

**University of Puerto Rico  
Medical Sciences Campus  
School of Medicine  
Department of Surgery**

# **GENERAL SURGERY**



## **GOALS**

## **GOALS / ROTATIONS**

### **GOALS**

#### **General Surgery – University District Hospital:**

1. Expose residents to a wide variety of general surgical conditions:
2. Clinical presentation
3. Work up
  - a. Cost effectiveness
4. Clinical judgment
5. Active exposure to surgical procedures towards the development of technical expertise.
6. Bedside manners
7. Administration of the service

#### **Tumor Service - Oncologic Hospital:**

1. Expose residents to the multidisciplinary management of the Cancer patients.
2. Multidisciplinary tumor planning conference
3. Expose residents to a wide variety of oncology procedures.
4. Acquire knowledge in chemotherapy and radiotherapy.
5. Expose our residents to most common gynecological conditions, evaluation and surgical management.
6. Exposure to national research protocols.
  - a. National Research Protocols
7. San Juan Clinical Community Oncology Program
  1. NASBP
  2. ECOA
  3. MD Anderson
8. Florida Melanoma Clinical Trials
9. American College of Surgeons Oncology Group
  
10. Puerto Rico Cancer Center with Moffitt Partnership P-30
11. Puerto Rico Cancer Center with MD Anderson Partnership – U-54
  - i. Exposure to Basic Research

#### **University of Puerto Rico Hospital, Carolina:**

1. Expose residents to a wide variety of general surgical conditions:
  - a. Clinical presentation
  - b. Work up
    - Cost effectiveness
  - c. Clinical judgment

2. Active exposure to surgical procedures towards the development of technical expertise.
3. Bedside manners
4. Administration of the service
5. Expose residents to a secondary level care hospital and patient population.

### **Cardiovascular Service:**

1. Expose residents to most frequent CV conditions:
2. Clinical presentation
3. Diagnostic procedures
4. Medical management
5. Exposure with active involvement to complex intensive care critical surgical care.
6. Cardiac and pulmonary physiology
7. Exposure to thoracic and vascular surgery with active involvement.
8. Due to the complexity of these cases, residents mostly act as first assistants. Gradual increases in technical involvement occur with increases in exposure and level of training.

### **Trauma Service**

1. Expose residents to the acute and sub acute management of the trauma patients.
2. Develop expertise in initial evaluation and stabilization at the Emergency Room level (the ABC of trauma management)
3. Develop expertise in obtaining vascular access for IV Rx and volume management.
4. Initial work-up at Emergency Room level.
5. Develop clinical judgment in these acutely and critically ill patients.
6. Develop expertise in life saving surgical procedures:
  - Chest tube insertion
  - Endotracheal intubations
  - Thoracentesis
  - Thoracotomy
  - Pericardiocentesis
  - Peritoneal lavage
  - CPR, etc.
7. Develop expertise in the surgical management (intra operative).
8. Develop expertise in the critical care of these patients:
  - Invasive hemodynamic monitoring
  - Fluids
  - Ventilatory support
  - Sepsis
  - Flexible arthroscopy in the acute trauma patient

- Acute 4 quadrants abdominal sonographics evaluation at ER
  - Nutritional support
9. Develop sensitivity toward the emotional stress involved in trauma cases.
    - Psychological support (patient and relatives)

**Pediatric Surgery Service:**

1. Expose our residents to as much pediatric surgical conditions as possible with emphasis on the most frequent ones.
  - Clinical presentation
  - Work up
    - Cost effectiveness
  - Clinical judgment
  - Physical exam and Clinical judgment of the infant and child
2. Expose residents to the surgical management of these conditions. As primary surgeons and as assistants to Pediatric Faculty in complex procedures.
3. Critical care exposure in the pediatric patients at all levels:
  - a. NICU experience
  - b. PICU experience
  - c. Pediatric Renal patient experience
  - d. Oncologic pediatric patient experience
4. Develop experience in general pediatric surgical procedures:
  - a. Peripheral IV cannulation
  - b. Chest tube placement
  - c. Central venous access
  - d. Peritoneocentesis
  - e. Thoracentesis
  - f. Pericardiocentesis

**Transplant Unit - Auxilio Mutuo Hospital:**

1. Expose our residents to the immunocompromised patients.
  - General management
  - Critical care (all aspects)
  - Immunotherapy
2. Expose residents to vascular surgery
3. Expose residents to transplant surgery patients
  - Recipient selection and evaluation
  - Donor selection and evaluation: Cadaver and Live-Related
  - Management of end stage renal disease including diet, medications, complications, hemodialysis
  - Vascular access for Dialysis
  - Nephrectomy and splenectomy
  - Histocompatibility testing
- Donor nephrectomy and Kidney transplantation

