DESIGN, METHODS, AND RESPONSIBLE CONDUCT

Trainees should become familiar with the methods and problems inherent in performing and interpreting clinical and basic science research. This would be best accomplished through participation in the design, performance, and interpretation of a research project. However, it is realized that for many trainees interested in more clinical careers, such a time investment may not be worthwhile. In this case, the training program should provide a teaching program that focuses on these components of research. This is best accomplished through a weekly journal club that critically reviews clinical and basic science articles.

I. Program Content

- A. Trainees must acquire knowledge and understanding of the following

areas during the course of their training:

1. Hypothesis development
 2. Experimental design of human, animal or other experiments
 3. Elementary statistical analysis
 4. If necessary, as noted under item B, the writing of protocols that would be submitted to the institutional review board regulating research on humans or the institutional animal care and use committee
 5. Preparation of data for publication
 6. Acquisition, recording and storage of data
 7. Scientific integrity and the responsible conduct of research
 - a. Protection of animal and human subjects (IRB , IACUC)
 - b. Integrity in the collection and recording of data
 - c. Integrity in the interpretation of data
 - d. Integrity in the authorship and publication
 - e. Nuremburg code, Helsinki declaration, Belmont Report
 8. Scientific misconduct and fraud
 1. Self deception
 2. Fabrication, falsification, plagiarism
 3. Conflicts of interest
 - a. Scientist-scientist relationship
 - b. Scientist-industry relationship
- II. Research Experience can be acquired in various areas including, but not limited to, physiology, biochemistry, pharmacology, pathology, or clinical research.
- A. Trainees working in a laboratory must develop familiarity with and a working knowledge of techniques and assays relevant to their project.
 - B. Trainees working on a clinical research project in a General Clinical Research Center should admit study subjects to center, participate in obtaining informed consent, and play an active role in the study.
 - C. Trainees participating in clinical outcomes studies must be familiar with the methods used to acquire data and should participate in a meaningful way in the analysis of such information.
- C. Trainees should participate in the preparation of abstracts, manuscripts or reports that originate as a result of the studies.

FELLOWS FIRST YEAR OBJECTIVES

1. To obtain a comprehensive nephrologic history from patients with renal disorders.
2. To perform a thorough and appropriate physical examination specific for renal disorders.
3. To understand the principles and methodology for laboratory techniques used in renal disorders.
4. To demonstrate competence in performing renal biopsies and placement of temporary central venous catheters for hemodialysis.
5. To interpret and clinically utilize specific nephrologic tests such as urinalysis, 24-hour urine creatinine for creatinine clearance, in a variety of clinical situations.
6. To interpret plain radiographs of the chest and abdomen, CT and MRI of the kidneys, renal Doppler and ultrasounds, and renal radio nucleotide scans in a variety of renal disorders.
7. To understand when to order radiological and nuclear medicine tests to diagnose a variety of renal disorders.
8. To understand the principles of peritoneal dialysis and hemodialysis and their indications.
9. Demonstrate competence in writing acute hemodialysis and peritoneal dialysis orders and the ability to take care of the complications that occur during dialytic therapy.
10. To interpret renal biopsy tissue in conjunction with the nephropathologist.
11. To obtain a comprehensive history and perform a thorough and appropriate examination on patients with advanced renal disorders as part of a work up for renal transplantation.
12. To comprehend the indications and contraindications to renal transplantation.
13. To demonstrate competence in prescribing immunosuppressive therapy for the renal transplant patient.
14. To anticipate and treat the complications of renal transplantation in the acute and chronic

setting.

