



**Educational Goals and Objectives for Rotations on:
Emory University Hospital Transplant**

Goal

The goal of the Transplant rotation at Emory University Hospital is to develop the knowledge, skills, and attitudes necessary to evaluate, diagnose, and manage critically ill surgical patients.

Objectives for PGY-2 Residents: At the end of the PGY-2, residents will:

Patient Care

- The surgical resident will see all floor (non-ICU) patients on morning work rounds with the multidisciplinary transplant team.
- Routine patient care will be integrated with the mid-level providers and members of the team under the supervision of the senior resident and fellow
- On afternoon teaching rounds, the surgical resident should present all floor patients. These presentations must be focused and succinct and should include only pertinent data—abnormal labs, updates on new cultures, new diagnostic studies, etc.
- The surgical resident has responsibility for patient care including admitting patients to the hospital, writing orders, test scheduling and follow-up, performing and dictating history and physicals, writing daily notes, evaluating patients, ordering and interpreting laboratory results and dictating discharge summaries. The surgical resident may request assistance from the transplant midlevel provider, senior resident, transplant surgery fellow, nephrology fellow, the transplant surgery staff, nephrology staff, and hepatology staff. The surgical resident should promptly contact the transplant surgery fellow for any significant developments or issues. If the fellow is not available the surgical resident should not hesitate to contact the transplant surgery staff.
- The surgical resident attends transplant clinic on a weekly basis. Attendance will be documented in a log. The log will be signed by a member of the surgery staff at the completion of a clinic session or at the end of the rotation.

Medical Knowledge

Demonstrate knowledge in the care of the transplant patient in the following areas:

- Transplant Immunology:
 - a. Describe the basic difference in pathophysiology, the diagnosis and treatment of hyper acute, acute and chronic allograft rejection.
 - b. Describe the screening process for preformed antibodies known as “cross matching” for each category below:
 - i. CDC cross match
 - ii. AHG cross match
 - iii. Flow cytometry cross match
 - c. Describe what a PRA is and what it is used for.
 - d. Describe what (HLA) is.
 - e. List the human leukocyte antigens that are most important in “cross matching”.
- Transplant Infectious Disease:
 - a. List the five most common opportunistic pathogens (viral, fungal, and bacterial) in transplantation.



- b. Describe the risk factors for CMV infection, BK infection, EBV infection, Pneumocystis carinii infection, coccidioides, Varicella Zoster infection, and Blastomyces infection.
- c. Describe prophylactic strategies and treatment options for CMV, Cryptococcus, and Pneumocystis.
- d. Describe the association between EBV infection and malignancy.
- e. Describe the association between BK infection and kidney transplant complications
- Medical Comorbidities:
 - a. Demonstrate knowledge in the management of the following medical problems in end stage renal failure and end stage liver disease:
 - i. List the different classes of antihypertensive medications.
 - ii. Describe the indications for each class of antihypertensive medication.
 - iii. List the complications associated with hyperkalemia, hypokalemia, hypercalcemia, hypocalcemia, hypermagnesemia, hypomagnesemia
 - iv. Manage hyperkalemia, hypokalemia, hypercalcemia, hypocalcemia, hypermagnesemia, hypomagnesemia in transplant recipients.
 - v. Describe the difference between hemodialysis and peritoneal dialysis.
 - vi. Describe the vascular access options for hemodialysis including arteriovenous fistula (AVF), arteriovenous grafts (AVG).
 - vii. List the complications of AV fistulas, AV grafts and peritoneal dialysis including infection and thrombosis
 - c. Management of the following medical problems in type I diabetic patients:
 - i. Describe the difference between type I and type II diabetes.
 - ii. Describe the medical and surgical therapy of complicated wounds including choice of antibiotics, wound care, debridement and amputation.
 - iii. Describe the symptoms and treatment of gastroparesis.
 - iv. Write insulin drip orders and be able to transition the patient from an insulin drip to home insulin regimen.
 - v. Describe the difference between regular insulin, NPH insulin, Humalog, Novolog, Lantus, glucophage, glipizide, glucotrol.
 - vi. Explain the term neuropathy and list the potential complications.
- Anti-Rejection Pharmacology:
 - a. Induction therapy:
 - i. Describe what the term induction means.
 - ii. List the different agents used for induction therapy.
 - iii. List the complications of the various induction agents.
 - iv. Describe another use for these agents
 - b. Maintenance immunosuppression:
 - i. Describe the mechanism of action and the tests used to monitor the following classes of immunosuppressive agents:
 - 1. Calcineurin inhibitors (Prograf, cyclosporine)
 - 2. Anti-metabolites (Cellcept, Imuran)
 - 3. TOR inhibitors (Rapamycin,)
 - 4. Steroids
- Transplant Waiting List Criteria:



- a. List the criteria used to place kidney, pancreas and liver transplant patients on the waiting list after attending the patient evaluation conference and reading the transplant manual.
- b. Describe the process of deceased donor organ donation, organ allocation, and the organ procurement procedure after reading the transplant manual and participating in organ procurement.
- Perioperative and Postoperative care:
 - a. Outline and describe the diagnosis and management strategy for:
 - i. Managing high or low (or no) urine output
 - ii. Managing hyper- or hypotension
 - iii. Managing hemorrhage
 - iv. Recognizing the signs of graft thrombosis
 - b. List the surgical complications of renal transplant.
 - c. List the differential diagnosis for an elevated creatinine.
 - d. List the differential diagnosis for elevated transaminases and T. Bili
 - e. Define the terms primary non-function, delayed graft function and slow graft function.
 - f. Outline the differential diagnosis for fever of unknown origin in any transplant patient.

