

HANDOUT FOR THE GOALS AND OBJECTIVES OF THE TRANSPLANTATION ROTATION

Clinical Curriculum Introduction

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

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

Overview of Clinical Program Goals and Objectives

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

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

CORE COMPETENCIES

Patient care – Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows are expected to:

- Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
- Gather essential and accurate information about their patients
- Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
- Develop and carry out patient management plans
- Counsel and educate patients and their families
- Use information technology to support patient care decisions and patient education
- Perform competently all medical and invasive procedures considered essential for the area of practice

- Provide health care services aimed at preventing health problems or maintaining health
- Work with health care professionals, including those from other disciplines, to provide patient-focused care

Medical knowledge - Fellows must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care. Fellows are expected to:

- Demonstrate an investigatory and analytic thinking approach to clinical situations
- Know and apply the basic and clinically supportive sciences which are appropriate to their discipline

Practice-based learning and improvement – Fellows must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Fellows are expected to:

- Analyze practice experience and perform practice-based improvement activities using a systematic methodology
- Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
- Obtain and use information about their own population of patients and the larger population from which their patients are drawn
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
- Use information technology to manage information, access on-line medical information; and support their own education
- Facilitate the learning of students and other health care professionals

Interpersonal and communication skills - Fellows must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates. Fellows are expected to:

- Create and sustain a therapeutic and ethically sound relationship with patients
- Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
- Work effectively with others as a member or leader of a health care team or other professional group

Professionalism - Fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Fellows are expected to:

- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices

- Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Systems-based practice - Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Fellows are expected to:

- Understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
- Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
- Practice cost-effective health care and resource allocation that does not compromise quality of care
- Advocate for quality patient care and assist patients in dealing with system complexities
- Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

Progressive objectives

The objectives of the nephrology fellowship program are designed to reflect a progressive increase in learning and independence. The learning principles include, describing progression through the six learning domains: knowledge, comprehension, application, analysis, synthesis and evaluation. In practice, the program's objectives change at the completion of the first year of the 2-year training period. The progressive change in objectives are summarized in the sections addressing the **four major rotations: Consultation, Transplantation, Research, and Outpatient Nephrology**. These progressive objectives are provided to the fellows at the start of training and reviewed by the Program Director at the beginning of the second 12 months of training. Major areas in which a graduated level of function are anticipated in year 2 include:

- Transplantation
 - More independence in the evaluation of transplant recipients and donors

Transplant Nephrology

1) Goal

Fellows will become competent in caring for inpatient and outpatient renal transplant patients.

2) Objectives

Detailed objectives for transplant are described in the Transplant table. There are 3 separate tables that address objectives for advancing competence over time (eg, novice period during training months 1-12; increasing competence during months 13-23; independence at completion at month 24).

Months 1-12 - Fellows function at least at the level of accurate reporting of the history, physical and other data, i.e., they correctly recall and state the relevant facts. Fellows begin to understand or comprehend this information, reviewing and reporting the relevant facts in an organized and efficient manner. Fellows begin to describe how to apply this information to make diagnostic and therapeutic decision. With more experience, Fellows are able to accurately interpret the history, physical examination and data. The information is analyzed and an accurate differential diagnosis is formulated. Fellows are able to perform urinalysis accurately. Fellows continue in their abilities to design a diagnostic plan and therapeutic interventions.

Months 13-23 - Fellows are able to correctly manage general renal transplant patient care, including managing immunosuppression. This extends previous expectations to formulating a correct diagnostic plan, making the correct diagnosis. They should be beginning to critically analyze literature relevant to the care issues.

Month 24 - Fellows are competent in all six core competencies. They function as self-educators, reading and analyzing the literature, and adjusting their care based on this analysis. They also function as educators in a larger context, using their clinical experience and information they have obtained from the literature to teach their colleagues, staff and faculty.

Types of clinical encounters and supervision on the Transplantation rotation.

