



# SURGERY clerkship

*"Declare the past, diagnose the present, and foretell the future."*  
-Hippocrates



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## 2 DESCRIPTION



**General Surgery: (Third Year): 2 block rotation: 8 weeks:** During your 8 week rotation students will get experience in the care of patients suffering from conditions that are amenable to treatment by the use of the hand (surgery; fr. Greek: cheir [hand] and ergon [work], literally `handiwork`). Surgery encompasses a diverse range of specialties and includes the following disciplines:

- Breast surgery
- Cardiothoracic surgery
- Colorectal surgery
- GI surgery
- Orthopedics
- Otolaryngology
- Pediatric surgery
- Plastic surgery
- Surgical Oncology
- Trauma surgery

- Transplant surgery
- Urology
- Vascular surgery

It is important to know the major emphasis during this 8 week rotation will be placed upon issues and problems in General Surgery, but student familiarity with common problems in the surgical subspecialties (thoracic and cardiovascular, orthopedics, urology, otolaryngology, and neurosurgery) is also tested on the end-of-clerkship NBME clinical subject examination. Students will be assigned to an individual General Surgery clerkship faculty member for four to eight weeks. During this time each student will get experience in the operating room, out-patient clinics, and office based practice. You are expected to meet and exceed the following requirements and challenge yourself, to be proactive learners and ask questions. Also remember that there is more than studying for "BOARDS." Just because the topics covered either in the readings or online questions are not "BOARD" relevant does not mean you should not know it or be expected to know it. The boards likely will not expect you to memorize the parkland formula for a patient with severe burn injury and how to apply but you are expected to know it. If there is a problem with one of the questions or article links, please email me directly @ [travis.smith@lecom.edu](mailto:travis.smith@lecom.edu).

### 3 REQUIREMENTS

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- Complete all reading requirements while on your respective Family Medicine Rotation including text book and online readings.
  - Students are encouraged to supplement required readings with additional readings based on your specific rotation exposures.
  - 10 hours per week of outside clinical reading.
- Complete the Weekly Online Questions of the Day in the coursework section
- Complete the online End of Rotation Quiz (Worth 20% of your final grade)
- Students MUST adhere to the ACGME rules regarding the workweek, which include working no more than 80 hours per week, no more than 24 hours continuously, except an additional 6 hours may be added to the 24 to perform wrap-up duties, and have at least one of every 7 days completely off from educational activities.
- Extended absences from the clerkship are not permitted. Any absence from the clerkship must be pre-approved by the regional campus dean prior to the beginning of the clerkship.

### 4 MATERIALS: REQUIRED AND SUPPLEMENTAL

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- [Essentials of General Surgery by Peter F. Lawrence](#) (Required)
- Scientific American Surgery: Free Online Text (Required) this can be found in the [learning resources section](#), click the stat ref): Required reading articles are linked below.
- [The Washington Manual of Surgery: Recommended for enhancing your rotation experience](#) (Required)
- [Case Files: Surgery](#) (Supplemental for Board Review)
- [NMS Surgery Casebook](#) (Supplemental for Board Review)
- [Pretest Surgery](#) (Supplemental for Board Review)
- [Dr. Pestana's Surgery Notes](#) (Supplemental for Board Review)
- [High Yield Surgery Shelf Exam Review](#)
- American Osteopathic Association. (2011). *Foundations for Osteopathic Medicine*. Philadelphia: Chila, Anthony G. Lippincott Williams and Wilkins.
- DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.
- Savarese, Robert G.; Capobianco, John D.; Cox, James J. Jr. (2003). *OMT Review; A Comprehensive Review in Osteopathic Medicine*. S.I: Savarese
- There are also surgical videos and articles for review on your own time below.
- Extra texts for your information
  - Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice, 18th edition; ed: Townsend; WB Saunders; 2008 A classic textbook. \*\*\*OUT OF PRINT\*\*\*
  - Brunicaudi Schwartz's Principles of Surgery, 9th edition; ed.; McGraw-Hill; 2010
  - Ed Doherty Current Surgical Diagnosis & Treatment 13th edition; Lange; 2006