Appropriate correlative reading is expected throughout the rotation.

Practice-based Learning and Improvement

- Demonstrate knowledge of macroscopic, radiologic, and histologic anatomy of the kidney, pancreas and liver, by assisting in transplant operations, reviewing ultrasounds and CT Scans with surgeons and radiologists, and reviewing the microscopic findings of kidney, pancreas and liver and biopsies with the pathologist.
- Read the journal articles in the blackboard course and be prepared to answer questions on these articles.
- Attend and present a journal article at the monthly journal club held during the kidney and pancreas Clinical Protocol Meeting on Wednesday mornings.
- Evaluate, present and discuss patients in transplant clinic with a member of the transplant surgery staff weekly.
- Critically evaluate inpatient transplant patients with attention to changes in laboratory trends, determinations of which radiologic study to perform and when an operation is indicated for a given complication.
- The surgical resident should be present in the operating room whenever possible as long as it does not interfere with patient care and clinic time.

Professionalism

- Prompt return of pages.
- Thorough sign-out to other members of the team or covering physicians.
- Prompt arrival to clinics and the operating room.
- Introduction to and examination of patients prior to entering the operating room.
- Maintenance of patient confidentiality.
- Attendance at conferences.
- Completion of dictations prior to leaving the service.



Interpersonal and Communication Skills

- Write thorough and succinct notes on transplant patients with attention to appropriate findings on physical exam.
- Accurately present patients in an organized manner at afternoon teaching rounds.
- Obtain surgical consent on patients while being observed by a transplant surgery staff member and independently.
- Interact with consulting team members in an effective manner.
- Convey various diagnoses to patients/families while being observed by a transplant surgery staff member.
- Convey treatment plans to the transplant coordinators.
- Demonstrate coordination of care of the multidisciplinary transplant team with attention to the importance of the surgeon.

Systems-based Practice

- Describe the role of the transplant coordinator.
- Describe the role of the transplant social worker.
- Describe the role of the transplant psychiatrist.
- Describe the evaluation process through which patients with abnormal kidney, pancreas and liver function progress to be placed on the transplant waiting list with attention to HLA typing, Blood typing, laboratory studies, radiologic evaluation and consultation with other services.
- Describe the system through which patients with complications related to transplantation progress through the system by obtaining the appropriate consultations, radiologic studies, laboratory tests, while focusing on the management of the transplanted organ.
- Discuss the surgeon's role in the ambulatory management, the establishment of rapport with referring physician's, and the multidisciplinary management of transplant patients.
- Describe and discuss the ambulatory multi-disciplinary management of patients and how it is orchestrated.



Resident Daily Responsibilities:

1. Morning work Rounds on liver and kidney services
2. Write all notes on liver and kidney surgery floor patients daily
3. Assist midlevels with completion of morning huddle sheets on liver and kidney surgery patients daily
4. Present liver and kidney patients at morning huddle
5. Attend liver walk rounds at 9:30 am and present all surgical patients
6. Attend teaching rounds at 3:00 am
7. Attend kidney walk rounds at 3:30 pm and present all surgical patients

Other responsibilities:

1. Attend kidney or liver clinic weekly
2. Attend Clinical protocol meeting on Wednesdays at 11 am (Clinic B, B6300)
3. Attend Noon Conference on Wednesday's at 12 pm (medical school amphitheater)
4. Attend Transplant Surgery M&M bimonthly on Mondays
5. 4th year will determine procurement call schedule and is responsible for the procurement pager
6. 4th year will take call from home and donor.
7. Intern will take call from home and donor call.
8. OR:
 - a. 4th year
 - i. Performs roughly every other deceased donor kidney transplant to average out over the course of the rotation
 - ii. Performs living donor recipient kidneys when assigned
 - iii. Assists on liver transplantation
 - iv. Performs general surgery cases appropriate per level
 - v. Assist on procurement
 - b. Intern
 - i. Assists in kidney and liver transplants
 - ii. Performs general surgery cases appropriate for level
 - iii. Assist on procurement

Communication: If you are not available (in the OR, etc) please communicate with the fellow and midlevels to ensure that all patients are covered and all work is assigned (including notes, ordering tests, huddle sheets, presentation on rounds etc.)