15. To review and interpret medical literature in nephrology and renal transplantation.
16. To understand the principles of epidemiology and health services research.
17. To understand data analysis, biostatistics, and meta-analysis for clinical research.
18. To design a clinical or basic research project with a faculty as mentor.
19. To prepare and present three didactic lectures on renal subjects with a faculty as mentor using slides, overheads, and handouts.
20. To write an abstract for the American Society of Nephrology or American Society of Transplant Physicians if sufficient research information is gathered.
21. To diagnose and treat a variety of renal disorders in the hospital and clinic environment.
22. To present a differential diagnosis of the patient's problem after completing an in hospital or outpatient consultation.
23. To learn how to use immunosuppressive agents and when to order plasmapheresis in specific renal disorders.
24. To have a thorough knowledge of hypertension, its complications, and its treatment.
25. To be knowledgeable in the metabolic work up and treatment of patients with renal stone disease.
26. To learn to assist in the placement of central venous permacatheters for hemodialysis using ultrasound and radiological guidance, Tenkhoff catheters for PD using the Y-tech peritoneoscopic technique, and thrombolysis and angioplasty of thrombosed vascular grafts for hemodialysis using radiographic techniques.
27. Attend lectures on OSHA regulations.
28. Attend orientation given by hospital on sexual harassment and professional attitude.

SECOND YEAR OBJECTIVES

1. To comprehend the anatomy, physiology of the kidney in health and disease.
2. To comprehend the immunologic basis of acute and chronic renal transplant rejection.
3. To understand the principles of immunologic tests such as HLA typing for donors and recipients of renal transplants.
4. To review and interpret medical literature in nephrology and renal transplantation.
5. To actively participate in didactic lectures, research discussions, journal club, and nephropathology conferences.
6. To interpret renal biopsy tissue using the techniques of light, immunofluorescence, and electron microscopy.
7. To refine and carry out a clinical trial or a basic research project.
8. To present research findings in the form of an abstract at the annual American Society of Nephrology or American Society of Transplant Physicians Meeting.
9. To understand and utilize bioethics in basic research in clinical trials.
10. To acquire competence in the management of dialysis patients in the out patient dialysis setting.
11. To attend quality control and patient oriented conferences in the outpatient dialysis units.
12. To learn about water treatment and bacterial growth in water used for dialysis in the outpatient dialysis units.
13. To acquire knowledge on the reuse of dialysers and their potential benefits and complications in the out patient setting.
14. To complete consultation on inpatients or outpatients with renal and renal transplantation and disorders, hypertension, and nephrolithiasis which will include a differential diagnosis, a

final assessment, and therapeutic options to a faculty member.

15. To prepare patients physically and mentally for outpatient dialysis and take care of all the medical details for outpatient dialysis.
16. To gain competence in talking to families of potential renal transplant recipients regards organ donation, and further details of renal transplantation.
17. To gain competence in the placement of central venous permacatheters for hemodialysis using ultrasound and radiological guidance, Tenkhoff catheters for PD using the Y-tech peritoneoscopic technique, and thrombolysis and angioplasty of thrombosed vascular grafts for hemodialysis using radiographic techniques.
18. To perform renal biopsies in patients with renal disorders and transplants using real time ultrasound.
19. To attend the annual American Society of Nephrology Meeting and participate in all training courses.
20. To demonstrate the ability to work in the private practice setting.
21. To understand/utilize the Medicare/Medicaid documentation guidelines.
22. To comprehend billing procedures and ICM-coding.

Required Procedures in Nephrology

The ACGME requires all fellows to be competent in performing the procedures listed below. Fellows are required to maintain a list of procedures performed including name of patient, medical record number, date and signature of faculty supervisor. Log books will be provided. A summary of the procedures for the year will be required before completing any year of the fellowship.