- Prophylactic immunosuppression
  - Treatment of rejection
  - Short and long-term follow-up of renal transplant patient
  - Results and complications of renal transplantation
  - Organ harvesting and perfusion-preservation in human and animals
4. At the end of two-month rotation, the resident should have developed the following general skills:
- Know the indications of renal transplantation and the general guidelines for selection and evaluation of kidney transplant recipients.
  - Know the general evaluation and selection of both cadaver and living related kidney donors.
  - Know the general management of end-stage renal disease.
  - Perform vascular access operations under supervision
  - Perform bilateral nephrectomy and splenectomy under supervision.
  - Perform initial dissection for kidney transplantation under supervision.
  - Know the general post-operative management of kidney transplant recipients including post-operative care, rejection, immunosuppression and complications.

### **Medico-Surgical Intensive Care Unit**

1. Expose residents to the acute and sub acute management of the surgical critical care patients.
2. Develop expertise in Initial evaluation of critically ill patients at the Intensive Care Unit.
3. Develop expertise in obtaining vascular access for IV Rx and volume management.
4. Develop knowledge and proficiency in the use of Swan-Ganz Catheter.
5. Develop clinical judgment in these acutely and critically ill patients.
6. Develop expertise in life saving surgical procedures:
  - chest tube insertion
  - endotracheal intubations
  - thoracentesis
  - thoracotomy
  - pericardiocentesis
  - peritoneal lavage
  - CPR, etc
7. Develop expertise in the evaluation, recognition and treatment of surgical problems in critical care patients.
  - Invasive hemodynamic monitoring
  - Fluids
  - Ventilatory support and modalities
  - Sepsis  
  - Immunomodulation
  - Cardiovascular pharmacological support

- Management of renal failure
  - Hemodialysis dynamics
  - Hematopoietic problems
  - Gastrointestinal failure
  - Liver insufficiency and failure
8. Develop sensitivity toward the emotional stress involved in these cases.
  9. Psychological support (patient and relatives)
  10. Emotional support
  11. Physical therapy and rehabilitation

**Veterans Administration Hospital:**

1. Expose residents to a wide variety of general surgical conditions:
  - Clinical presentation
  - Work up
    - Cost effectiveness
  - Clinical judgment
2. Active exposure to surgical procedures towards the development of Technical expertise.
3. Bedside manners
4. Administration of the service
5. Expose residents to the multidisciplinary management of the cancer patients.
  - Multidisciplinary tumor planning conference.
6. Expose residents to a wide variety of oncology procedures.
7. Acquire knowledge in chemotherapy and radiotherapy.
8. Exposure to national research protocols:
  - San Juan Clinical Community Oncology Program.
9. Develop expertise in obtaining vascular access for IV Rx and volume management.
10. Develop clinical judgment in these acutely and critically ill patients.
11. Develop expertise in life saving surgical procedures:
  - Chest tube insertion
  - Endotracheal intubations
  - Thoracentesis
  - Thoracotomy
  - Pericardiocentesis
  - Peritoneal lavage
  - CPR, etc
12. Develop expertise in the clinical care of these patients:
  - Invasive CV monitoring
  - Fluids
  - Ventilatory support
  
  - Sepsis
  - Nutritional support, etc

13. Expose residents to a wide variety of peripherovascular procedures making emphasis in pre operative work up and clinical judgment
14. Developed experience in flexible endoscopies.

**Peripherovascular Surgery:**

1. Knowledge of:
  - Risk factors for development peripherovascular diseases
  - Pre-op Cardiac evaluation of the peripherovascular patient
2. Evaluation and diagnosis of peripherovascular conditions
3. Medical and surgical treatment of common peripherovascular conditions:
  - a. Arterial origin
    - Cerebrovascular disease (carotid/vertebral)
    - Aorto-iliac disease
    - Femoro-distal disease
    - Aneurysm (aortic/peripheral)
    - Trauma
    - Congenital malformation
  - b. Venous origin
    1. Chronic venous insufficiency
    2. Thrombophlebitis
    3. Pulmonary embolism
    4. Congenital malformation
  - c. Lymphedema
4. Development of surgical skills in vascular reconstruction

**Community Hospital (General Surgery at Auxilio Mutuo)**

**Description**

This is a one to two months rotation at the Auxilio Mutuo Hospital designed to acquire exposure to general surgery, breast, Head & Neck, and flexible endoscopies. It is a surgical rotation in which the basic surgical skills are required due to the complexity of the procedures. The resident will share responsibilities with the attending physician on the patient pre-surgical indications, the surgical procedure and the post-surgical care. Basic critical care knowledge will be emphasized.

