

SERVICE: General Surgery – PGY 1 - 5

Boca Raton Regional Hospital, Delray Medical Center, and Bethesda Hospital East

General description:

The General Surgery core and advanced content training is delivered across three main hospitals with one teaching service at Delray Medical Center and two teaching General Surgery teaching services at the other two sites. Each service will provide the breadth of the field of surgery but has a distinct focus or provides additional exposure in one or more areas of Surgery:

Boca Raton Regional Hospital 1: General Surgery with a focus on Colorectal Surgery, Surgical Oncology and Hepato-biliary-pancreatic Surgery

Boca Raton Regional Hospital 2: General Surgery with a focus on Thoracic Surgery & Head and Neck Surgery

Delray Medical Center 2: General Surgery with involvement in Genitourinary, Gynecologic and Plastic Surgery patients and exposure to Trauma Surgery and Complex Wound Care

Bethesda Hospital East 1: General Surgery with exposure to Thoracic Surgery, Head and Neck Surgery and Endocrine Surgery

Bethesda Hospital East 2: High volume General Surgery, with a focus on vascular surgery and Acute Care Surgery

The FAU Surgery residents will rotate on each service throughout the 5 years of training and will assume progressive responsibilities and leadership for the respective services. Each rotation will be for one month, during PGY 1 – 3, between one month and 6 weeks during PGY 4 and between 6 weeks and 8 weeks during the PGY 5 year.

Each site will have at least one chief resident assigned at any given time that will lead the service and provide administrative support for the residents and site director [schedules, case assignment, teaching conference assignments, conflict resolution/mentorship, other].

Each Service will have several Surgery and specialty attending surgeons [clinical faculty] assigned, which will admit their patients to that service and perform operations and procedures with the respective service residents.

On each service the resident team will be complemented by experienced midlevel provider[s] (nurse practitioners and physician assistants) that assist in the peri-operative management of the patient. Other learners that may be assigned to each on a rotating basis, include medical students [MS III, IV], physician assistant/nurse practitioner students [with team PA/NP as proctor]; the number of other learners per team should not exceed two at any given time. The resident will assume a partnership as well as teaching and supervisory (senior/chief resident) role to these various providers as outlined in the policy for resident role, supervision and scope of practice.

Residents [the team] will participate in daily morning and afternoon patient care rounds, service associated operative cases, call, and all program educational activities in accordance with the duty hour requirements, level of training, and outlined schedules for each service.

Educational activities:

- Surgery core curriculum and specialty curriculum** - once a week, 1 - 2 hours [program-wide]
- Surgery morbidity and mortality conference** – once a week, 1 hour [hospital-specific]
- Resident lecture series** - once a month, 1 hour [program-wide]
- Cadaver-based anatomy curriculum** - once a month, 2 hours [as assigned]
- APDS/ABS surgical skills lab** (junior residents) - once a month, 3 hours [as assigned]
- FAU Surgery Grand Rounds** - once a month, 1 hour [program-wide]
- Specialty rotation-based educational activities**, weekly 1 – 3 hours [incl. teaching/professor rounds as offered]
- Team-based training** [as scheduled/assigned]
 - Mock oral examinations: at least 2/year starting in the PGY III year
 - Mock Traumas/Codes: every other month, as assigned
- Medicine grand rounds and noon conference** – daily, 1 hour [optional]
- Scientific meeting attendance** [as assigned]
 - Goal one/year for PGY 3 – 5, and when resident is presenting own scholarship work
- Fundamentals of Surgery curriculum** [PGY 1, as assigned]
- Basic Life Support / Advanced Cardiac Life Support** [PGY 1, 3 and 5, as assigned]
- Advanced Trauma Life Support Course** [PGY 1 and 4, as assigned]
- Radiation Safety training** [PGY 1, 3, 5, as assigned]
- Conscious Sedation Safety Training** [PGY 1, 3, 5, as assigned]
- Fundamentals of Critical Care Support course** [PGY 2, as assigned]
- ACS Basic Ultrasound for Residents and Surgeons** [PGY 3, online and training in SIM lab, as assigned]
- Advanced Trauma Operative Management course** [PGY 3 or 4, as assigned]
- Focused Abdominal Sonography in Trauma course** [PGY 3, as assigned]
- Advanced Surgical Skills for the Exposure in Trauma course** [PGY 4, as assigned]
- Fundamentals in Laparoscopy Surgery curriculum** [PGY 1 – 2, as assigned]
- Fundamentals in Endoscopy curriculum** [PGY 1 – 4, as assigned]
- Chief Resident Immersion Training in Geriatric Care** [PGY 4, as assigned]
- Board review course** [PGY 5, as assigned]

Other educational activities may be scheduled throughout the training

Outpatient educational activities:

- Clinics and Faculty Office Hours** – 4-6 hours/week, all residents, every assignment
 - Each resident is encouraged to choose a different core faculty with each rotation and attend that faculty's clinic/office hours for at least 4 weeks to maximize continuity of care and breadth of exposure/learning

SERVICE: General Surgery - PGY 1 - 5

Overall objectives:

The General Surgery rotation[s] will provide:

- I. Education in the fundamentals of basic science as applied to clinical surgery.
 - A) Experience in the pre-operative, operative and post-operative care of patients in all areas that constitute the principal components of general surgery, namely:
Head and Neck; Breast; Skin and Soft Tissue; Alimentary Tract; Abdomen; Vascular System; Surgical Endocrinology; Trauma and Emergency Surgery; Surgical Critical Care
 - B) Experience in the pre-operative, operative and post-operative care of patients in the secondary components of general surgery, namely:
Pediatric Surgery; Plastic Surgery; Thoracic Surgery
 - C) Experience in a variety of rigid and flexible endoscopic procedures, including
Laryngoscopy; Bronchoscopy; Esophagoscopy; Gastroscopy; Colonoscopy; Diagnostic and Therapeutic laparoscopy; Intra-operative Cholelithotomy
 - D) Experience in Minimally Invasive Surgery and Bariatric Surgery
 - E) Exposure to the areas of anaesthesia; transfusion and disorders of coagulation, wound healing; infection; fluid management; shock and resuscitation; immunology; antibiotic usage; metabolism; management of postoperative pain; and use of enteral and parenteral nutrition.
 - F) An opportunity to manage, on the Surgical Service and/or in consultation, patients who may or may not require surgical intervention (e.g. pancreatitis, portal hypertension, multiple trauma) and to acquire skill in such non-operative management.
 - G) An opportunity to manage, on the Surgical Service and/or in consultation, 1) terminally ill patients, to include palliative care and management of pain, weight loss, and cachexia in patients with malignant and chronic conditions; 2) morbidly obese patients, to include metabolic derangements, surgery for weight loss, and the counseling of patients and families; 3) geriatric surgical patients, to include operative and nonoperative care; 4) comorbid chronic diseases, and the counseling of patients and families, and 5) culturally diverse groups of patients.
- II. Teaching in critical thinking, design of experiments and evaluation of data that relate to surgery and the care of patients with surgical diseases; opportunities for participation by the residents in clinical research, including exposure to biostatistics and evaluation of evidence;
- III. Assistance in achieving professional leadership and management skills.