- J. Percutaneous biopsy of Autologous Kidney
- K. Percutaneous biopsy of Transplanted Kidney
- L. Placement of temporary vascular access for hemodialysis
- M. Peritoneal Dialysis
- N. Acute Hemodialysis
- O. Chronic Hemodialysis
- P. Continuous Renal Replacement Therapy
- Q. Urinalysis
- R. Miscellaneous

Procedure Check List

Fellows Responsibilities at LSUHSC

A. Consult Fellow

1. The fellow is responsible for all consults requested from the wards and emergency room. He/She can ask the Medicine Resident and/or medical student on the Renal Service to assist him in this activity. On an average there will be 3 consults per day.
2. The fellow should write orders on all chronic and acute hemodialysis and peritoneal dialysis patients on the wards and intensive care units daily.
3. The fellow should be available for acute problems that arise in the hemodialysis units and intensive care units during dialysis and peritoneal dialysis on the wards.
4. The fellow will place all acute venous hemodialysis catheters for dialysis. He/She can the medicine resident/medical student to assist in these procedures. The attending for the month should be present when these procedures are done.
5. The fellow will make daily rounds and recommendations on all patients on the consult service. There are usually 10-20 patients on the consult service per day.
6. The fellow will be available to offer advise to the medical resident on the renal ward service but he is not responsible for these patients i.e. he/she should not make daily rounds or write daily notes on these patients. The medical resident assigned to the ward service with the renal ward attending are responsible for this.
7. The fellow will do all renal biopsies on patients on the renal ward and consult service with the direct supervision of his renal attending.
8. The fellow will make daily consult rounds with the nephrology attending. Present and discuss all new consults and discuss recommendations on old consults.
9. The fellow will assist with placement of soft cuffed tunneled venous catheters for hemodialysis and Tenckhoff catheters for peritoneal dialysis only if time permits. The interventional service is run by a separate nephrology faculty with the assistance of a third year nephrology interventional fellow.

10. The fellow will present a clinical case from the consult service for discussion at the weekly Friday clinical conference two times each month. He will also present the clinical summary of biopsies patients for discussion at the monthly renal biopsy conference.
11. The fellow will see patients in the renal outpatient clinic one afternoon each week.
12. The fellow will attend all didactic clinical and research conferences of the nephrology section.

B. Interventional Fellow

1. The fellow will perform or assist in all procedures in the Interventional Laboratory under direct supervision of faculty.
2. The fellow will be responsible for the pre- and post-op care of the patient. This involves obtaining consent forms, explaining the procedure to the patient, and entering procedure data in the computer.
3. The fellow will be responsible for hemodialysis orders for outpatients who are in the hospital for clinic visits, twenty-four hour observation, or intermittent hemodialysis via temporary femoral catheter.
4. The fellow will be responsible for placement of femoral catheters for hemodialysis on all outpatients.

Fellows Responsibilities at Willis Knighton Medical Center

1. The fellow will make daily rounds on all renal transplant patients admitted to the transplant service. He/She will write notes and recommendations. There are on an average 10 patients on this service.
2. The fellow will do consults on liver transplant patients who have electrolyte problems, acid-base abnormalities, and renal failure. He/She will also answer consults on the LSU Ward service at WK Medical Center. These average 2 per week.
3. The fellow will attend the renal transplant clinic two afternoons each week. He will also see patients in the clinic on other days if outpatient problems arise. He will be supervised by the transplant nephrologist.
4. He will attend the transplant evaluation clinic one morning each week. He will discuss his findings with the transplant nephrology attending and the transplant surgery attending.
5. He will make daily rounds with the transplant team. The team consists of the renal transplant nephrologist, surgeon, surgical resident, surgical intern, and a senior medical student.
6. Transplant patients with either acute or chronic renal failure will be biopsied by the fellow with direct supervision of the attending.
7. The fellow will be responsible for writing peritoneal and hemodialysis orders on patients who need dialysis on the transplant service or the LSU ward service. He/She will be available for acute problems that may arise during hemodialysis or peritoneal dialysis.
8. The fellow will present the clinical history of all biopsied renal transplant patients at the monthly renal pathology conference.
9. The fellow will attend the monthly pretransplant workup conference at which all issues on pretransplant patients are discussed with the transplant staff, transplant coordinators, social workers, and psychiatrists.

