

SURGICAL MEDICINE ROTATION LEARNING OBJECTIVES

The following pages outline the learning objectives for the surgery rotation. They are designed to guide students in their clinical activities and supplemental reading in order to prepare for the surgery end-of-rotation exam. It is not likely (and not the Program's intention) that you will be exposed to this complete list during the clinical experience, although you must learn them all for the exam and in order to become an excellent PA.

MEDICAL KNOWLEDGE

Upon completion of this clinical experience, the student will be able to:

- **Understand etiology, epidemiology, risk factors, anatomy, and pathophysiology**
- **Evaluate clinical manifestations**
- **Formulate a differential diagnosis**
- **Develop an assessment (including recommendation and interpretation of laboratory, diagnostic and radiological studies/findings)**
- **Construct a patient-specific plan (including surgical and non-surgical options, pharmacological/ non-pharmacological options, patient education, and necessary referrals)**
- **Describe prognosis, complications, prevention, patient education, and treatment goals**

of the following diseases/disorders/symptoms:

1. Skin

- a. Cancer- basal cell, melanoma, squamous cell
- b. Chronic non-healing ulcers/wounds
- c. Lipoma
- d. Pilonidal cyst

2. Endocrine

- a. Cancer- adrenal, pituitary, thyroid
- b. Hyperparathyroidism
- c. Pheochromocytoma
- d. Pituitary adenoma
- e. Thyroid nodules

3. Breast

- a. Breast masses- benign, malignant

4. Lung

- a. Lung masses- benign, malignant
- b. Pleural effusion

5. Gastrointestinal

- a. Cancer- oral, esophageal, stomach, intestinal, rectal, pancreatic, liver
- b. Appendicitis
- c. Bowel
 - i. Colonic polyps
 - ii. Diverticulitis
 - iii. Duodenal ulcer
 - iv. Hemorrhoids
 - v. Hernias- hiatal, femoral, inguinal, incisional, umbilical, incarcerated, strangulated
 - vi. Inflammatory bowel disease
 - vii. Intussusception
 - viii. Ischemic bowel

- ix. Meckel's diverticulum
 - x. Obstruction of small and large bowel- functional, mechanical
 - xi. Volvulus
 - d. Esophagus- reflux, strictures, varices
 - e. Gallbladder- biliary colic, cholecystitis, cholelithiasis
 - f. Pancreas- acute pancreatitis
 - g. Peritonitis
 - h. Stomach- Gastric ulcer
6. Genitourinary
- a. Malignancies – bladder, ovarian, renal cell, prostate, testicular, uterine,
 - b. Nephrolithiasis
 - c. Scrotal masses- hydrocele, varicocele
7. Vascular
- a. Abdominal aortic aneurysm/dissection
 - b. Arterial thrombosis/embolism
 - c. Mesenteric artery occlusion/Mesenteric ischemia
 - d. Peripheral arterial disease
 - e. Venous insufficiency
 - f. Venous thrombosis

PATIENT CARE AND DOCUMENTATION

Students must be able to demonstrate the ability to:

1. Provide preoperative care:

- a. Perform an appropriate pre-operative evaluation, including risk factor identification, a diagnostic workup, initiate management and prevention (if appropriate) for the following:
 - a. Healthy adult
 - b. Pediatric patient
 - c. Geriatric patient
 - d. Morbidly obese patient
 - e. Pregnant patient
 - f. Malnourished patient
 - g. Patients with the following pre-existing conditions/ diseases:
 - Cardiac (HTN, MI, CHF, Angina, Valvular dx)
 - Respiratory (Asthma, COPD, URI)
 - Renal (ARI, CKD, ESRF)
 - Liver (Hepatitis, Cirrhosis)
 - Endocrine (Diabetes, Thyroid disease, Adrenal insufficiency)
 - Hematologic (Anemia, bleeding and clotting disorders)
 - Immunocompromised (HIV, chemotherapy, etc.)
- b. Identify the parameters used to determine whether antibiotic prophylaxis is needed for a surgical patient and be able to apply in a case scenario.
- c. Identify the common pathogens and recommend the appropriate antibiotic for GI, orthopedic and vascular surgeries.