At the completion of training, the residents should be able to:

1. Manage surgical disorders based on a thorough knowledge of basic and clinical science.
2. Utilize appropriate skill in those surgical techniques required of a qualified surgeon.
3. Uses critical thinking when making decisions affecting the life of a patient and the patient's family.
4. Collaborate effectively with colleagues and other health professionals.
5. Teach and share knowledge with colleagues, residents, students and other health care providers.
6. Make sound ethical and legal judgments appropriate for a qualified surgeon
7. Respect the cultural and religious needs of patients and their families and provide surgical care in accordance with those needs.
8. Be committed to scholarly pursuits through the conduct and evaluation of research.
9. Provide cost-effective care to surgical patients and families.
10. Teach patients and their families about the patient's health needs.
11. Value lifelong learning as a necessary prerequisite to maintaining surgical knowledge.

Educational objectives:

I. Head and Neck:

- To develop the ability / develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of the head and neck amenable to surgical interventions.
 - to manage surgical problems of the head and neck
 - the roles of various diagnostic modalities in the evaluation of head and neck lesions: e.g., plain x-rays, CT scans, MRI scans, nuclear scans, ultrasound, sialography, fine needle aspirations
 - the advantages and disadvantages of radiotherapy, chemotherapy and resection of neoplastic lesions of the head and neck
 - the microbiology and treatment of neck abscesses.
- To perform operative procedures of the head and neck

II. Breast:

- To develop the ability /develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of the breast
 - breast mammography, sonography and mammographic and sonographic guided biopsy.
 - the utility and technique of sentinel node biopsy as applied to breast malignancy
 - skin-sparing mastectomy.
 - to surgically manage diseases of the breast.
 - to distinguish between the common breast lesions: fibroadenomas, cysts, abscesses, fibrocystic disease, fat necrosis, cancer, Paget's disease, cystosarcoma phylloides
 - the role of chemotherapy, radiation therapy and hormonal therapy in the management of breast cancer
- To perform, under direct supervision, various operative procedures involving the breast, such as modified radical mastectomy, partial mastectomy and axillary dissection, needle localized breast biopsy, sentinel lymph node biopsy, etc.

III. Skin and Soft tissue:

- To develop the ability / develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of various skin and soft tissue lesions: melanoma, squamous cell cancer, basal cell cancer, various benign skin lesions, sarcoma of the chest, abdomen and extremities, etc.
 - to surgically manage the various skin and soft tissue lesions, including diagnosis, operative treatment and total management of the cancer patient
 - the indications and appropriate modalities for adjuvant therapy, including chemotherapy and radiation therapy.

IV. Alimentary Tract:

- To develop the ability / develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of the alimentary tract and digestive system (liver, biliary tract and pancreas).
 - to manage problems of the alimentary tract and digestive system that are amenable to surgical interventions.
 - the role of various diagnostic modalities in the management of alimentary tract problems: barium swallow, upper GI series with small bowel follow through, ultrasound, CT scans, MRI, barium enema, angiography, nuclear scans for GI bleeding, pH measurements, ERCP, PTC, hepato-biliary scan
 - To perform, under direct supervision, the various alimentary tract operations.
 - To perform, under direct supervision, various minimally invasive alimentary tract operations

V. Abdomen:

- To develop the ability / develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of the abdominal cavity and pelvis.
 - to formulate and implement a diagnosis and treatment plan for diseases of the abdomen and pelvis that are amenable to surgical intervention.
 - the management of: wound infections, intra-abdominal abscesses, intestinal fistulas, various hernias (inguinal, femoral, ventral, umbilical, Spigelian, incisional), abdominal wound dehiscence, acute abdomen, etc.

VI. Vascular System:

- To develop the ability / develop an understanding of and/or learn
 - the anatomy, physiology and pathophysiology of the vascular system, including congenital and acquired diseases
 - to surgically manage the preoperative, operative and postoperative care of patients with arterial, venous and lymphatic diseases
 - to interpret the various diagnostic tools available for assessing vascular disease: angiography, duplex scanning, CT scanning, MRI, MRA
 - the benefit/risk ratios of the surgical care of the patients with vascular disease
 - the therapeutic role of various pharmacologic agents used in patients with vascular problems: vasopressors, vasodilators, adrenergic blocking agents, anticoagulants, antiplatelet agents, thrombolytics, etc.

- manage prosthetic graft infections and other complications of common major vascular procedures
- the application and use of endovascular procedures.
- To perform vascular operative procedures under supervision: aortic aneurysm repair, carotid endarterectomy, aorto-iliac occlusive disease, femoro-popliteal occlusive disease, peripheral vascular trauma, venous disease
- To perform alternative methods of bypass grafting under supervision: extra anatomic bypass, in-situ techniques, vascular stenting

VII. Surgical Endocrinology:

- To develop the ability / develop an understanding of and/or learn
 - endocrine anatomy, physiology and pathophysiology.
 - to apply the above knowledge to the surgical care of patients
 - the pre- intra- and post-operative management of patients with diseases of the adrenal, endocrine pancreas, thyroid, parathyroid, etc.
- To perform under direct supervision, the various endocrine surgical procedures.

VIII. Trauma and Emergency Surgery:

- To develop the ability / develop an understanding of and/or learn
 - the pathophysiologic effects of blunt and penetrating trauma.
 - to effectively manage the surgical care of patients with complex multi-system injuries.
 - to manage a variety of health care services for trauma patients such as pre-hospital transportation, emergency department care, in-hospital care and rehabilitation.
 - the basic critical care management principles.
 - the basic techniques of evaluation and resuscitation of trauma patients using the Advanced Trauma Life Support (ATLS) protocol.
 - the mechanics/ballistics associated with various wounding agents.
- To complete the course work and testing to obtain Advanced Trauma Life Support (ATLS) certification.
- To be involved in the pre- intra- and post operative management of patients with trauma to the chest, abdomen, extremities and head and neck.

XI. Minimal Access Surgery:

- To develop the ability / develop an understanding of and/or learn
 - the applications and risks of minimal access surgery (MAS).
 - the technical and physiologic principles of minimal access surgical techniques.
- To develop specific technical skills and demonstrate proficiency in the performance of basic diagnostic laparoscopy, laparoscopic, cholecystectomy, and other minimal access procedures.

Knowledge and Performance Objectives:

In the following section knowledge and performance-based objectives for each of the principal components of General Surgery are divided into junior-level (PGY 1,2 & 3) and senior-level (PGY 4 & 5) sections.

I. Head and Neck:

Knowledge Objectives:

Junior Level:

- To develop and understanding of the anatomy, physiology and pathophysiology of the head and neck amenable to surgical interventions.
- To learn the roles of various diagnostic modalities in the evaluation of head and neck lesions such as: plain x-rays, CT scans, MRI Scans, Isotope scans, ultrasound, sialography.
- To learn to differentiate between neoplastic and non-neoplastic neck masses.
- To learn the tumor, nodes and metastases (TNM) classification system for tumors of the head and neck
- To learn to evaluate and treat intra-oral cancer.
- To begin to develop knowledge of the advantages and disadvantages of radiotherapy, chemotherapy and resection of neoplastic lesions of the head and neck.
- To learn the principles associated with the repair of avulsion of ear and nose.
- To be able to examine a patient with severe facial laceration to rule out damage to the following: lacrimal drainage systems, parotid gland and duct, facial nerve.
- To identify and delineate: pathophysiology of cranial nerve dysfunctions and injuries, brachial plexus injuries, anatomy/location of parotid and submandibular ductal drainage systems.
- To identify and delineate Zones I, II, III of penetrating injuries to the neck and their associated management.
- To describe the anatomy of the fascial spaces of the neck and their importance in neck abscesses and infections.
- To demonstrate a clear understanding of the pathophysiology of: Ludwig's angina, necrotizing fasciitis of the neck, mucormycosis of the sinus, epiglottitis, gustatory sweating (Frey Syndrome).