**Goals & Objectives:**

- Increase exposure to wide variety of general surgery cases and flexible endoscopies.
- Expose residents to the critical care involved in treatment of these patients.
- One resident, ideally PGY-III or PGY- IV.

**Duration Rotation:**

- One or two months.
- No night shifts at Auxilio Mutuo; on call daily until 8:00 pm unless on duty at University Hospital.
- Monday – alternates between Breast and Head & Neck surgery.
- Tuesday – flexible endoscopies and complex laparoscopic procedures.
- Wednesday – General Surgery.
- Thursday – Teaching activities at Parent Institution.
- Friday – Head & Neck surgery.
- They should get exposure to sentinel lymph node dissection and newer modalities on oncosurgical procedures.

Evaluation through E-Value by faculty.

Duty hours regulations will be closely monitored.

The 24 hours free of responsibilities will be on Saturday or Sunday each week.

**1. EDUCATIONAL ACTIVITIES**

- A. Gastro-surgical conference. Mandatory conference every Monday at 4:00 PM at the University District Hospital.
- B. Tumor Board conference. Mandatory conference every Thursday at 4:00 PM at the Auxilio Mutuo Hospital Cancer Center.
- C. Morbidity and Mortality conference. The resident should prepare a case log with all the cases operated, complications and mortalities and present it at the General Surgery Department Morbidity and Mortality Conference, Thursday's morning.

**2. EVALUATION**

- A. Surgical evaluation. The resident evaluation will follow the standard form of the department. This evaluation will be discussed twice with the resident before finishing the rotation.
- B. Rotation evaluation. The resident will evaluate the surgical rotation according to the Department of Surgery protocol.



## **LEARNING OBJECTIVES**

At the end of this rotation the resident will be able to accomplish the following objectives:

### 1. PRE-SURGICAL PHASE

- A. Obtain an accurate history and physical examination, obtaining the pertinent information of the patients with general surgery conditions.
- B. Evaluate pertinent laboratories.
- C. Evaluate imaging and functional studies such as MRI's, CT scans, PET scans and angiograms as applicable.
- D. Demonstrate an adequate clinical judgment on surgical candidates.

### 2. SURGICAL PHASE

- A. Surgical Anatomy. The resident will review the anatomy of the upper and lower abdomen.
- B. Fundamental Surgical skills. The resident will learn basic skills, necessary for general surgery cases. Surgical finesse cannot be overemphasized as well as the handling of long and delicate instruments.

### 3. POST-SURGICAL PHASE

- A. Critical Care. The resident will learn the pathophysiology of general surgery diseases and the issues related to the post-op care.

### 4. EDUCATIONAL ACTIVITIES

- A. These activities are going to supplement the basic knowledge acquired during the daily patient care.

## **Plastic Surgery**

- 1. Expose residents to basic concepts of:
  - a. Wound healing
  - b. Skin grafting
  - c. Flaps
- 2. Expose residents to the most common procedures performed in plastic surgery (reconstructive and cosmetic).
- 3. At the end of the one month rotation period the resident should have develop the following skills.

- a. Proper suturing techniques for skin and subcutaneous tissues.
- b. Proper management of wounds with understanding of the wound healing process and its possible problems.
- c. Applying the acquire knowledge of grafts and flaps when faced with the need to close soft tissue defects.
- d. Familiarization with reconstruction of the breast and options available.
- e. Familiarization with the most common plastic surgery procedures.

## ROTATIONS

### General Surgery - University Hospital

#### PGY-1:

1. Perform assigned duties by SENIOR RESIDENT.
2. History and physical exams to all admitted patients.
3. Evaluate patients at ER – present them to higher level resident.
4. Evaluate patients at outpatient clinics – discuss with senior residents or attending.
5. Perform minor surgical procedures under direct supervision: central lines placement, chest tube insertion, Foley cath insertion, NG tube insertion, suture lacerations, closure of wounds after several procedures observes while done by higher level residents. These should be enter in the procedures log at E-Value Program.
6. Assist in operating room.
7. Surgeon with attending or senior resident.
8. Knowledgeable in CV monitoring; ventilatory support and ABG's interpretation, nutritional assessment and support.
9. Acts as OD on nights

#### PGY-2:

1. Same duties as PGY-1.
2. Increased duties in direct patient care at emergency room, ward, OPD
3. Teach medical students.
4. Acts as OD on nights

#### PGY-3:

1. Supervise lower level residents
2. Active involvement in direct patient care at Emergency Room, ward, ICU OPD.
3. Assist in operating room.
4. Surgeon with attending
5. May be needed to acts OD on nights