2. Provide post-operative care:

- a. Perform an appropriate post-operative evaluation, including a diagnostic workup, initiate management, and complication prevention for the following:
 - i. Healthy adult
 - ii. Pediatric patient
 - iii. Geriatric patient
 - iv. Morbidly obese patient
 - v. Pregnant patient
 - vi. Malnourished patient
 - vii. Patients with the following pre-existing conditions/diseases:
 - Cardiac (HTN, MI, CHF, Angina, Valvular dx)
 - Respiratory (Asthma, COPD, URI)
 - Renal (ARI, CKD, ESRF)
 - Liver (Hepatitis, Cirrhosis)
 - Endocrine (Diabetes, Thyroid disease, Adrenal insufficiency)
 - Hematologic (Anemia, bleeding and clotting disorders)
 - Immunocompromised (HIV, chemotherapy, etc.)
- b. Manage the following components of routine post-operative care:
 - Activity
 - Advancing Diet
 - Input / Output
 - IV fluids
 - Pain management- medication choice, appropriate dosing, routes, including indications and dosing for a PCA pump
 - Routine labs
 - Wound management
- c. Identify and manage post-operative complications, including likely time of occurrence during recovery process:
 - i. Acid/base disorders
 - ii. Atelectasis
 - iii. Deep vein thrombosis (DVT)
 - iv. Electrolyte disorders
 - v. Fever
 - vi. Hemorrhage
 - vii. Ileus
 - viii. Pleural effusion
 - ix. Pneumonia
 - x. Pressure ulcer
 - xi. Pulmonary embolus
 - xii. Sepsis
 - xiii. Urinary tract infection

3. Physical exam:

Perform technique and identify the rationale for performing the following physical exam tests, in addition to their sensitivity, specificity, and the clinical significance of positive/negative findings:

- a. Psoas sign test
- b. Obturator sign

- c. Rovsing's sign
 - d. Murphy's sign
 - e. Rebound tenderness and guarding
4. Document appropriately:
Identify appropriate components of and appropriately document the following:
- a. Pre-operative note
 - b. Procedure note
 - c. Post-operative orders
 - d. Post-operative progress note

SKILLS

Recognize, perform and/or assist in the following procedures and identify the indications and potential complications for each:

1. Placement and positioning of patient on operating table
2. Surgical scrub, gowning and gloving using sterile technique
3. Surgical prep and draping of patient
4. Maintenance of sterile field
5. Suctioning and retraction
6. Clamp, suture tie or ligature of hemorrhage
7. Electrocautery
8. Cryotherapy
9. Knot tying- one and two handed, instrument
10. Suture and staple placement and removal
11. Wound dressing and bandaging
12. Surgical drain/tube placement and removal
13. Nasogastric tube placement

PHARMACOTHERAPEUTICS

Students are expected to *discern* the **properties of the following drug or drug classes including mechanism of action, interactions, contraindications, and major and common side effects and appropriate dosing and routes of administration** in the surgical patient. Students are also expected to *discern* the appropriate **patient education and necessary follow up** required for these drugs or drug classes.

1. Analgesics- opioids, ASA, acetaminophen, NSAIDs
2. Anesthetics
3. Antibiotics- IV, PO
4. Anticoagulants
5. Antiemetics
6. Beta-blockers
7. IV Fluids
8. Thrombolytics

DIAGNOSTICS

Students are expected to appropriately **recommend, interpret** the findings, **identify** causes for false positive/negative, and **recognize the indications / clinical significance** of the following diagnostic studies. In addition students will be expected to discern appropriate **management** (including

counseling and informed consent) when *abnormalities* are found in the following routine tests, and recognize the **potential complications** for each:

1. Imaging-

- a. Abdominal flat plate x-ray
- b. Abdominal obstruction series
- c. Arteriography
- d. Bone scan
- e. Chest x-ray
- f. Ct of abdomen, pelvis, chest
- g. Duplex ultrasound
- h. Hepatobiliary iminodiacetic acid scan
- i. Intravenous urogram (IVP)
- j. Mammography
- k. MRI
- l. Pulmonary arteriogram
- m. Radioiodine scan
- n. Radionucleotide scans
- o. Ultrasound- abdomen, breast, gallbladder
- p. Upper/lower gastrointestinal series
- q. V/Q scan
- r. Vascular doppler
- s. Venogram

2. Labs-

- a. Arterial blood gases (ABG)
- b. Blood type and cross
- c. BRCA1 / BRCA2
- d. Carcinoembryonic antigen (CEA)
- e. Complete blood count w/differential
- f. Complete metabolic panel (CMP)
- g. Culture & sensitivity
- h. Fecal occult blood
- i. Liver function tests (LFT) & enzymes
- j. PT, PTT, INR

3. Procedures-

- a. Biopsy with needle localization
- b. Bronchoscopy
- c. Cholangiopancreatography (ERCP)
- d. Colonoscopy/sigmoidoscopy
- e. Culdocentesis
- f. Endoscopy
- g. Gastroduodenoscopy
- h. Intraoperative cholangiogram
- i. Needle aspiration biopsy
- j. Paracentesis
- k. Percutaneous transhepatic cholangiography

AQUIFER CASES

1. Family Med 15: 42 year old man with right upper quadrant pain
2. Family Med 16: 68 year old man with skin lesion
3. Family Med 26: 55 year old man with fatigue
4. Internal Med 9: 55 year old woman with upper abdominal pain and vomiting
5. Internal Med 10: 48 year old woman with diarrhea and dizziness
6. Internal Med 12: 55 year old man with lower abdominal pain

See Appendix E for suggestions of additional cases to complete.

END OF SURGICAL MEDICINE LEARNING OBJECTIVES