Senior Level:

- To discuss indications for radical and modified radical neck dissection.
- To distinguish between the following kinds of grafts in the management of head and neck problems: split thickness grafts, full thickness skin grafts, rotational flaps, free flaps
- To describe the anatomy and the advantages and disadvantages of regional flaps available for head and neck reconstruction.
- To compare and contrast the use of the following local flaps: advancement, rotational pedicle, rhomboid, Z-plast, W-plasty, V-Y advancement
- To discuss the frequency of benign and malignant head and neck tumors in the pediatric population.
- To outline the microbiology and treatment of deep neck abscesses.
- To explain the techniques of scar revision, including: primary excision, z-plasty, serial excision, geometric broken line closure, use of cosmetics
- To formulate a plan for the management of a tumor of the neck with an unknown primary.

Performance Objectives:

Junior Level:

- Perform head and neck examinations including nasopharyngoscopy and fiberoptic direct laryngoscopy
- Administer post operative care for head and neck patients.
- Administer treatment for sialadenitis.
- Care for contaminated wounds, including animal bites of face and neck.
- Perform repair of uncomplicated lacerations of the head and neck with supervision.
- Diagnose and evaluate infectious illness (viral, bacterial, fungal), acute and chronic, affecting the head and neck.
- Assist with incisions for head and neck surgery, including tracheotomy.
- Provide emergency airway management, including performance of: endotracheal intubation, emergency cricothyroidotomy, emergency tracheostomy.
- Perform biopsy of all intraoral lesions.
- Perform simple operative incisions with supervision (tracheostomy, simple lesions of the head and neck).
- Assist with incisions for head and neck surgery, including: radical neck dissection, salivary gland surgery, laryngeal/tracheal trauma, considerations for incisions of previously irradiated issues
- Perform fine needle biopsies.
- Assist with repairs of avulsion of ear and nose.
- Manage trauma to the upper airway.

Senior Level:

- Perform simple operative incisions without direct supervision.
- Perform radical neck dissection under direct supervision
- Manage post operative complications, including nerve paralysis and cutaneous fistulas from the aerodigestive tract.

II. Breast:

Knowledge Objectives:

Junior Level:

- To develop and understanding of the anatomy, physiology and pathophysiology of the breast.
- To explain the hormonal regulation of the breast.
- To summarize the incidence, epidemiology and risk factors associated with breast cancer.
- To develop an understanding of mammography, breast sonography and image-guided biopsy (FNA, core needle biopsy, suction needle biopsy, needle localization for excision biopsy).
- To distinguish between the common breast lesions such as: fibroadenoma, cyst, abscess, fibrocystic change, fat necrosis, malignancy (in situ and invasive), Paget's Disease
- To discuss the principles and historic context of the basic options available for the treatment of breast cancer such as: radical mastectomy, modified mastectomy, lumpectomy and axillary dissection
- To outline the genetic and environmental factors associated with carcinoma of the breast.

- To describe the following pathological types of breast cancer, including the biology, natural history and prognosis of each: infiltrating ductal carcinoma, ductal carcinoma in situ, infiltrating lobular carcinoma, lobular carcinoma in situ
- To develop an understanding of the utility and technique of axillary lymph node management as applied to breast malignancy.
- To develop an understanding of skin sparing mastectomy.
- To learn the role of chemotherapy, radiation therapy and hormonal therapy in the management of breast malignancy (in situ and invasive).
- To outline the diagnostic work up and the differential diagnosis of various forms of nipple discharge.
- To explain the use of tumor, nodes and metastases (TNM) staging in the treatment of breast cancer.
- To summarize the rationale for using a team approach to facilitate the complex discussions and explanation of options for the newly diagnosed breast cancer patient prior to definitive treatment.
- To explain the role of reduction and augmentation mammoplasty.
- To discuss several causes of gynecomastia and outline an appropriate work-up.

Senior Level:

- To describe the characteristics, diagnosis and therapy of less common lesions of the breast such as inflammatory carcinoma, Paget's Disease, lactiferous duct fistula, Mondor's Disease, cystosarcoma phyllodes, bilateral breast carcinoma, male breast carcinoma.
- To understand the methodologies and results of landmark breast cancer trials B-04, B-06, B-17, B-24 (NSABP).
- To define appropriate breast conservation therapies, their benefits and comparative outcomes and compare them with modified radical mastectomy.
- To summarize the role of adjuvant chemotherapy and radiation therapy for the treatment of primary breast carcinoma.
- To outline the importance of estrogen and progesterone receptors in the prognosis and treatment of breast cancer.
- To describe the basic issues in the staging and treatment of metastatic breast cancer including the role of: chemotherapy, radiation therapy, hormonal therapy.
- To summarize the physiologic changes associated with pregnancy, including breast problems peculiar to pregnancy understand appropriate management of breast cancer diagnosed during pregnancy.
- To summarize the major considerations for post mastectomy breast reconstruction.
- To identify and analyze the data addressing controversial areas of breast disease such as:
 - Current concepts in the management of cancer
 - Cancer prevention techniques, such as tamoxifen and raloxigene
 - Role of various adjuvant therapy programs
 - Biological behavior of lesions such as lobular carcinoma in situ
 - Benefit and frequency of screening mammograms
 - Relationship of mammographic parenchymal patterns to the risk of subsequent malignancy
 - To review and evaluate the following areas of research in breast disease: role of breast cancer susceptibility genes, monoclonal antibodies, other breast markers, including Her-2/neu, cathepsin D and flow cytometry with chromosomal analysis
 - To explain the role of sentinel lymph node biopsy for breast cancer.

Performance Objectives:

Junior Level:

- Take an appropriate history of evaluate breast patients to include: pertinent risk factors, previous history of breast problems, current breast symptoms.
- Demonstrate an increasing level of skill in the physical examination of the breast, including recognition of the range of variation in the normal breast.
- Perform simple procedures such as: diagnostic fine needle aspiration of cysts, drainage of simple breast abscesses, core needle biopsy of breast masses, open biopsy of superficial masses.
- Identify common lesions such as fibroadenomas, cysts, mastitis and cancer.
- Interpret signs suspicious for malignancy on mammogram such as stellate masses or suspicious microcalcification.
- Perform open breast biopsies and other operative procedures such as simple mastectomy and excision of intraductal papilloma under direct supervision.
- Demonstrate the ability to satisfactorily orient the surgical specimen for pathologic examination.
- Determine the indications and special requirements for tissue processing for estrogen and progesterone receptors.
- Educate patients to perform breast self-examination.
- Demonstrate familiarity with male breast problems, including gynecomastia and male breast cancer.