- Current Surgical Therapy - 10th ed. J.L. Cameron; Harcourt 2011. A book dealing with up-to-date treatment of common surgical diseases.
- Cope's Early Diagnosis of the Acute Abdomen 22nd edition; W. Silen; Oxford; 2010. A classic book on the acute abdomen.
- Mont Reid Surgical Handbook 6th edition; ed. Stehr; Mosby; 2008.
- Abernathy's Surgical Secrets 6th edition; ed. A.H. Harken; Harcourt; 2009.
- [General Surgery: Review](#). MA Makary, Ladner-Drysdale; 2nd edition; 2008.
- Videos: <http://www.accesssurgery.com>

## 5 EVALUATION: (EFFECTIVE JUNE 2017)

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- 50% based on rotation evaluation
- 30% based on the shelf examination
- 20% based on completion of the end of rotation quiz (50 questions) and completion of the weekly quizzes (the weekly quiz grades will not factor into your end of rotation quiz grade).
  - The end of rotation exam is due on the last Sunday of your rotation by 10PM eastern and will not be accepted late!
    - If you fail to complete the exam or fail turn it in on time (even 1 minute late), you are still required to take the make-up exam (while still receiving a 0% towards your grade)
    - If you then fail the makeup exam (<70%) or fail to take it completely by the end of your next rotation then you will be required to repeat the entire rotation during your elective month.

## 6 GOALS AND OBJECTIVES

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- Demonstrate knowledge and understanding of common surgical problems.
- The better you integrate yourself into the surgical team's daily responsibilities, the more you will get out of your surgery rotation
- Try to learn as much as you can about the patients you care for: do dressing changes so that you can check wounds; keep track of the I and O's; scrutinize each lab value; examine as many x-rays as possible
- Understand the indications for, and the limitations of, essential diagnostic studies used to evaluate patients with surgical problems.
- Be present for special studies such as endoscopies, CT scans, or ultrasounds
- Learn basic principles as soon as possible so that you can apply them as you go along: fluid and electrolyte management, pre- and post-operative evaluations, wound care, pain management, and how to avoid post-op complications such as atelectasis, DVT, urinary tract infections
- Develop cost/risk/benefit appreciation as it applies to patient care.
- To create a firm knowledge base focused on the basic principles of trauma, critical care, emergent and general surgery principles
- Gain exposure to common surgical problems and to develop basic clinical decision-making skills in this patient population
- Refine and tune appropriate surgical technical skills
- Evaluate surgery as a future career choice.
- The student is responsible for performing admitting history and physical examination for elective and emergency surgical patients; assessing patients in the office setting; daily monitoring of inpatient post-surgical patients; ordering and interpreting diagnostic procedures; surgical management under supervision; and follow-up care for those patients assigned by preceptor.
- The student will accompany the preceptor to all Emergency Room calls and participate with surgical procedures.
- Students should interview and examine patients independently and then present their findings orally to preceptors, along with the problem list, and plan for further assessment and management.
- Become knowledgeable of surgical illnesses and the important steps in the decision process for treating these conditions.
- Understand the physiology of an acutely injured patient, whether from trauma, burns, infection, or surgery itself.
- Know the basic principles governing wound care, suturing, and management of tissue infections.
- Be skilled in rendering proper post-operative care.
- Can assess shock.
- Learn about nutritional support and its role in treating severely ill patients.

- Learn about the different surgical subspecialties, about anesthesia, and about the day-to-day practices of the staff surgeons in both academic and private practice settings.
- Be familiar with some procedures that are important to critical care, e.g., central lines, intubations, chest tubes, and Foley catheter insertion.

**Attitudes:**

- Be caring and sympathetic attitude appropriate for dealing with patients with surgical illnesses.
- Develop a collegial interaction with the surgical service, in the OR, etc.
- Be able to **receive and accept constructive criticism**
- Respect patient privacy information and HIPPA policies

## 6.1 MEDICAL KNOWLEDGE

Demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.

