A. Medical Knowledge

Goal:
The resident will achieve a detailed knowledge of the evaluation and treatment of a variety of disease processes as related to transplantation.

Objectives:

The Resident will be able to:

1. Discuss the basic pathophysiology of end-stage disease in all systems that can be transplanted.
   a. Etiologies of failure of the organ systems
      i. Renal
      ii. Hepatic
      iii. Pancreatic
      iv. Cardiac
      v. Pulmonary
      vi. Small Intestine
   b. Diagnosis and medical treatment of the failure of the organ systems listed above
2. Discuss the indications and contraindications for transplant surgery by organ systems.
3. Discuss issues in transplant immunobiology for the pre-transplant patient, including:
   a. Major Histocompatibility complex (MHC)
   b. Human Leucocyte Antigens (HLA)
   c. Panel reactive antibody (PRA)
   d. Donor specific crossmatches
4. Describe the general medical care of the immunosuppressed transplant patient.
   a. Care of routine illnesses in this patient population
   b. Common comorbidities: Diabetes, Hypertension
   c. Maintenance of Health
5. Discuss the details of the pharmacology (including generic and brand names of the drugs, the side effects and the contra-indications) and pharmacokinetics of the immunosuppressive therapies. Include the classes of immunosuppression below:
   a. Steroids
   b. Purine analogs and inhibitors
   c. Anti-thymocyte preparations
   d. Anti-T helper cell drugs (calcineurin inhibitors)
   e. IL2 inhibitors
f. Target of Rapamycin Inhibitors

6. Discuss the details of the specific uses and dosing of immunosuppressive therapy in transplant surgery.

7. Discuss issues in transplant immunobiology for the post-transplant patient, including:
   a. Wound healing
   b. Basic immune response including antibody recognition of foreign antigens
      i. List the cellular response to foreign tissue or material including the role of lymphocytes, macrophages, and T-cells.
   c. Graft rejection and timing following transplantation
      i. hyperacute,
      ii. acute cellular,
      iii. chronic
   d. Infections
      i. Bacterial
      ii. Fungal
      iii. Viral
   e. Tumors
      i. Skin
      ii. PTLD
      iii. others

8. Discuss the diagnosis and treatment of acute and chronic rejection in transplant patients.
   a. Differential diagnosis
   b. Methods of evaluation and diagnosis
   c. Treatment rationales

9. Discuss the process of organ donation in the United States.
   a. OPTN, UNOS, and CMS
   b. Organ availability
   c. Donor requirements

B. Patient Care

Goal:
The resident will provide patient care that is compassionate, appropriate, and effective for the treatment of cardiothoracic problems.

Objectives:

The Resident will be able to:

1. Participate in the general medical care of immunosuppressed transplant recipients.
2. Interprets laboratory and diagnostic tests as related to pre and post transplant patients.

3. Direct the preoperative assessment, preparation for surgery, and postoperative care of transplant patients in the inpatient and outpatient setting.
   a. Discuss the details of the management of wound care in the immunocompromised patient.

4. Make the judgment of the placement of vascular access for the treatment of end-stage renal failure and plasmapheresis and participate, with a high levels of surgical independence, in dialysis access surgical procedures, including:
   a. Vascular grafts for dialysis
   b. Peritoneal dialysis catheters
   c. Cimino Fistulas and other arteriovenous fistulas for dialysis

5. Participate, with a moderate to high levels of surgical independence, in transplant-related surgical procedures, including:
   a. kidney transplants
   b. liver transplants
   c. Pancreas transplants
   d. Small Intestine transplants
   e. Living donor organ donation
   f. Organ Procurement
   g. Hepatobiliary procedures

6. Manage care of patients in the ICU setting

7. Participate, with a moderate to high levels of independence, in the diagnosis and care of patients with post-operative complications in transplant surgery, including:
   a. Delayed graft function
   b. Infectious complications
   c. Transplant dysfunction and rejection
   d. Immunosuppressive drug toxicity

8. Participate, with a moderate to high levels of independence, in the treatment of liver failure complications, including:
   a. Acute variceal hemorrhage
   b. Hepatic encephalopathy
   c. Refractory ascites
   d. Hepatorenal syndrome
   e. Spontaneous bacterial peritonitis
   f. Alterations in drug excretion

C. Practice Based Learning and Improvement

Goal:
The resident will investigate and evaluate his or her own patient care practices, appraise and assimilate scientific evidence, and improve patient care practices.

**Objectives**:  

**The Resident will be able to:**

1. Use information technology to prepare for cases  
2. Use the knowledge of current modalities of care in the OR and the inpatient/outpatient care settings and be able to describe the scientific evidence for that care.  
3. Routinely analyze the effectiveness of one’s own practices in caring for transplant surgery patients.  
4. Improve one’s own practices in the care of patients by integrating appropriately gathered data and feedback.  
5. Educate medical students and other healthcare professionals in the practices of transplant surgery.  
6. Function independently with graduated advancement and appropriate faculty supervision.  
7. Use library and internet sources to perform research and literature searches.  
8. Understand the principles of clinical research and the application of biostatistics.

**D. Interpersonal and Communication Skills**

**Goal:**  
The resident will demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates.

**Objectives**:

**The Resident will be able to:**

1. Educate patients and families in follow-up strategies and rehabilitation for transplant surgery patients.  
2. Demonstrate compassion for patients and families undergoing transplantation.  
3. Provide counseling and informed consent to patients.  
4. Listen attentively and critically to patients and their families.  
5. Assimilate data and information provided by other members of the transplant team and outside referral sources.  
6. Chart and records information accurately.
7. Educate patients and families of transplantation regarding potential side effects caused by immunosuppressant therapy.

E. System Based Practice

Goal:
The resident will 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.

Objectives:

The Resident will be able to:

1. Coordinate all aspects of the preoperative and postoperative care and rehabilitation of transplant surgery patients.
2. Advocate for transplant patients within the health care system.
3. Refer transplant patients to the appropriate practitioners and agencies.
4. Facilitate timely discharge of transplant surgery patients.
5. Learn to coordinate the admission of patients and communicate with primary care physicians, inpatient house staff, and consultants.
6. Direct the total care of transplant patients by partnering with the following:
   a. Transplant surgeons
   b. Nephrologists
   c. Hepatologists
   d. PCPs
   e. Dieticians
   f. Social Workers
   g. Transplant Coordinators
7. Create a cost-effective, focused work-up of diagnostic testing.

F. Professionalism

Goal:
The resident will demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Objectives:

The Resident will be able to:
1. Develops a sensitivity of the unique stresses placed on families under care for transplant surgery
2. Exhibits an unselfish regard for the welfare of transplant surgery patients.
3. Demonstrates firm adherence to a code of moral and ethical values.
4. Is respectful to patients and their families especially in times of stress to the family unit.
5. Respects and appropriately integrates other members of the transplant surgery health care team.
6. Provides appropriately prompt hand consultations when requested.
7. Demonstrates sensitivity to the individual patient’s profession, life goals, and cultural background as they apply to surgery.
8. Is reliable, punctual, and accountable for own actions in the OR, on the patients floors and clinic.
9. Understands the concepts of autonomy, beneficence, nonmaleficence, justice, and respect for life.
10. Maintains patient confidentiality.

Transplantation References:

Norman,DJ and Turka, LA. Primer on Transplantation. American Society of Transplantation