Senior Level:

- Independently evaluate a new breast patient through history and physical examination, ordering appropriate and cost-effective tests such as mammograms, ultrasound and/or percutaneous biopsy.
- Formulate a diagnostic work up and treatment plan for most common breast problems, including the common types of breast carcinoma.
- Consult and interact with other members of the professional cancer team in explaining options to the newly diagnosed breast cancer patient.
- Perform under direct supervision, more advanced procedures on the breast such as: radical mastectomy, modified mastectomy, lumpectomy and axillary dissection, sentinel lymph node biopsy, excision of lactiferous duct fistula, needle localized breast biopsy, total mastectomy.
- Acquire basic experience with breast reconstruction and cosmetic surgical techniques.
- Evaluate the physical status of patients who report for evaluation of augmentation and reduction mammoplasties.
- Prescribe various types of adjuvant therapy such as: chemotherapy, hormonal therapy, radiation therapy, biologic response modifiers.
- Manage unusual breast diseases such as: inflammatory carcinoma, Paget's disease, lactiferous duct fistula, Mondor's disease, bilateral breast cancer, male breast cancer, cystosarcoma phyllodes.
- Describe the evolving role of bone marrow transplantation in the management of selected breast cancer patients.
- Outline an appropriate follow-up schedule for patients who have undergone:
 - Treatment of breast cancer with curative intent
 - Treatment of DCIS

- Biopsy which revealed fibrocystic change, proliferative and non-proliferative and/or with atypia.

III. Skin and Soft Tissue:

Knowledge Objectives:

Junior Level:

- To develop and understanding of the anatomy, physiology and pathophysiology of various skin and soft tissue lesions such as: melanoma, squamous cell carcinoma, basal cell carcinoma, various benign skin lesions, sarcoma of the chest, abdomen and extremities

Senior Level:

- To learn to stage, both clinically and pathologically, including the tumor, nodes and metastasis system (TNM) various skin and soft tissue lesions such as: melanoma, squamous cell carcinoma, basal cell carcinoma, sarcoma of the chest, abdomen and extremities

Performance Objectives:

Junior Level:

- Assist in the management of various skin and soft tissue lesions including diagnosis, operative treatment and total management of the cancer patient.
- Perform with supervision, minor procedures involving the skin and soft tissue including excisional biopsy of minor skin lesions and incisional biopsy of more complex soft tissue lesions such as extremity sarcoma.
- Learn the indications and appropriate modalities for adjuvant and neoadjuvant therapy, including chemotherapy, external beam radiation therapy and brachytherapy in the management of malignancy off the skin and soft tissue.

VI. Alimentary Tract:

Knowledge Objectives:

Junior Level:

- To define the basic scientific principles of the alimentary tract and digestive system diseases including anatomy, embryology, biochemistry and IG physiology to include:
 - Embryologic development of the gut including normal rotation and fixation.
 - History of the alimentary tract
 - Anatomy including vascular, lymphatic and neural relationships
 - Mucosal transport, including the mechanism of absorption of nutrients and water
 - Sites of electrolyte and acid base regulation
 - GI motility and the phases of digestion
 - Neuroendocrine control of GI secretion and absorption (neural and hormonal)
 - Regional controls of secretion and absorption (neural and hormonal).

- Enterohepatic circulation
- Neuromuscular control of defecation.
- Digestion of sugars, fats, proteins, vitamins and cofactors
- Rates of mucosal turnover.
- Nutritional needs of surgical patients.
- Normal secretory rates for the stomach, small bowel, biliary tree and pancreas
- Normal GI bacterial flora and their concentrations in the upper and lower GI tract.
- Immunologic properties of the GI tract and how this barrier is affected by trauma, sepsis, burns, malnutrition and chronic disease.
- Principles of intestinal healing associated with anastomotic healing and the effects of suturing and stapling techniques.
- To explain and give examples for the following aspects of gastrointestinal disease:
 - Infection inside and outside of the GI tract including the peritoneum
 - Embryologic abnormalities of the GI tract
Congenital and acquired abnormalities of gut motility
 - Neoplasia of the GI tract
 - Ulceration of the proximal and distal GI tract
 - Causes of GI obstruction
 - Causes of adynamic ileus
 - Causes of GI hemorrhage.
 - Causes of GI perforation
 - Causes of abdominal abscess formation or secondary peritonitis
 - Short gut and malabsorptive conditions
 - Acute and chronic mesenteric ischemia
 - Portal hypertension and venous thrombosis
 - Inflammatory bowel diseases
 - Causes of an acute abdomen
 - Management of intestinal stomas.
- To discuss some of the more common diseases of the esophagus, to include:
 - Motility disorders
 - Esophageal injuries
 - Diverticular disease
 - Inflammatory disease
 - Gastroesophageal reflux
 - Tumors (benign and malignant)
- To outline the essential characteristics of routine and highly specialized diagnostic evaluation of the alimentary tract, including:
 - History
 - Physical examination
 - Radiologic examinations including:
 - Barium Swallow
 - Upper GI series with small bowel follow-through
 - Enteroclysis

- Ultrasound
- Endoscopic ultrasound
- CT Scan
- MRI
- Barium enema
- Mesenteric angiography
- Radionuclide scans
- Fiberoptic Endoscopy
- Rigid anoscopy and sigmoidoscopy
- Tests of GI function including pH and manometry
- To summarize current medical management and its potential limitations, explain the role of surgical intervention when management fails in the following:
 - Peptic ulcer disease
 - Esophageal varices
 - Upper and lower GI bleedings
 - Gastroparesis
 - Inflammatory bowel disease

Senior Level:

- To specify pathophysiology of multisystem problems of the alimentary tract and digestive system, including neurohormonal and hormonal interaction.
- To explain the physiologic rationale for the following gastrointestinal operations:
 - Vagotomy
 - Pyloroplasty
 - Gastric resection and reconstruction for peptic ulcer disease
 - Small bowel resection and anastomosis
 - En bloc lymphovascular resection for malignancy
 - Bypass of the GI tract for unresectable tumors
 - Drainage of pancreatic pseudocysts (internal and external)
 - Drainage of abdominal and retroperitoneal abscess (percutaneous and operative)
- To detail the standard, intraoperative techniques and alternatives associated with each of the above operations.
- To explain the indications and contraindications for diagnostic and therapeutic endoscopy of the alimentary tract.
- To assess alternatives to surgical intervention in the management of complex diseases of the alimentary tract and digestive system such as:
 - Short gut syndrome
 - Achalasia
 - Barrett's esophagus
 - Intestinal polyposis
 - Inflammatory bowel disease
 - Seropositive status for H. pylori
 - Multifocal atrophic gastritis in the elderly
- To summarize the preoperative, intraoperative and postoperative management of complex diseases of the

alimentary tract and digestive system, including:

- Re-operative abdominal surgery
- Failed peptic ulcer and reflux operatives
- Management of post gastrectomy syndromes
- High output GI fistulas.
- Inflammatory bowel disease with strictures, pouches, stomas and perineal fistulas.
- Recurrent colon malignancy
- Carcinomatosis

Performance Objectives:

Junior Level:

- Evaluate emergency department or clinic patients who present with problems referable to the GI tract.
- Assist in operative procedures involving the esophagus, stomach, small intestine, colon and anorectum.
- Perform less complicated surgical procedures such as:
 - Gastrostomy
 - Meckel's Diverticulectomy
 - Appendectomy
 - Hemorrhoidectomy
 - Anal fissurectomy and fistulectomy
 - Incision and drainage of perirectal abscesses
- Participate with supervision in the post operative management of:
 - Nasogastric tubes
 - Intestinal tubes
 - Intra-abdominal drains
 - Intestinal fistulas
 - Abdominal incisions
- Evaluate and manage nutrition needs (enteral and parenteral) of surgical patients until normal GI function returns.
- Provide follow-up care to the surgical patient in the outpatient clinic or surgical office.

