SURGERY ROTATION

Course Title: General surgery rotation

Course Description and goals:
This required 4-week rotation is designed to take place in both the clinical and hospital setting. The course is designed to provide the student with an introduction to the evaluation and management of surgical patients in both the inpatient (surgical wards, ICU, operating rooms) and outpatient (ambulatory clinics) environments. It is intended to give the primary care trained PA an understanding of when to seek the consultation of a surgeon, what kinds of information the surgeon will typically require in order to render surgical opinion, and exposure to pre, intra, and post-operative care of surgical patients including participation in patient and family education regarding surgical diseases. Students will likely not be able to accomplish all objectives listed below in the clinical realm and 4-week time frame. However, they are expected to be familiar with the diagnostic entities outlined below in terms of clinical presentation, diagnostic work-up and management. Students are also responsible for the information on the PANCE blueprint. As a reminder, students will be tested formally on information they are expected to see clinically or review didactically through specialty examinations.

Method of Evaluation (preceptor evaluation, Typhon, self evaluation specialty exam score, competency list, other)

I. Medical Knowledge
Upon completion of the rotation, the student will demonstrate the ability to evaluate, manage, and educate patients and their families on the following surgical and potential surgical conditions encountered in the General Surgery setting:

Objectives:

Gastrointestinal Conditions

Upper GI Conditions

1. Describe gastrointestinal anatomy, including organs, soft tissue, etc.
2. Describe how to obtain an appropriate history for abdominal pain, including the importance of the location of pain and the distinctions between visceral, parietal and referred pain
3. Define and explain the significance of the term ‘acute abdomen’
4. Discuss the criteria for bariatric surgery (lap band, gastric bypass, etc.)
5. Identify the presentation, physical exam findings, lab studies, diagnostic radiologic studies, management options, surgical indications and complications of:
   • Acute and chronic cholecystitis
   • Common duct stones
   • Esophageal varices
   • Splenic rupture
• Upper and lower GI hemorrhage  • Pancreatitis
• Peptic ulcer disease  • Ischemic bowel disease
• Gastritis  • Diverticular disease
• Acute cholangitis

Lower GI Conditions

1. Identify and state the incidence, identification of, operative risks and complications of abdominal wall hernias including strangulated, hiatal, femoral, inguinal and ventral
2. Explain the clinical findings of the most common presentations of appendicitis including etiology, symptoms and signs, laboratory findings and radiologic findings
3. Demonstrate knowledge of perirectal abscesses, hemorrhoids, fistulas and anal fissures
4. Describe presentation, diagnosis, management and surgical indications for inflammatory bowel diseases including Crohn’s disease and ulcerative colitis
5. Describe the signs and symptoms, etiology and surgical indications for small and large bowel obstruction and paralytic ileus

Neoplasms

Breast

1. Describe the differential diagnosis for a breast mass and the distinguishing features of each lesion
2. Describe the history, physical exam and diagnostic modalities and treatment for:
   a. A patient with a breast mass
   b. A patient with nipple discharge
   c. A patient with a mammographic abnormality
3. Describe the common surgical procedures used for the local treatment of breast cancer at each stage, including indications, contraindications and pertinent anatomical boundaries

Gastrointestinal

1. Describe the presentation, staging and treatment options for the following cancers:
   • Pancreatic  • Rectal
   • Stomach  • Anal
   • Colon  • Liver

Other
1. Describe the presentation, staging and treatment options for the following cancers:
   • Thyroid
   • Lung
   • Prostate
   • Malignant melanoma

**Cardiovascular and Pulmonary Conditions**

1. Recognize the pathologic anatomy and the physiologic alterations in the following heart lesions:
   • Patent ductus arteriosus
   • Coarctation of the aorta
   • Atrial septal defect
   • Ventricular septal defect
   • Tetralogy of Fallot

2. Discuss the presenting signs and symptoms, lab studies, radiologic studies and surgical indications for the following cardiovascular conditions:
   • Aortic aneurysm
   • Aortic dissection
   • Mesenteric ischemia
   • Coronary atherosclerosis
   • Pericardial tamponade
   • Valvular heart disease
   • Peripheral arterial insufficiency
   • Varicose veins

3. Define the symptoms of cerebrovascular disease, including TIA, stroke, amaurosis fugax; understand the mechanisms of disease and describe the prognosis and risks of extracranial cerebrovascular disease; outline tests for making the diagnosis and describe the various treatment options

4. Describe the presentation, diagnosis, risk factors and treatment of pulmonary embolism and fat embolism

5. Discuss the presenting signs and symptoms, lab studies, radiologic studies and surgical indications for the following pulmonary conditions:
   • Hemotherax
   • Pneumothorax
   • Lung nodule
   • Pleural effusion
   • Empyema

**Thyroid Conditions**

1. Discuss the evaluation, treatment and differential diagnosis of a patient with a thyroid nodule
2. Discuss the etiology, signs and symptoms, management and indications for surgery in the treatment of hyperthyroid state
3. Differentiate primary and secondary hyperparathyroidism and discuss the surgical principles in the treatment of both diseases