#### PGY-4:

1. Supervise lower level residents.
2. Help senior resident in running the service.
3. Surgeon in more complex casers with attending staff.
4. Acting senior in night duties on call (in house on Saturdays)
5. Prepare and present seminars, book reviews, etc.
6. If senior is absent, assumes responsibilities of PGY-5

PGY-5:

1. Running the service.
2. Perform major procedures as surgeon with attending staff.
3. Assist in operating room to lower level residents.
4. Supervise lower level residents.
5. Run the outpatient clinic.
6. Prepare and present cases/topics at G-I medico-surgical conference.
7. Prepare and present M & M, seminars, book reviews, etc.

**Trauma**

PGY-1:

1. Admission work-up
2. Working Rounds
3. Patient Care
4. Initial Patient Evaluation
5. Initial Patient Management
6. Resuscitation of victims
7. Recognition of spinal cord, head trauma and peripheral nerves

PGY-2:

1. Admission work up
2. Working Rounds
3. Patient Care
4. Initial patient evaluations
5. Initial patient management
6. Invasive monitoring
7. Bedside Procedure

PGY-3:

1. Invasive monitoring
2. Serves as teacher of lower level residents
3. Bedside procedures
4. Assistant to Senior

PGY-4:

1. Management of entire service
2. Responsible for all patients' management
3. Assigns duties as needed for proper care of patients
4. Presents and consults patient and management with attending staff
5. Group tender of trauma team, day and night as case may be
6. Scheduling of patients
7. Teacher of lower level residents
8. Invasive procedures
9. Operating room as surgeon or first assistant.

### **General Pediatric Surgery**

PGY-1

PGY-2

1. History and Physical Examination, daily progress, chart keeping and documentation
2. Coordinate work-up and studies of patients
3. Daily rounds and clinics (weekly). Pre admission clinic, History and Physical Examination
4. Examine patients in rounds and clinic
5. Assistant in Operating Room (elective and emergency)
6. Participate in attending teaching round
7. Participate in Tumor Board (weekly)
8. May perform simple procedures under supervision of senior resident or attending at ward, special care units and Operating Room

PGY-3

PGY-4

1. Supervision and teaching of PGY-1 at ward and clinic
2. Distribution of work and residents
3. Schedule operating room cases
4. Perform surgery with attending supervision and assist attending at Operating Room (elective and emergency)
5. Present cases at Tumor Board
6. Present mortality and morbidity at surgical teaching activities
7. Responsible for Operating Room, consult, procedure statistic at the Department
8. Present and discuss cases with the different attendings on elective or emergency basis
9. Discuss a topic at the neonatal surgical conference (monthly)
10. Participate in the teaching and supervision of medical students (MS III and MS IV)

### **Plastic Surgery**

#### PGY-1:

1. Attend the clinics and participate in evaluating patients.
2. Attend the Operating Room and assist in the procedures.
3. Help in the process of completing the patient's admission.
4. Perform daily rounds on admitted patients
5. Discuss cases with the Attending and prepare for surgical treatment and care of the patients.
6. Participates in the decision-making process of selecting the proper surgical procedure for the cases.
7. May perform part or all of the surgery under supervision of the attending.

**Transplant Unit – Auxilio Mutuo Hospital:**

PGY-1, PGY-2 & PGY-3:

1. Daily renal rounds (morning)
2. Daily transplant rounds (afternoon)
3. Transplant clinics
4. Prepare presentations to the Transplant Planning Conference (weekly)
5. Donor and recipient evaluation meetings
6. Research Conference
7. Biopsy Review
8. Journal Club (weekly)
9. All Vascular Access Operations \*
10. All operations on transplant patients \*
11. All renal preservation perfusions \*
12. Hemodialysis rounds
13. Acute dialytic treatment
14. Attendance during at least one histocompatibility testing
15. Preparation of donors and recipients for the various procedures and operations.
16. Post-operative management of donors and recipients
17. Independent reading from the renal and transplant libraries of the various renal and transplant staff Physicians

\*The resident will perform the various procedures and operations commensurate with his/her experience and expertise.

**Vascular Surgery**

PGY-1 & PGY-2:

1. Admission, history and physical exam
2. Daily ward rounds
3. Attendance to clinics
4. Assist in the operating room
5. Develop knowledge of what constitute vascular evaluation

PGY-3 to PGY-5:

1. Manage the Vascular Surgery Service
2. Supervise the PGY1
3. Daily ward rounds
4. Attendance to clinics
5. Become familiar with the evaluation and management of vascular patients
6. Become proficient with performance of basic vascular reconstructive procedures