Senior Level:

- Perform initial consultation for in patients with problems of the GI tract, develop differential diagnosis and initiate treatment plan:
- Assist and perform with supervision. GI operations:
 - Vagotomy
 - Pyloroplasty
 - Gastric resection and reconstruction techniques
 - Small bowel resection with anastomosis
 - Drainage of pancreatic pseudocysts
 - Drainage of abdominal and retroperitoneal abscesses
 - Lysis of adhesions
 - Repair of enterotomies

- Colon resection
- Creation of enteral stomas.
- Develop diagnostic and therapeutic endoscopy skills such as:
 - EGD, diagnostic and therapeutic
 - PEG
 - ERCP
 - Flexible sigmoidoscopy
 - Colonoscopy
- Select and interpret appropriate pre- and post operative diagnostic studies.
- Assist junior residents in the diagnosis, surgical management and follow-up care of patients with diseases of the alimentary tract and digestive system.
- Coordinate intervention of multiple specialties that may be involved in the management of complex GI problems such as:
 - Variceal hemorrhage
 - Biliary obstruction
 - Chronic varices
 - Inflammatory bowel disease
 - Chronic abdominal pain
 - Chronic constipation
 - Localized and advanced malignancies
- Perform appropriate reoperative laparotomy for a variety of GI problems.
- Supervise post operative care of GI and digestive tract surgical patients.

V. Abdomen

Knowledge Objectives:

Junior Level:

- To develop and understanding of the anatomy, physiology and pathophysiology of the abdominal cavity and pelvis.
- To discuss the causes of paralytic ileus.
- To illustrate the use of diagnostic studies such as:
 - Urinalysis
 - Plain x-rays
 - Contrast GI studies
 - Ultrasound
 - CT scan
 - MRI scan
 - Biliary imaging studies
 - Renal imaging studies
- To develop a knowledge of the management of acute and chronic abdominal conditions such as:
 - Wound infection
 - Intra-abdominal abscess

- Intestinal fistula
- Evisceration
- The acute abdomen
- The abdominal compartment syndrome and intra-abdominal hypertension
- Hernia including:
 - Inguinal
 - Femoral
 - Ventral
 - Umbilical
 - Spigelian
 - Incisional

Senior Level:

- To summarize the surgical procedures available for repair of the hernias listed above.
- To outline the uses of prosthetic material and management of infection for incisional or recurrent hernias involving prosthetic material.
- To discuss the management of umbilical hernia in an infant.
- To explain the operative approaches for each of the following, including laparoscopic:
 - Abdominal cavity: liver/biliary tract, spleen, small bowel, large bowel and pelvis.
 - Retroperitoneal organs: kidneys, pancreas. Adrenal glands, abdominal aorta
 - Pericardial sac
- To outline the techniques for wound closure (including type of suture material)_ for each of the incisions named above
- To describe the pathophysiology and treatment of ascites in:
 - Malignancy
 - Hepatic disease: cirrhosis, Budd Chiari Syndrome
 - Chylous leak
 - Pancreatic leak
 - Cardiac disease
 - Renal disease
 - Bile leak
- To explain the indications for use and complications of peritoneovenous shunts.
- To describe the etiology, manifestations and treatment of:
 - Desmoid tumors
 - Rectus sheath hematoma
 - Retroperitoneal fibrosis

Performance Objectives:

Junior Level:

- Evaluate and diagnose the acute abdomen
- Assist with hernia repairs in the groin or umbilicus, demonstrating a basic understanding of the anatomy and surgical repair.

- Interpret the following in coordination with attending radiologists and staff.
- Acute abdominal series (identify free air, small bowel obstruction, ileus, colonic pseudo-obstruction, volvulus, the presence of ascites, atelectasis and pneumonia).
- Upper GI series
- Barium enema
- Abdominal ultrasound and CT scans
- Evaluate and institute management of abdominal wound problems including:
 - Infection
 - Evisceration
 - Fasciitis
- Coordination pre and post operative care for the patient with the acute abdomen.
- Institute drainage for abdominal wall fistula and protection of surrounding structures, especially skin.
- Assist in closure of abdominal incision, exhibit competency in suture technique.

Senior Level :

- Open and close abdominal incisions of all varieties.
- Assist with thoracoabdominal and retroperitoneal exposures for access to kidneys, pancreas, aorta and iliac arteries.
- Perform laparotomy for acute abdomen demonstrating a systematic approach for determination of the etiology of the process via a systematic abdominal exploration and appropriate measures for its management.
- Establish an independent mastery of the interdisciplinary approach to the management of complex conditions of the abdomen. Such mastery will include knowledge of the indications and appropriate modalities for operative management as well as the use of image guided intervention and minimally invasive techniques.

VI. Vascular Surgery:

Knowledge Objectives:

Junior Level:

- To develop knowledge of the anatomy, physiology and pathophysiology of the vascular system, including congenital and acquired diseases.
- To discuss and interpret the various diagnostic tools available for assessing vascular disease including
 - Angiography
 - Duplex scanning
 - CT scanning
 - MRI (Magnetic Resonance Imaging)MRA (magnetic Resonance Angiography)
- To discuss the benefit/risk ratios of the surgical care of patients with vascular disease.
- To learn the therapeutic role of various pharmacologic agents used in patients with vascular problems including:
 - Vasopressors
 - Vasodilators
 - Adrenergic blocking agents
 - Anticoagulants

- Antipalelet agents
- Thrombolytics

Senior Level:

- To discuss vascular operative procedures under supervision for such conditions as:
 - Abdominal aortic aneurysms
 - Carotid occlusive disease
 - Aorto-iliac occlusive disease
 - Femoro-popliteal occlusive disease
 - Peripheral vascular trauma
 - Venous disease
- To discuss alternative methods of bypass grafting:
 - Extra-anatomic bypass
 - In-situ techniques
 - Vascular stenting
 - To discuss the management of prosthetic graft infections

Performance Objectives:

Junior Level:

- Manage with supervision, complications of common major vascular procedures.
- Assist in the performance of vascular operative procedures under supervision for such conditions as:
 - Abdominal aortic aneurysm
 - Carotid occlusive disease
 - Aorto-iliac occlusive disease
 - Femoro-popliteal occlusive disease
 - Peripheral vascular trauma

Senior Level:

- Perform vascular operative procedures under supervision for such conditions as:
 - Abdominal aortic aneurysm
 - Carotid occlusive disease
 - Aorto iliac occlusive disease
 - Femoro-popliteal occlusive diseases
 - Peripheral vascular trauma
 - Venous diseases
- Perform under supervision, alternative methods of bypass grafting:
 - Extra anatomic bypass
 - In-situ techniques
 - Vascular stenting
- Master the management of prosthetic graft infections
- Master the management of other complications of common major vascular procedures