Each Fellow spends 3-4 months/year on the Transplantation rotation at Harbor-UCLA Medical Center. Two of the months include focus on inpatient evaluation and management while the remaining two months focus more exclusively on the outpatient evaluation and management of Transplant recipients and donors. Since we do approximately 40 renal transplants/year, each first year fellow sees approximately 6-7 newly transplanted patients at Harbor/year. In order to enhance the exposure to acute transplantation, first year Fellows also spend one month on the inpatient Transplant service at the UCLA Center for the Health Sciences, where the number of renal transplants is now more than 500/year. Each first year fellow rotating at UCLA will see at least 30 patients in the one month rotation.

Inpatient transplant encounters – During two of the months that the Fellows are assigned to the Transplantation service at Harbor-UCLA Medical Center. The focus is on inpatient transplantation evaluation and management taking place 5 half-days per week with rounds under the direct supervision of the Transplant attending covering the inpatient evaluation and management of newly transplanted patients and patients hospitalized for acute or chronic rejections, infection-related complications, or other complications or medical issues in transplant recipients requiring hospitalization. All patients admitted for renal transplantation at Harbor-UCLA Medical Center are admitted to the Surgical service. The patients are evaluated by the Nephrology Fellow immediately prior to the transplant under the direction of the Nephrology Transplant Attending Physician to ensure that the patient is medically suitable for transplantation, assuming the cross-match permits. The Nephrology fellow under the supervision of the Nephrology attending also follows the patient during the peri- and post-operative period. The Fellow discusses peri- and post-operative care with the Transplant Surgery Team, and is responsible for writing the immunosuppression orders under the supervision of the Transplant nephrologist. After discharge, any subsequent admissions of renal transplant recipients are made to the Internal Medicine service (unless the problem is likely to require surgery). The Fellow is the primary consultant for these patients, seeing them and writing notes on a daily basis, and for all practical purposes, directing the care of these patients on the Internal Medicine service under the supervision of the

Transplant nephrologist. The Fellow makes sit-down interdisciplinary rounds with the renal transplant team in which the patient's current status and care plan are discussed. The Transplant nephrologist is on-call with the Fellow 24 hours a day for discussion of both routine and difficult transplant issues.

UCLA Center for the Health Science Inpatient Transplantation experience. Center for the Health Sciences at UCLA – This is a tertiary care facility to which first year fellows from the Harbor-UCLA Medical Center rotate for one of their 3 to 4 months of renal transplantation experience. The Center for the Health Sciences is among the busiest renal transplant centers in the world, performing approximately 600 renal transplants per year. The hospital contains surgical and medical intensive care units, a dialysis unit that performs acute and chronic hemodialysis and supports continuous renal replacement therapies and peritoneal dialysis, radiologic services with modern renal-related procedures and diagnostic vascular and radionuclide imaging, light, immunofluorescent and electron microscopies for renal biopsy material, biochemical and serologic laboratories, a nutrition support service, and relevant social services. A close working relationship exists with other services including surgery, urology and psychiatry.

Outpatient transplant encounters - General post-transplant follow-up clinic. Demographics are as above for General Nephrology. All fellows attend the General Transplant Clinic on an ongoing basis during the entire clinical training program ½ day per week (Wednesday mornings). An average of 40-45 patients are seen in each clinic. Patients seen have had their transplants as early as the prior week or as long as 30 years ago. This clinic is an opportunity for fellows to learn both the acute outpatient management of patients with a renal allograft and to manage the patient who has had an allograft for decades. Unlike other transplantation programs in private institutions where there is pressure to return the patients to the referring physician for post-transplantation management, the vast majority of the patients transplanted at Harbor-UCLA Medical Center are from our own program and their post-transplant management is continuous with the Transplant team and includes long duration follow-up. Differences in the risk of rejection, the nature of the infections observed over time and the extra-renal complications and morbidity events are appreciated and managed.