Fellows Responsibilities at Veterans Administration Medical Center

1. The fellow is responsible for all consults requested from the wards and emergency room. He/She can ask the Medicine Resident and/or medical student on the Renal Service to assist him in this activity. On an average there will be 2 consults per day.
2. The fellow should write orders on all chronic and acute hemodialysis and peritoneal dialysis patients on the wards and intensive care units daily.
3. The fellow should be available for acute problems that arise in the hemodialysis units and intensive care units during dialysis and peritoneal dialysis on the wards.
4. The fellow will place all acute venous hemodialysis catheters for dialysis. He/She can ask the medicine resident/medical student to assist in these procedures. The attending for the month should be present when these procedures are done.
5. The fellow will make daily rounds and recommendations on all patients on the consult service. There are usually 10-15 patients on the consult service per day.
6. The fellow will do all renal biopsies on patients on the renal ward and consult service with the direct supervision of his renal attending.
7. The fellow will make daily consult rounds with the nephrology attending. Present and discuss all new consults and discuss recommendations on old consults.
8. The fellow will present a clinical case from the consult service for discussion at the monthly nephrology conference.
9. The fellow will see patients in the renal outpatient clinic one afternoon each week. He will also see patients in the walk-in nephrology clinic
10. The fellow will attend all didactic clinical and research conferences of the nephrology section.

Fellows Responsibilities at Dialysis Clinics Inc. and Dialysis Clinics of Shreveport

1. The fellow will make rounds on all hemodialysis patients in each unit once every other week together with the attending physician.
2. The fellow will review monthly laboratory tests, blood pressure records, weight gain records, compliance with dialysis records, and listed medications on all dialysis patients once each month. With attending supervision the fellow will make changes in dialysis prescription and medications as necessary.
3. The fellow will review the dietitians, social workers, and nurses recommendations and together with information obtained in 2 he will write short- and long-term care plans for each dialysis patient.
4. Once a month the fellow will attend a quality assurance meeting in each dialysis unit. At this meeting patient compliance issues, incident reports, special problems in the dialysis unit, water quality, reuse of dialysis membranes, nutritional issues are discussed. This conference is attended by the unit medical director, business manager, hemodialysis and peritoneal dialysis head nurse, dietitian, social worker, and chief technician.
5. The fellow will be available on beeper to answer clinical problems that arise daily in dialysis patients. He will discuss these with the attending who is also available on beeper.
6. The fellow will attend the monthly peritoneal dialysis clinic with the faculty attending. He will see patients, review monthly laboratory tests, and write short- and long-term care plans.
7. The fellow will be available on beeper to trouble shoot problems in peritoneal dialysis patients. He will discuss these problems with the faculty attending who is also available on beeper.
8. Each fellow will be responsible for the long term care of two peritoneal dialysis patients under direct faculty supervision. The fellow will see these patients once a month.

Evaluation Process

All fellows will be evaluated on a monthly basis by their assigned attending physician. The standard ABIM/ACGME Form will be used. A copy of this form follows this section. Narrative comments may be supplied by the attending physician but are optional unless the fellow is rated unsatisfactory.