VII. Surgical Endocrinology

Knowledge Objectives:

Junior Level:

- To demonstrate an understanding of endocrine anatomy, physiology and pathophysiology including:
 - Thyroid gland
 - Parathyroid gland
 - Hypothalamus
 - Pituitary gland
 - Endocrine pancreas
 - Adrenal glands
 - Gastrointestinal tract as an endocrine organ
 - Gonads as endocrine organs
- To discuss fully the secretion and the control of the following:
 - Thyroxine and thyroid stimulating hormone
 - Parathyroid hormone
 - Adrenocorticotrophic hormone
 - Insulin/Glucagons
 - Catecholamines
 - Gastrin/secretin/cholecystokinin
 - Serotonin/histamine
 - Estrogen/progesterone/Testosterone
 - Oxytocin/Vasopressin
 - Growth hormone
 - Melanocyte stimulating hormone
 - Prolactin
 - Motilin/gastric inhibitory peptide/enteroglucagon/vasoactive intestinal peptide
 - Somatostatin

Senior Level:

- To summarize the following aspects of endocrine pathology:
 - The criteria for the diagnosis of malignancy
 - Chromosomal abnormalities as a screening/diagnostic tool
 - The unique characteristics about the clinical epidemiology of patients with spradic versus familial disease
 - Define and differentiate multiple endocrine neoplasia (MEN) type I, type II and familial non-Men syndromes
 - Fine needle aspiration biopsy
 - DNA ploidy
- To explain the integrated concept of clinical neuroendocrinology, the cells and organs of the amine precursor uptake decarboxylase (APUD) system and the known clinical endocrine syndromes.
- To outline the approach to the surgical management of diseases of the endocrine systems.
- To discuss the pathophysiology, clinical presentation, work-up and treatment of the following diseases:

- A solitary thyroid nodule
- A multinodular thyroid gland
- Thyrotoxicosis
- Primary, secondary and tertiary hyperparathyroidism
- Insulinoma/glucagonoma/vipoma
- Zollinger –Ellison syndrome
- Gastrointestinal carcinoid tumors
- Endogenous hypercortisolism
- Pheochromocytoma
- Primary hyperaldosteronism
- The incidentally discovered adrenal mass
- Galactorrhea
- Gigantism/dwarfism
- To discuss the preoperative preparation/management of the following:
 - Hypercalcemic crisis
 - Thyroid storm
 - Graves's /disease/hashimoto's Disease
 - Pheochromocytoma
 - Hyperaldosteronism
 - Endogenous hypercortisolism
 - Insulinoma/gastrinoma
 - Carcinoid syndrome
 - Adrenal insufficiency crisis
- To discuss the surgical approaches to:
 - The left adrenal gland
 - The right adrenal gland
 - The anterior pituitary gland
 - The head of the pancreas
 - The body/tail of the pancreas
 - The inferior parathyroid glands
 - The superior parathyroid glands
 - A retrosternal goiter

Performance Objectives:

Junior Level:

- Participate in the pre- and post operative care of the patients undergoing endocrine surgery.
- Observe and assist in surgery of the thyroid, parathyroid and adrenal glands as well as those of the pancreas.
- Perform a detailed evaluation of patients with suspected endocrine disease.
- Manage the pre=and post operative care of patients, with endocrine disease, under supervision.

Senior Level:

- Demonstrate the ability to apply the above knowledge to the surgical care of patients including specific,

- laboratory and imaging studies designed to investigate endocrine abnormalities.
- Discuss the management of endocrine disorders, including non-operative and operative treatments and the management of perioperative complications.
 - Conduct, with supervision, the pre-intra- and post-operative management of patients with surgically correctable endocrine disorders involving the adrenal, endocrine pancreas, thyroid and parathyroid glands.
 - Develop and independent approach to the pre-, intra-, and post operative management of patients with surgically correctable endocrine disorders involving the adrenal, endocrine pancreas, thyroid and parathyroid glands. Such an approach will include multi-dimensional diagnosis, the performance of procedures of a high level of complexity and procedures that involve emerging minimally invasive technology.

VIII. Trauma and Emergency Surgery

Knowledge Objectives:

Junior Level:

- To demonstrate an understanding of the pathophysiologic effects of blunt and penetrating trauma.
- To discuss the management of trauma involving the musculoskeletal system, including
 - The need for casts, splints and traction.
- To outline the indications for such basic surgical procedures as:
 - Laparotomy
 - Debridement of injured tissues
 - Ultrasound
 - Traction splinting
 - Diagnostic peritoneal lavage
 - Thoracotomy/thoracostomy
 - Hemorrhage control
- To demonstrate knowledge of and the ability to manage a variety of health care services for trauma patients such as pre-hospital transportation, emergency department care, in-hospital care and rehabilitation.
- To learn the basic critical care management principles.
- To learn the basic techniques of evaluation and resuscitation of trauma patients using the Advanced Trauma Life Support (ATLS) protocol.
- To learn the mechanics/ballistics associated with various wounding agents.
- To define the abdominal compartment syndrome. Describe how to measure intra-abdominal pressures and develop a treatment plan to treat abdominal compartment syndrome.

Senior Level:

- To explain trauma preventive measures.
- To identify the indications for emergency operative procedures such as burr holes, cricothyroidotomy, insertion of cardiopulmonary assist devices and resuscitative thoracotomy.
- To define "Damage Control Surgery"
- To discuss the management of a trauma service, including the training of its members in emergency medicine services, emergency department, operating room, intensive care and rehabilitation.

XI. Thoracic Surgery:

Knowledge objectives:

Junior Level:

- Describe thoracic anatomy and physiology, including anatomic and functional relationships:
 - Chest wall (including spine)
 - Accessory muscles of respiration
 - Diaphragm (including subjacent abdominal organs)
 - Mediastinum
 - Trachea, segmental and subsegmental bronchi
 - Lungs
 - Esophagus
 - Heart and pericardium
 - Great vessels and their immediate branches
 - Peripheral nerves (vagus, sympathetics, intercostals, phrenic, recurrent laryngeal)
 - Thoracic duct
 - Azygous and Hemiazygous veins
- Summarize and discuss the embryological development of:
 - Upper airway
 - Lower airway
 - Lungs
 - Esophagus
 - Heart and great vessels
 - Mediastinal contents
 - Lymphatic drainage of esophagus and lungs
- Review and analyze the basic principles and critical factors involved in:
 - Ventilation
 - Perfusion
 - Control of respiration
 - Lung function tests
 - Respiratory failure
 - Oxygen therapy
 - Function of the diseased lung (obstructive, restrictive, and vascular)
- Summarize the modalities listed below, stating their indications and limitations in thoracic surgical procedures:
 - Endoscopy/thoracoscopy
 - Standard and positional roentgenograms
 - Arteriography
 - Ultrasonography
 - Computed axial tomography (CAT), magnetic resonance imaging (MRI), and positron emission tomograph (PET)
 - Nuclear medicine
 - Ventilatory methods