Recipient evaluations, wait-list follow-up, and live renal donor clinics. Demographics are as above in for General Nephrology. During approximately two of the months that the Fellows are assigned to the Transplantation service at Harbor-UCLA Medical Center, the focus is on outpatient transplantation evaluation and management rather than inpatient activities. In place of the five ½ days spent on inpatient activities by the Fellow focusing on hospitalized patients, during this period of time the Fellow spends four ½ days for intensive education on the outpatient evaluation of new transplant referrals, re-evaluation of patients on the waiting list, and evaluations of live renal donors. Since most Nephrologists will not be involved in the acute care of the newly transplanted patient, but instead will be heavily involved in the referral of patients for transplantation, the need to maintain the patients' care so that the patient is not on the "on-hold" list is also key to the training of a nephrologist. In the case of the live renal donor evaluation, understanding both the ethical issues and the medical issues will help the Nephrologist consultant to explain the results of donor evaluations to patients, so we believe that some education in this area is also helpful, and we have expanded our education program to some targeted experience in this area. Furthermore, some nephrologists are needed to perform these independent evaluations on live Transplant donors. This targeted educational experience may serve to stimulate a trainee to pursue this niche area of practice. The Outpatient transplant encounter also includes one ½ day per week that is free. Fellows may elect to use the time off, or may wish to spend extra time on their research projects, on more advanced training in renal Ultrasonography, on their PBLI/CQI projects, or on a self-learning program. This time is intended to be used in the most fruitful way envisioned by the individual trainee. For some, that may be some additional needed free-time. For others, using it for

didactic purposes would be more advantageous. These choices will be made in consultation with the Program Director.

Patient characteristics (number, demographics)

Inpatients - The average inpatient renal transplant census at Harbor-UCLA Medical Center is 2-6 patients. Approximately 40 patients received renal transplants at Harbor-UCLA Medical Center in 2008. Patient demographics are similar to those for general nephrology patients. The average inpatient renal transplant census at the UCLA Medical Center is 25-40 patients. Approximately 600 patients received renal transplants at UCLA Center for the Health Sciences in 2008. Patient demographics are similar to those for general nephrology patients.

The demographic at the UCLA Center for the Health Sciences is different than that at Harbor-UCLA. The patient population more closely reflects the demographic of Los Angeles County, which is approximately 44% Hispanic, 33% European-American, 11% African-American, and 12% others. Patients tend to be of middle and upper middle class. The program carries out more than 500 renal transplants a year, which is the primary focus of training. However, there is additional exposure to renal disease in patients with liver, heart, lung and bone marrow transplants.

Outpatients – Over 1,000 patients are followed in the Harbor-UCLA Post-Transplant Clinic. An average of 35 – 40 patients are seen in the weekly Post-Transplant Clinic at Harbor-UCLA. The Pre-Transplant and bi-annual Re-evaluation Transplant Evaluation Clinics evaluate up to twelve patients per session, five days each week. Patient demographics are similar to those for general nephrology patients.

Procedural training

Percutaneous biopsy of transplanted kidneys – performed by the Fellow on inpatients on their service or outpatients they have seen in Post-Transplant Clinic. All renal transplant biopsies on inpatients are performed by the Fellow in the presence of the Attending.

Teaching methods

Educational training

Handouts - At the beginning of the Fellowship, Fellows are provided with associate membership to the American Society of Nephrology and the National Kidney Foundation, providing them with their own subscriptions to JASN, NephSap, CJASN and AJKD journals. Fellows are also given access to Up-To-Date on the hospital computer system, and in their on-call room. Hundreds of additional journals and thousands of textbooks are available at the Parlow Library adjacent to the hospital. Additionally, they are provided access to the Handbook of Renal Transplant Protocols for the Harbor-UCLA Medical Center.

Didactic sessions

General Nephrology Conferences. All of the conferences, including Nephrology Grand Rounds, Practice-based learning and improvement conference, Journal clubs, Medical Grand Rounds, Pathophysiology conference, Research conference, Introductory course, and Pathology conference include educational experiences involving renal transplantation. In addition to those venues, the Renal Transplant service also provides the following didactics:

Weekly Transplant conference – Renal transplant issues are covered in detail in the didactic conference held each Wednesday just prior to the start of the Transplant clinic. Sessions are devoted to recipient evaluation, mechanisms of allograft rejection, immunosuppressive drugs, prophylaxis and treatment of graft rejection, non-rejection causes of graft dysfunction, major causes of post-transplant morbidity and mortality, and renal disease associated with liver, heart and bone marrow transplantation.

Primer Course - At the beginning of the Fellowship, a series of lectures are given during our intensive introductory course to provide a basic level of instruction regarding the evaluation and management of newly transplanted patients. The lectures cover the medical evaluation of the immediate pre-transplant patient, immunosuppression, the approach to an elevated creatinine post-transplantation, and fever in transplant recipients.