Post-operative Complications, Surgical Infections and Intra-Abdominal Abscesses

1. Describe the important pathogenic factors of surgical infections and their mechanisms of spread
2. Discuss the signs, symptoms, management and treatment of patients with acute peritonitis
3. Outline the general principles of diagnosis and management of surgical infections including necrotizing fasciitis, streptococcal and clostridial gangrene and intra-abdominal abscesses
4. Describe the appropriate management of post-operative fever
5. Describe precautions and management of atelectasis, pulmonary embolism and fat embolism
6. Identify the most common pathogens in wound infection and identify appropriate antibiotics and treatment
7. Describe the etiology of antibiotic-induced colitis
8. Describe the possible causes (differential diagnosis), appropriate lab studies needed, and treatment of the following conditions:
   - Hypernatremia
   - Hyponatremia
   - Hyperkalemia
   - Hypokalemia
   - Hypercalcemia
   - Hypocalcemia
   - Hypomagnesemia
   - Acute and chronic respiratory and metabolic acidosis and alkalosis

Orthopedic Conditions
1. Describe the indications for surgery in regards to fractures, dislocations, subluxations, ligament tears and tendon rupture
2. Discuss surgical indications for carpal and cubital tunnel syndrome

Trauma and Emergency Management
1. Identify the basic approach to a trauma patient and rationale for the sequence of evaluation and care
2. Describe the pathophysiology and treatment of shock
3. Recognize the presentation of tension pneumothorax and treat appropriately
4. Understand the evaluation and treatment of blunt and penetrating abdominal trauma
5. Diagnose and treat upper airway obstruction
6. Discuss the presentation, signs and symptoms, radiologic studies and
surgical indication for spinal injuries including cervical spine injuries and cauda equina
7. Describe the treatment, including fluid resuscitation, in a burn patient
8. Describe the presentation, lab studies, radiologic studies and surgical indications for traumatic head injuries including aneurysm, subarachnoid hemorrhage, epidural hemorrhage and subdural hemorrhage

**Pediatric Conditions**

1. Identify the presentation, evaluation and management of the following pediatric conditions:
   - Hypertrophic pyloric stenosis
   - Neonatal bowel obstruction/volvolus
   - Intussusception
   - Hirschsprung’s disease
   - Esophageal/jejunal atresia
   - Malrotation
   - Necrotizing enterocolitis
   - Meckel’s diverticulum

**Radiologic Studies**

1. Describe the indications, contraindications, benefits and risks to the following radiographic studies:
   - X-ray
   - Ultrasound
   - CT scan
   - MRI
   - Barium Enema
   - V.Q scan
   - ERCP
   - Upper GI series
   - Mammogram
   - Doppler studies
   - Bone Scan
   - Colonoscopy
   - HIDA scan
   - IVP

**II. Patient Care**

Students are expected to gather and document essential and accurate information about their patients, make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgment, and develop and carry out management plans. Prior to completion of the General Surgery rotation, the student should:

**Clinical Skills**

1. Discuss what is needed in pre-operative clearance, including consideration of comorbid illnesses, labs, hemostatic stability, and pertinent patient history in both elective and emergency surgery
2. Take a comprehensive history and perform a full physical exam on a surgical patient
3. Demonstrate proficiency in:
   - Scrubbing and maintaining sterile technique
   - Dressing clean and contaminated wounds
4. Identify local, regional and general methods of anesthesia, and describe side effects and management of complications for each.

5. Perform or assist with the following:
   - Foley tube placement
   - Nasogastric tube placement
   - Abscess drainage
   - Venipuncture
   - Intravenous lines
   - Endotracheal intubation
   - Surgical biopsy
   - Arterial puncture
   - Initiate IV therapy
   - Chest tube insertion and removal
   - Thoracentesis/paracentesis
   - Lumbar puncture

6. Describe the indications and interpretation of the following lab studies:
   - CBC with differential
   - Cardiac enzymes
   - Urinalysis
   - Amylase and Lipase
   - PT/PTT
   - Electrolytes
   - LFTs
   - Blood gases

7. Identify the composition of electrolytes in the following solutions:
   - Normal Saline
   - Ringer’s Lactate

8. Write admission orders, pre/post operative orders, progress notes and discharge summary on a surgical patient.

**III. Interpersonal & Communication Skills**

Students are expected to communicate information respectfully, efficiently and effectively in verbal, nonverbal and written exchange. During the rotation, the student must:

1. Present an oral presentation to the preceptor, which includes pertinent clinical information about the patient.
3. Effectively communicate appropriate information with patients, patients’ families, physicians, professional associates, and other members of the health care team.

IV. Professionalism
Students are expected to demonstrate professionalism at all times during their General Surgery rotation. During the rotation, the student must:

1. Deliver care to patients of all cultures, ages, genders and disabilities with respect and compassion.
2. Demonstrate a professional and respectful attitude with patients and all members of the health care team.
3. Arrive at the clinical rotation on time and adhere to attendance policies.
4. Demonstrate accountability to the health needs of patients and always act in the best interest of patients.

V. Practice-Based Learning & Improvement
Practice-based learning and improvement includes the processes through which clinicians engage in critical analysis of their own practice experience, medical literature and other information resources for the purpose of self-improvement. During the General Surgery rotation, students are expected to:

1. Locate, interpret and evaluate medical literature which pertains to the current standards of clinical practice for medical conditions encountered in the General Surgery setting
2. Describe the principles of EBM as they pertain to ‘daily acute care’ clinical practice and locate relevant scientific literature

Suggested Reading List
Online texts can be accessed through the following websites:

1. www.annalsofsurgery.com
2. www.uptodate.com
3. www.mdconsult.com
4. www.pubmed.com
5. www.dynamed.com
6. www.emedicine.com

VI. System-Based Practice
Students must be aware of the societal and economic environments in which health care is delivered. During the General Surgery rotation, the student must:

1. Promote a safe environment for patient care.
2. Promote cost-effective health care without sacrificing the quality of patient care.
3. Describe the systems in which patient care is funded at a private, state and federal level.