- Tracheostomy
- Intubation and vent support
- Central venous catheters
- Pacemakers/defibrillators
- Thoracostomy tubes
- Stents (coronary, esophageal, tracheal, and bronchial)
- Discuss the following conditions, then choose and justify the appropriate diagnostic and therapeutic modalities:
 - Pneumothorax
 - Hydrothorax and hemothorax
 - Combinations of a and b
 - Chylothorax
 - Pulmonary infiltrates or masses
 - Abnormal cardiac silhouettes
 - Congenital anomalies
 - Pleural effusions
 - Fractures (clavicles, sternum, ribs, scapulae, and spine)
 - Mediastinal masses
 - Infectious processes (parenchymal and pleural)
 - Neoplastic processes (esophageal, pulmonary, extrapulmonary)
 - Reactive processes (esophageal)
- Explain the various types of anesthetic agents and equipment used in thoracic surgery.
- Discuss and justify the indications for the following procedures:
 - Needle aspiration
 - Thoracotomy
 - Chest tube placement
 - Bilateral thoracotomy
 - Mediastinoscopy
 - Heller myotomy
 - Thoracoscopy
 - Thal patch
 - Median sternotomy
 - Stent use
 - Mediastinotomy
 - Bronchoscopy
- Evaluate a patient as a candidate for thoracic surgery and discuss:
 - Operative risks
 - Diagnostic tests important in assessing probable outcome
 - Potential complications
 - Operation choices
 - Informed consent
 - Advanced directives
 - Living wills

- Power of attorney
- Explain the mechanics and applications of pulmonary function studies in evaluating patients for thoracic surgery.
- Recommend when to use such diagnostic and therapeutic procedures as:
 - Bronchoscopy and esophagoscopy (flexible and rigid)
 - Thoracoscopy/Video Assisted Thoracoscopic Surgery (VATS)
 - Emergency room thoracotomy
 - Aortic cross clamping
 - Standard thoracotomy and median sternotomy (Chamberlain and book procedures)
 - Pericardial window/pericardiocentesis
 - Lung biopsy/fine-needle aspiration (FNA)
 - Pulmonary resection
 - Lung volume reduction operations
 - Mediastinoscopy
 - Dilatation
 - Manometry (esophageal)
 - 24-hour pH monitoring
- Demonstrate an understanding of the mechanics of ventilatory support and the clinical application of mechanical ventilation by completing the following activities:
 - Contrast types of ventilators
 - Specify indications for ventilators
 - Demonstrate management of ventilators
 - Differentiate modes of ventilation
 - Explain weaning
 - Evaluate weaning parameters
 - Analyze complex ventilation problems
 - Discuss indications for tracheostomy
- Identify indications for the following therapeutic modalities; and then justify/critique their use:
 - Extra corporeal membrane oxygenation
 - Ventricular assist devices (LVAD, RVAD, BVAD)
 - Intra-aortic balloon pump (IABP)
 - High frequency jet ventilation
 - Laser (used endoscopically)
 - Endoscopic thoracic procedures
 - Alveolar (pulmonary) lavage
 - Autotransfusion
 - Cell saver
 - Pulmonary artery catheterization
- Analyze changes in thoracic anatomy and physiology resulting from the following:
 - Abdominal operations
 - Spine operations
 - Mediastinoscopy
 - Neck operations

- Thoracotomies
- General anesthesia
- Sternotomies
- Epidural anesthesia
- Thoracoscopy
- Thoracoplasties
- Illustrate the various types of incisions used in thoracic surgery for:
 - Thoracic Surgery
 - Apical resections
 - Pneumonectomy
 - Esophagectomy
 - Mediastinal procedures
 - Tracheal/bronchial procedures
 - Esophageal stenosis and diverticula
 - Thoracoplasty
 - Diaphragmatic operations

Senior Level:

- Discuss the general diagnostic and operative approaches to treating blunt and penetrating trauma to the thorax and its contents.
- Describe specific surgical management of trauma to the thorax and its contents:
 - Neck
 - Esophagus
 - Nerves
 - Mediastinum
 - Bony thorax
 - Diaphragm
 - Vessels
 - Trachea/lungs
 - Heart
- Integrate the pathophysiology and surgical management of the following:
 - Aortic aneurysms
 - Aortic dissections
 - Trauma to heart and great vessels
 - Occlusive disease
- Evaluate infiltrates, infectious processes, and neoplastic processes in the thorax, and recommend appropriate management.
- Discuss and list thoracic tumor types, staging for each, including descriptions of nodal drainage sites and levels.
- Summarize the causes and appropriate management of cardiac arrhythmias, including:
 - Pharmacotherapeutics
 - Pacemakers

- Cardioversion
- Defibrillators
- Describe the diagnosis and discuss therapy of such surgical complications as:
 - Fistulas: bronchopleural, pleurocutaneous, tracheoesophageal (TE), arteriovenous (AV) and thoracic duct
 - Esophageal leak/stenosis/obstruction
 - Loculated hemothorax
 - Postoperative bleeding
 - Empyema
 - Air leaks
 - Thoracic Surgery
 - Bronchial obstructions
 - Endstage COPD/pulmonary fibrosis
- Identify indications for and be prepared to interpret results of the following diagnostic modalities:
 - Plain and positional chest x-rays
 - Gastrointestinal contrast studies
 - CAT, MRI, and PET scans
 - Bronchograms
 - Pulmonary function studies
 - Ventilation-perfusion studies
 - Nuclear medicine studies
 - Ultrasound
 - Split pulmonary functions
- Specify and justify the diagnostic or therapeutic indications for the use of the following modalities:
 - Rigid and flexible bronchoscopy
 - Esophagoscopy (rigid and flexible)
 - Mediastinoscopy (cervical and parasternal)
 - Thoracoscopy/VATS
 - Laser
 - Stents
 - Lung transplant
- Assess and recommend the surgical procedures involved in:
 - Tracheal, bronchial, and esophageal obstructing lesions
 - Thoracoplasty
 - Esophageal resection/reconstruction
 - Anti-reflux procedures
 - Sleeve resection of the trachea/bronchus for tumor
 - Chest wall reconstruction using myocutaneous flaps and/or synthetic materials
- Discuss quality assurance, cost-cutting measures, and patient-care pathways as they relate to thoracic surgery.

Performance objectives:

Junior Level:

- Evaluate thoracic pathophysiology; order and interpret appropriate tests.

- Diagnose and provide initial management of fractures of ribs, clavicle, sternum, scapulae, and spine.
- Evaluate patients for thoracic surgery with regard to risk factors, candidacy for surgical resection, pulmonary function studies, and possible postoperative disability.
- Manage general thoracic perioperative procedures.
- Use, set, and regulate mechanical ventilators.
- Observe and then:
 - Insert chest tubes
 - Perform thoracentesis
 - Insert central venous access lines
 - Execute simple endoscopic procedures
 - Perform tracheostomies
 - Institute naso-oropharyngeal/tracheal anesthesia for endoscopic procedures
- Use data obtained from diagnostic and therapeutic procedures to assess and plan treatment for thoracic pathology.
- Perform bronchoscopy, esophagoscopy, nasotracheal, and orotracheal intubation, including double lumen tubes.
- Manage empyemas surgically.
- Insert Swan-Ganz catheter and perform cardiovascular monitoring calculations for:
 - Pressures
 - Cardiac output
 - Systemic vascular resistance
- Supervise ventilator regulation.