Combined Renal Transplant/Infectious Diseases Conference – Classical, as well as unusual infectious disease complications are presented and discussed by the Renal Fellow and the Infectious Disease Fellow in a joint presentation. Nephrology Transplant and Infectious Disease faculty are also both in attendance to facilitate discussion.

Inpatient attending rounds – Fellows round daily with the Nephrology Transplant attending.

Assessment and evaluation of Fellows (see Transplant Table)

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

Checklist

- 1) First, the goals and objectives of the Transplant rotation are reviewed at the start of the rotation. Then, Fellows are evaluated quarterly by the Transplant attendings (Drs. Barba and Tong), and the results are collated and discussed with the Program Director. The Transplant and Program Directors use a scale from 1-7 to evaluate the Fellow's patient care, medical knowledge, professionalism, interpersonal and communication skills, practice-based learning and improvement, and systems-based practice as it pertains to transplant. Fellows receive a written copy of the evaluation and review these orally with the Program Director. If there is any significant issue, the attending immediately communicates this to the Program Director who meets with the attending and fellow to develop an action plan to address the issue. The Fellow's performance in this area is then reassessed, by Checklist by the inpatient attendings, in three months and reviewed with the Program Director.
- 2) **360 evaluation** – this evaluation is completed by patients, transplant nurses, social workers, dieticians, pharmacists, and nurse practitioners in order to give a broad sense of how the Fellow delivers patient care and interacts with members of the transplant health care interdisciplinary team. It is completed every 6 months. Fellows review this with the Program Director. Problem areas (scores under "5") are identified and an action plan developed. Fellows are reassessed in 6 months with particular attention to these problem areas.
- 3) **Written exam** – At the end of the first year, Fellow's are given the local UCLA-wide written examination (multiple choice style). Their performance is reviewed with the Program

Director. Transplant areas in need of improvement are identified and an action plan is developed to address these with the Transplant Nephrology Attending.

- 4) **Resident portfolio** – The fellow will keep a log of the number of acute Transplant patients for whom they participated in management, and also a log on the number of allograft biopsies performed, indication, list any complications, and data on who the proctor of the procedure was. These logs will be reviewed by the Program Director quarterly and kept in the Fellow's portfolio.
- 5) **Mini-clinical examination (Mini-CEX)** – These are given about twice in the first year in the inpatient and outpatient setting, to provide formative input on the fellow's progression towards obtaining clinical competence relevant to transplant patient care.
- 6) **Procedures** – Fellows must keep a log of all transplant kidney biopsies indicating date, attending, patient identifier, indication and complications.
- 7) **Conferences** – Fellows attendance at conferences is documented. Participation in journal clubs and case-based presentations, as they relate to transplant, is discussed with the Program Director during the quarterly evaluation.
- 8) **Final (summative) evaluation** - This evaluation includes a review of the Fellow's performance during the final period of education, and verifies that the Fellow demonstrated sufficient professional ability to practice competently and independently

Assessment and evaluation of attendings by Fellows - discussed in section below devoted to this topic.