All fellows will have a biannual conference with the Program Director to discuss their performance in the program and to review their evaluations. Any fellow who receives an unsatisfactory evaluation in any category of the ABIM Form will be counseled immediately. For the first unsatisfactory evaluation a warning will be issued to the fellow with plans to ensure no further unsatisfactory evaluations. Should a repeat unsatisfactory evaluation occur (or an unsatisfactory evaluation of serious nature occur at anytime) the fellow may be placed on academic probation. If a fellow is placed on probation, a written summary of the unsatisfactory evaluation will be provided to the fellow along with a memo from the Program Director detailing the unsatisfactory performance. A course of action to remediate the unsatisfactory performance will be proposed. The fellow will initial the Program Director's letter indicating acknowledgment of its receipt. Original will be kept in the fellow's file and a copy will be provided to the fellow. All unsatisfactory evaluations will be discussed at the meeting of the Resident Evaluation Committee. This committee shall serve to assist the Program Director and Chief Resident in counseling and disciplining house officers. The placing of a resident on academic probation must be approved by the Resident Evaluation Committee either before the house officer is placed on probation or as soon after as feasible. Should the Resident Evaluation Committee disagree with the Program Director's action the resident would be removed from probationary status with all documentation of probation removed from the file. During the probationary period, any subsequent unsatisfactory performances will be grounds for termination. In addition, other grounds for termination may be specified in the probation menu. An example of this would be a remedial action required of the house officer to remain in the program which is not completed. All actions of the Resident Evaluation Committee are subject to approval by the Chairman of Medicine.

Other actions may result in termination from the program as outlined in the LSUHSC Housestaff Manual. If a fellow is terminated due process will be given as is referenced in the LSUHSC Housestaff Manual.

The fellow is also responsible for evaluating their attending physician each month. Every six months the fellow is required provide an anonymous evaluation of the program itself as well as each faculty member. Copies of these forms follow this section.

Monthly Fellow Evaluation

Monthly Faculty Evaluation

Fellow Research Evaluation

Yearly Anonymous Program Evaluation

Yearly Anonymous Faculty Evaluation

Termination From Training Program

Termination from the training program may occur for several reasons. These include but are not limited to the following:

- Inadequate performance when on academic probation. (See section on probation.)
- Illicit drug use. (See section on drug use.)
- Lack of progression of training.
- Violation of contract.
- Violation of the rules and regulations as outlined in the LSUMC Handbook for House Officers.
- Inadequate academic performance, or unprofessional behavior as deemed by the Resident Evaluation Committee of the Department of Medicine.

In all instances of termination of contract the policies and procedures as outlined in the LSUMC Handbook for House Officers will be followed. If a house officer has a violation serious enough to warrant termination the Program Director will convene a meeting of the Resident Evaluation Committee along with the Chairman of Internal Medicine. The performance of the house officer will be reviewed at this committee meeting by the Program Director and the Chief Resident. The committee may ask for (but is not required to ask for) input by the house officer. For a termination recommendation to occur a quorum of the Resident Evaluation Committee must be present and a majority must vote in favor of a termination. Minutes will be kept of this meeting. A formal letter will be drafted by the Program Director notifying the house officer of the decision of the Resident Evaluation Committee. At this point the usual rules and procedures of the LSUMC Housestaff by-laws will be followed. The appeal process is outlined in these by-laws. The house officer will have the chance to appeal their decision directly to the Program Director as well as the Chairman of Medicine.

Drug Screening

The use of any illicit drugs is strictly prohibited by the Department of Internal Medicine and the Division of Nephrology. Prior to employment routine drug screening will be performed on all applicants. During the fellowship program drug screening may be requested if, in the opinion of the Program Director, inappropriate behavior suspicious of drug use is noted. Should drug screening be requested of the fellow, the procedures and policies outlined in the LSUMC Housestaff Manual will be followed. Failure to comply with a requested drug screen by the Program Director will result in termination from the fellowship program. A positive drug screen will necessitate notification of appropriate authorities in the development of a rehabilitation program for the house officer. The policies and procedures will be followed as outlined in the LSUMC Housestaff Manual.

Stress

A fellowship program is a particularly stressful time. The Program Director with help from the attending physicians are charged with monitoring the level of stress within the training program. The Program Director will counsel any fellows showing signs of stress related dysfunction. Expert counseling services will be provided to those fellows who are deemed to require it by the Program Director. Initial evaluation by a faculty psychologist will be conducted followed by appropriate referral for counseling or psychiatric care as required. Sick leave will be granted to the house officer if the Program Director feels they are unable to perform their normal job functions or need a brief respite from the stress of the fellowship program.