Senior Level:

- Perform and/or supervise all thoracic diagnostic and therapeutic endoscopic procedures.
- Resect ribs, treat empyema cavities, perform pleural and lung biopsies.
- Manage thoracic trauma.
- Manage thoracic aortic aneurysms and dissections.
- Direct complex ventilator-dependent patient management.
- Perform lung resections, rib resections, mediastinoscopies, and mediastinotomies.
- Provide surgical management of neoplasms of the thorax and its contents.
- Provide medical and surgical management of infectious processes in the thorax.
- Thoracic Surgery
- Manage cardiac arrhythmias.
- Perform and/or supervise pacemaker/defibrillator selection and placement.
- Manage all pharmacotherapeutics associated with thoracic surgery.
- Treat medical conditions associated with thoracic surgical procedures.
- Place esophageal and bronchial stents.

Patient Care Competency:

During this rotation the resident should learn and practice to:

- Demonstrate caring and **respectful behaviors** when interacting with patients and their families. Demonstrate

sensitivity to gender, age, ethnic, religious, value systems and other potential differences of patients and their families; Practice according to the clinical standards of Sinai Hospital

- Gather patient and case specific essential, **comprehensive multi-source and accurate information** about their patients for initial or perioperative work up and patient follow up in the inpatient and outpatient setting
- Using all available resources, under the guidance of the chief resident and General Surgery attending(s), make **informed decisions about diagnostic and therapeutic interventions** based on patient information, up-to-date scientific evidence, and clinical judgment; evaluate and implement priorities in patient care and incorporate preventive measures
- As appropriate, under guidance of the senior/chief Surgery resident and Surgery attending(s) develop and **carry out patient management plans**
- Under the guidance of the chief resident and General Surgery attending(s), **monitor** closely the patients clinical progress, review and react to variances in patient progress or response to therapeutic interventions; **Communicate** the details and changes of patient care, progress, and complications to the of the chief resident and General Surgery attending(s) in a timely manner
- Under close and direct supervision of the chief resident and General Surgery attending(s), **counsel and educate patients** and their families on the state of the patient's disease, necessary diagnostic tests, operative procedures, medical management
- Use information technology (hospital computer system) to support patient care decisions and patient education (electronic patient record, electronic radiology studies, online educational resources, including literature research)
- **Work closely with other health care professionals of all specialties** to provide patient-focused and optimum outcome driven care
- Assure that the **needs of the patient and team supercede individual preferences** when managing patient care; incorporate evidence based medicine into patient care whenever possible; comply with changes in clinical practice and standards given by the chief resident and General Surgery attending(s),

Interpersonal and Communication Skills:

Residents 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. Residents are expected to:

- Develop interpersonal skills necessary to **communicate effectively** with patients, patient families, nursing staff, mid-level healthcare providers, ancillary staff, medical students, fellow residents and attending staff in the complex multi-specialty environment that constitutes General Surgery.
- Contribute to **creating an atmosphere of collegiality and mutual respect** with all providers involved in the care of patients.
- Develop **effective listening, questioning, and documentation skills.**
- Demonstrate **ability to work effectively as a member of a team.**
- Demonstrate **ethically sound behavior** – see also in professionalism.
- **Share own knowledge** with other members of the team to foster an environment of learning.

Professionalism:

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

- Demonstrate **adherence to institutional and departmental standards and policies**
- Demonstrate **respect, compassion, integrity and ethical behavior** that are consistent with the **values of the department and institution**; develop and sustain sensitivity towards differences of age, gender, culture, religion, ethnicity or other diversities in both co-workers and patients.
- Demonstrate ability to appropriately take on, **share and delegate responsibilities** with regard to patient care; balance own rights and privileges appropriately with responsibilities and accountability resulting from being a member of a team dedicated to patient care
- Demonstrate **commitment to excellence and on-going professional development**
- Under attending and other General Surgery staff guidance develop skill **to resolve potential problems, conflicts in a complex corporate environment** using the appropriate channels and methods of communication and maximize patient care and surgical service performance
- Evaluate and formulate a response to **ethical questions**, including:
 - a. End of life issues
 - b. Rationing and access of care
 - c. Respect for living will vs. the families wishes
 - d. DNR/DNI orders and the operating room

Interpersonal and Communication Skills:

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patient's families and professional associates. Residents are expected to:

- Develop interpersonal skills necessary to **communicate effectively** with patients, patient families, nursing staff, mid-level healthcare providers, ancillary staff, medical students, fellow residents and attending staff in the complex multi-specialty environment that constitutes the surgical care continuum.
- Contribute to **creating an atmosphere of collegiality and mutual respect** with all providers involved in the care of patients
- Develop **effective listening, questioning and documentation skills**
- Demonstrate **ability to work effectively as a member of a team**
- Demonstrate **ethically sound behavior** (see also Professionalism)
- **Share personal knowledge** with other members of the team to foster an environment of learning

Professionalism:

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

- Demonstrate **adherence to institutional and departmental standards and policies**
- Demonstrate **respect, compassion, integrity and ethical behavior** consistent with the **values of the department**

and institution; develop and sustain sensitivity toward differences of age, gender, culture, religion, ethnicity or other diversities in both co-workers and patients

- Demonstrate ability to appropriately take on, **share and delegate responsibilities** with regard to patient care; balance own rights and privileges appropriately with responsibilities and accountability resulting from being a member of a team dedicated to patient care
- Demonstrate **commitment to excellence and on-going professional development**
- Under attending and other [S]ICU staff guidance, develop skill **to resolve potential problems and conflicts that occur in a complex corporate environment** using the appropriate channels and methods of communication to maximize patient care and surgical service performance
- Evaluate and formulate a response to **ethical questions**, including:
 - a. The need for organ donation and the identification of potential donors.
 - b. Decisions about whom to resuscitate and to what degree.

Systems-based Practice:

Residents 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. Residents are expected to:

- Understand how choices in 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.
- Practice cost-effective health care and resource allocation that does not compromise quality of care.
- Know how to partner with health care managers (Nursing coordinator, social work, case management, PT/OT and Rehabilitation medicine, etc) and other health care providers (PMD, Specialty Providers in and out of the hospital) to assess, coordinate, and improve health care for the individual patient and cohorts of patients.

Appendix: S.C.O.R.E. Curriculum

Surgical Council on Resident Education

The SCORE® Curriculum Outline for General Surgery is a list of topics to be covered in a five year general surgery residency program. Graduating residents are expected to be competent in six areas: patient care; medical knowledge;

professionalism; interpersonal and communication skills; practice-based learning; and systems-based practice.

The *SCORE Portal* (www.surgicalcore.org) has been created to provide educational content and assessment in support of the curriculum to general surgery residency programs. Learning “modules” are available on the portal for nearly all of the topics listed in this booklet

Patient Care Classification System

The patient care curriculum topics are organized into 28 organ-based categories. Within each category, the topics are further separated into Diseases/Conditions and Operations/ Procedures. With this edition, the topics are then stratified into two levels using the same classifications:

- **CORE** – Diseases and procedures encountered in general surgery for which a graduate of training will possess significant knowledge and be able to provide comprehensive care, including procedural competency.

- **ADVANCED**– Diseases and procedures that are not consistently part of general surgery practice for which a graduate of training should have sufficient knowledge to make a diagnosis and provide initial management. In some instances, graduates will have sufficient knowledge and experience to provide comprehensive care.