Transplant Nephrology Table - Months 1-12

Competency category	Competency objectives	Transplant objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards transplant patients	Attending teaching Conferences Orientation Core lectures	360 evaluation Quarterly checklist Mini-CEX	≤10% unacceptable ≥ 3 first quarter ≥ 4 last quarter
	Gather essential and accurate information about their patients	Gather essential information about fellow's transplant patient	Attending teaching Conferences Core lectures	Quarterly checklist Mini-CEX 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Make informed decisions about diagnostic and therapeutic interventions	Begin to understand the basics of making informed decisions about diagnostic and therapeutic interventions in transplant patients	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 3 first quarter ≥ 4 last quarter
	Develop and carry out patient management plans	Begin to develop transplant patient management plans	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Counsel and educate patients and families	Counsel and educate transplant patients and families with regard to renal transplant types, socioeconomic, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation Mini-CEX	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Use information technology	Use information technology to assist caring for transplant patients, including Up-To-Date, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Orientation Conferences	Quarterly checklist	≥ 3 first quarter ≥ 4 last quarter
	Perform: Physical exam	Examine the transplant patient, particularly with regard to transplant-related problems, including examination of the transplant site	Attending teaching Conferences Core lectures	Quarterly checklist Mini-CEX	≥ 3 first quarter ≥ 4 last quarter
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and understand the correct procedural techniques for: 1. Renal transplant biopsy	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 3 first quarter ≥ 4 last quarter
	Provide preventative health care services	Understand preventative health care services relevant to transplant patients	Conferences Attending teaching	Quarterly checklist Chart-stimulated recall	≥ 3 first quarter ≥ 4 last quarter
	Work within a team of health care professionals	Work within the transplant health care team, including attendings, nurses, nurse coordinators, social workers, physician extenders, pharmacists, and administrative assistants	Conferences Attending teaching Orientation	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Begin to demonstrate investigatory and analytic thinking about clinical transplant situations	Attending teaching Core lectures Conferences Journal club Clinical meetings Orientation	Quarterly checklist Mini-CEX	≥ 3 first quarter ≥ 4 last quarter
	Know and apply the basic and clinically supportive sciences	Fellows will gather the data and begin to develop the fund of knowledge necessary for: a. Pre-transplant selection, evaluation and preparation of transplant recipients and donors b. Understanding of immunosuppressant drug effects and toxicity c. Immediate postoperative management of transplant recipients d. Understanding of immunologic principals of types and mechanisms of renal allograft rejection e. Clinical diagnosis of all forms of rejection including laboratory, histopathologic and imaging techniques f. Prophylaxis and treatment of allograft rejection g. Recognition and medical management of nonrejection causes of allograft dysfunction, including urinary tract infections, acute renal failure, and others h. Understanding major causes of post-transplant morbidity and mortality i. Understanding of fluid, electrolyte, mineral and acid-base regulation in post-transplant patients j. Long-term follow-up of transplant recipients in the ambulatory setting including economic and psychosocial issues k. Understanding of principles of organ harvesting, preservation and sharing l. Understanding of renal disease in liver, heart and bone marrow transplant recipients	Attending teaching Core lectures Conferences Journal club Clinical meetings Orientation	Quarterly checklist Mini-CEX	≥ 3 first quarter ≥ 4 last quarter
Practice-based learning and improvement	Analyze own practice and perform practice-based improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Monitoring their practice b. Reflecting on or analyzing their practice to identify learning or improvement needs c. Engaging in a learning or plan improvement While these objectives are relevant to transplant care, the Fellow may do this PBLI project as part of another area (dialysis, general nephrology).	Attending teaching Case-based presentations Journal club Participation in CQI Exit rounds on patient discharge M&M on own patients Conferences Log of significant events and plan to address Assigned faculty mentor	Fellow portfolio (Catalogue of questions and issues that arose during patient care along with copies of the data sources used, and actions taken, to address the specific question or issue).	Case-based talks* Journal clubs* M&M* Checklists Log of significant event and how addressed CQI project started ≥ 3 first quarter ≥ 4 last quarter *Conference performance evaluated by TPD

	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to transplant patients' health problems	Attending teaching Case-based presentations on fellow's own pts. Journal club	Quarterly checklist Fresno Test	≥ 3 first quarter ≥ 4 last quarter Formative
	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Begin to understand study designs and statistical methods to appraising clinical studies and other information	Statistics and epidemiology course Conferences Journal club Assigned faculty mentor	Quarterly checklist Fresno Test	≥ 3 first quarter ≥ 4 last quarter Formative
	Use information technology	Use information technology as itemized in Patient Care above	Attending teaching Orientation Conferences	Quarterly checklist Resident portfolio	≥ 3 first quarter ≥ 4 last quarter See "Analyze own practice..." above
	Facilitate the learning of others	Facilitate the learning of others, including faculty, residents, fellows, physician extenders and nurses. Initially, this is based on assigned literature review.	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
Inter-personal & communication skills	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with transplant patients	Role models Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Demonstrate effective listening and writing skills	Demonstrate effective listening and writing skills	Role models Attending teaching	Quarterly checklist Mini-CEX 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist Mini-CEX 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	Quarterly checklist Mini-CEX 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable

Systems-based practice	Understand interaction of their practices with the larger system	Begin to understand interaction between fellow's practice and the transplant staff, administration, surgical service, radiology, medical consult services, the clinic, and the hospital	Interdisciplinary rounds Conferences Attending teaching	360 evaluation	≤10% unacceptable
	Understand types of medical practice and delivery systems	Begin to understand how transplant programs are organized	Conferences Attending teaching	Quarterly checklist	≥ 3 first quarter ≥ 4 last quarter
	Practice cost-effective health care	Begin to understand how to practice cost-effective transplant care	Conferences Core lectures Attending teaching	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable
	Advocate for quality patient care	Begin to understand how to advocate for transplant patient quality care	Attending teaching Participation in CQI Conferences	Quarterly checklist 360 evaluation	≥ 3 first quarter ≥ 4 last quarter ≤10% unacceptable

Transplant Nephrology Table - Months 13-23

Competency category	Competency objectives	Transplant objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards transplant patients	Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist Mini-CEX	≤10% unacceptable ≥ 4.5
	Gather essential and accurate information about their patients	Gather essential information about fellow's transplant patient	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation Mini-CEX	≥ 4.5 ≤10% unacceptable
	Make informed decisions about diagnostic and therapeutic interventions	Synthesize data and begin to make informed decisions about diagnostic and therapeutic interventions in transplant patients	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 4.5
	Develop and carry out patient management plans	Develop transplant patient management plans. Understand how to carry out such plans.	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
	Counsel and educate patients and families	Counsel and educate transplant patients and families with regard to renal transplant types, socioeconomic, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable
	Use information technology	Use information technology to assist caring for transplant patients, including Up-To-Date, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Conferences	Quarterly checklist	≥ 4.5
	Perform: Physical exam	Examine the transplant patient, particularly with regard to transplant-related problems, including examination of the transplant site	Attending teaching Conferences Core lectures	Quarterly checklist Mini-CEX	≥ 4.5
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and demonstrate the correct procedural techniques for: 1. Renal transplant biopsy	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 4.5
	Provide preventative health care services	Provide preventative health care services relevant to transplant patients	Conferences Attending teaching	Quarterly checklist	≥ 4.5
	Work within a team of health care professionals	Work within the transplant health care team, including attendings, nurses, nurse coordinators, social workers, physician extenders, pharmacists, and administrative assistants	Conferences Attending teaching	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Demonstrate investigatory and analytic thinking about clinical transplant situations	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist Written exam	≥ 4.5 Pass
	Know and apply the basic and clinically supportive sciences	Fellows will continue to acquire the fund of knowledge necessary for: a. Pre-transplant selection, evaluation and preparation of transplant recipients and donors b. Understanding of immunosuppressant drug effects and toxicity c. Immediate postoperative management of transplant recipients d. Understanding of immunologic principals of types and mechanisms of renal allograft rejection e. Clinical diagnosis of all forms of rejection including laboratory, histopathologic and imaging techniques f. Prophylaxis and treatment of allograft rejection g. Recognition and medical management of nonrejection causes of allograft dysfunction, including urinary tract infections, acute renal failure, and others h. Understanding major causes of post-transplant morbidity and mortality i. Understanding of fluid, electrolyte, mineral and acid-base regulation in post-transplant patients j. Long-term follow-up of transplant recipients in the ambulatory setting including economic and psychosocial issues k. Understanding of principles of organ harvesting, preservation and sharing l. Understanding of renal disease in liver, heart and bone marrow transplant recipients	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist Mini-CEX Written exam	≥ 4.5 Pass
Practice-based learning and improvement	Analyze own practice and perform practice-based improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Monitoring their practice b. Reflecting on or analyzing their practice to identify learning or improvement needs c. Engaging in a learning or plan improvement While these objectives are relevant to transplant care, the Fellow may do this PBLI project as part of another area (dialysis, general nephrology).	Attending teaching Case-based presentations Journal club Participation in CQI Exit rounds on patient discharge M&M on own patients Conferences Log of significant events and plan to address Assigned faculty mentor	Fellow portfolio (Catalogue of questions and issues that arose during patient care along with copies of the data sources used, and actions taken, to address the specific question or issue).	Case-base talks* Journal clubs* M&M* ≥ 6 on checklists Log of significant events and how addressed CQI project data analyzed and improvement plan developed ≥ 4.5 *Conference performance evaluated by TPD

	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to transplant patients' health problems	Attending teaching Case-based presentations on fellow's own pts. Journal club	Journal Club Written exam	≥ 4.5 Pass
	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Apply knowledge of study designs and statistical methods to appraising clinical studies and other information	Statistics and epidemiology course Conferences Journal club Assigned faculty mentor	Journal club and PBLI conference evaluations	≥ 4.5 Correct
	Use information technology	Use information technology as itemized in Patient Care above	Attending teaching Orientation Conferences	Quarterly checklist Resident portfolio	≥ 4.5 See "Analyze own practice..." above
	Facilitate the learning of others	Facilitate the learning of others, including faculty, residents, fellows, physician extenders and nurses	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
Inter-personal & communication skills	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with transplant patients	Role models Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
	Demonstrate effective listening and writing skills	Demonstrate effective listening and writing skills	Role models Attending teaching	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable
Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable
	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	Quarterly checklist Mini-CEX 360 evaluation	≥ 4.5 ≤10% unacceptable

Systems-based practice	Understand interaction of their practices with the larger system	Understand interaction between fellow's practice and the transplant staff, administration, surgical service, radiology, medical consult services, the clinic, and the hospital	Interdisciplinary rounds Conferences Attending teaching	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
	Understand types of medical practice and delivery systems	Understand how transplant programs are organized	Conferences Attending teaching	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 4.5
	Practice cost-effective health care	Practice cost-effective transplant care	Conferences Attending teaching	Written exam Quarterly checklist	Pass ≥ 4.5
	Advocate for quality patient care	Advocate for transplant patient quality care by demonstrating proactive efforts towards transplant CQI	Conferences Core lectures Attending teaching	Quarterly checklist 360 evaluation	≥ 4.5 ≤10% unacceptable

Transplant Nephrology Table – Month 24

Competency category	Competency objectives	Transplant objectives relevant to competency	Teaching Methods	Evaluation Methods	Acceptable Performance
Patient care	Exhibit caring and respectful behaviors	Exhibit caring and respectful behaviors towards transplant patients	Attending teaching Conferences Core lectures	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 5
	Gather essential and accurate information about their patients	Gather essential information about fellow's transplant patient	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Make informed decisions about diagnostic and therapeutic interventions	Make informed decisions about diagnostic and therapeutic interventions in transplant patients	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Develop and carry out patient management plans	Develop and carry out transplant patient management plans	Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Counsel and educate patients and families	Counsel and educate transplant patients and families with regard to renal transplant types, socioeconomic, support systems, diet, lifestyle, medications	Attending teaching Conferences Core lectures Interdisciplinary rounds	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Use information technology	Use information technology to assist caring for transplant patients, including Up-To-Date, NIH information and databases, NephSAP, electronic medical records, PubMed, and other sources	Attending teaching Conferences	Quarterly checklist	≥ 5
	Perform: Physical exam	Examine the transplant patient, particularly with regard to transplant-related problems, including examination of the transplant site	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Perform: Procedures	Understand the principles of informed consent, indications, contraindications, alternative procedures, and the risks and benefits, and demonstrate the correct procedural techniques for: 1. Renal transplant biopsy	Attending teaching Conferences Core lectures	Quarterly checklist	≥ 5
	Provide preventative health care services	Provide preventative health care services relevant to transplant patients	Interdisciplinary rounds Conferences Attending teaching	Quarterly checklist	≥ 5
	Work within a team of health care professionals	Work within the transplant health care team, including attendings, nurses, nurse coordinators, social workers, physician extenders, pharmacists, and administrative assistants	Interdisciplinary rounds Conferences Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable

Medical knowledge	Demonstrate investigatory and analytic thinking about clinical situations	Demonstrate investigatory and analytic thinking about clinical transplant situations	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist	≥ 5
	Know and apply the basic and clinically supportive sciences	Fellows will acquire the fund of knowledge necessary for: a. Pre-transplant selection, evaluation and preparation of transplant recipients and donors b. Understanding of immunosuppressant drug effects and toxicity c. Immediate postoperative management of transplant recipients d. Understanding of immunologic principals of types and mechanisms of renal allograft rejection e. Clinical diagnosis of all forms of rejection including laboratory, histopathologic and imaging techniques f. Prophylaxis and treatment of allograft rejection g. Recognition and medical management of nonrejection causes of allograft dysfunction, including urinary tract infections, acute renal failure, and others h. Understanding major causes of post-transplant morbidity and mortality i. Understanding of fluid, electrolyte, mineral and acid-base regulation in post-transplant patients j. Long-term follow-up of transplant recipients in the ambulatory setting including economic and psychosocial issues k. Understanding of principles of organ harvesting, preservation and sharing l. Understanding of renal disease in liver, heart and bone marrow transplant recipients	Attending teaching Core lectures Conferences Journal club Clinical meetings	Quarterly checklist	≥ 5
Practice-based learning and improvement	Analyze own practice and perform practice-improvement using a systematic methodology	Fellow will hold up a mirror to themselves to document, assess, and improve their practice. This will involve: a. Using information technology as itemized in Reflection or analyzing their practice to identify learning or improvement needs b. Engaging in a learning or plan improvement c. Applying the new learning or improvement While these objectives are relevant to transplant care, the Fellow may do this PBL project as part of another area (dialysis, general nephrology, physician extends and courses	Attending teaching Case-based presentations Conferences Exit rounds on patient discharge M&M on own patients Log of significant events and plan to address Assigned faculty mentor	Fellow portfolio (Catalogue of questions and issues) Case-based talks* Journal clubs* M&M* See - Analyze own practice above Log of significant events and how addressed CQI project - intervention/begin data analysis	Case-based talks* Journal clubs* M&M* ≥ 5 See - Analyze own practice above Log of significant events and how addressed CQI project - intervention/begin data analysis *Conference performance evaluated by TPD ≤ 10% unacceptable
	Facilitate the learning of others	Facilitate the learning of others including faculty, residents, fellows	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤ 10% unacceptable
	Use evidence from scientific studies related to patients' health problems	Use evidence from scientific studies related to transplant patients' health problems	Attending teaching Case-based presentations	Quarterly checklist	≥ 5
	Maintain a therapeutic and ethical relationship with patients	Maintain a therapeutic and ethical relationship with transplant patients	Role models Attending teaching Conferences Core lectures	Quarterly checklist 360 evaluation	≥ 5 ≤ 10% unacceptable
Inter-personal & communication skills	Demonstrate effective listening and writing skills to appraising clinical studies and other information	Demonstrate effective listening and statistical methods to appraising clinical studies and other information	Role models Attending teaching Conferences Journal club Assigned faculty mentor	Quarterly checklist 360 evaluation	≥ 5 ≤ 10% unacceptable
	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤ 10% unacceptable ≥ 4.5
Professionalism	Demonstrate respect, compassion, and integrity	Demonstrate respect, compassion, and integrity	Role models Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤ 10% unacceptable ≥ 4.5

	Demonstrate an ethically sound practice	Demonstrate an ethically sound practice	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Demonstrate sensitivity to patients' culture, age, gender, and disabilities	Role models Attending teaching Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
Systems-based practice	Understand interaction of their practices with the larger system	Understand interaction between fellow's practice and the transplant staff, administration, surgical service, radiology, medical consult services, the clinic, and the hospital	Interdisciplinary rounds Conferences Attending teaching	360 evaluation Quarterly checklist	≤10% unacceptable ≥ 5
	Understand types of medical practice and delivery systems	Understand how transplant programs are organized	Conferences Attending teaching	Checklist Quarterly checklist	≥ 5
	Practice cost-effective health care	Practice cost-effective transplant care	Conferences Core lectures Attending teaching	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable
	Advocate for quality patient care	Advocate for transplant patient quality care by demonstrating proactive efforts towards transplant CQI	Attending teaching Participation in CQI Conferences	Quarterly checklist 360 evaluation	≥ 5 ≤10% unacceptable