**Each student should possess the knowledge of anatomical, molecular, biochemical and cellular mechanisms underlying the pathology of disease while on their eight week surgical clerkship:**

- **Adrenals:**
  - Primary aldosteronism, pheochromocytoma, incidentalomas, Cushing's.
- **Anesthesia:**
  - Nerve injuries due to malpositioning, complications of anesthesia
- **Cardiovascular:**
  - Aortic aneurysm/Dissection
  - Arteriosclerotic occlusive disease and Carotid atherosclerotic disease
  - Thrombophlebitis
  - Thoracic outlet syndrome
- **Dermatologic /Breast:**
  - Abscess Breast/ Disorders
  - Burns and other thermal injuries
  - Carcinoma/ Cystic structures/ Fibrous masses
  - Common surgical skin lesions/ Squamous cell Carcinoma/Basal Cell Carcinoma / Melanoma
  - Paget's disease
  - Sebaceous cysts/ Warts/ Lipomas
  - Necrotizing fasciitis
- **Fluid and Electrolyte Management:**
  - Please be familiar with common acid-base balance. If given values for HCO<sub>3</sub>, pH, PaCO<sub>2</sub> you must be able to identify acidosis/alkalosis, metabolic/respiratory.
- **E.E.N.T.:**
  - Goiter/Thyroid carcinoma/Thyroid masses
  - Hypercalcemic crisis, secondary hyperparathyroidism
  - Salivary gland tumors, Head and neck squamous cell cancers.
  - Facial nerve paralysis, vocal cord paralysis, inflammatory neck masses
- **Esophagus and Diaphragm:**
  - Achalasia, Scleroderma, Zenker's diverticulum, GERD, Boerhaave's syndrome, Esophageal Varices, diaphragmatic hernias.
- **Gastrointestinal/Liver/Biliary Tract:**
  - Acute abdomen
  - Anal fissure
  - Appendicitis
  - Biliary dyskinesia Cholangitis / Cholecystitis / Cholelithiasis
  - Carcinoid tumors
  - Colitis/Enteritis
  - Crohn's disease
  - Diverticulosis / diverticulitis
  - Gastritis

- Hemorrhoids
  - Hernias: Abdominal, Hiatal, Inguinal, Surgical, Umbilical, Obturator, Spigelian, Femoral
  - Intussusception
  - Mallory-Weiss syndrome
  - Meckel's diverticulum
  - Mesenteric adenitis
  - Mesenteric ischemia
  - Pancreatitis and Pancreatic Masses: cystic neoplasms, islet cell tumors, pancreatic ascites/effusion, adenocarcinoma
  - Peptic ulcer disease
  - Perirectal abscess, rectal prolapse, rectal fissure, fistula-in-ano, pilonidal cyst
  - Pediatric bowel disorders
  - Pheochromocytoma
  - Pseudomyxoma
  - Small bowel obstruction
  - Volvulus
  - Ulcerative colitis
- **Liver and Portal Venous System:**
    - Hepatoma, hepatic metastases, hepatic adenoma, Budd-Chiari, splenic vein thrombosis
  - **Neurosurgery and Surgery of the Pituitary:**
    - Subdural and epidural hemorrhage, meningiomas, arteriovenous malformations, trigeminal neuralgia
  - **Oncology:**
    - Sarcomas, Hodgkin's, paraneoplastic syndromes, breast and colon chemotherapy
  - **Organ Transplantation:**
    - Histocompatibility testing, pharmacology of immunosuppressive drugs
  - **Orthopedics:**
    - Compartment syndromes, Morton's toe, hip fractures
    - Hand Injuries: nerve injuries, hand space infections, carpal tunnel syndrome
  - **Pediatric Surgery:**
    - Thyroglossal and branchial cysts, Hirschsprung's disease, Wilms tumor, neuroblastoma, esophageal atresia, undescended testicle
  - **Preoperative and Postoperative Care:**
    - Nutritional assessment, immunocompetence, infection risks, factors affecting wound healing, respiratory failure
  - **Postoperative Complications:**
    - Fat embolism, aspiration, myocardial infarction, cardiac failure, gastric dilatation, wound dehiscence, geriatric problems, such as delirium, dementia, and the propensity to fall.
    - Shock and acute pulmonary failure: Cardiac compressive shock, cardiogenic, neurogenic, and septic shock, ARDS, fat embolism, pulmonary embolism.
  - **Shock:**
    - Hypovolemic, septic, neurogenic, and cardiogenic
  - **Special Medical Problems in Surgical Patients:**
    - Endocrine Disease in the surgical patient with diabetes, hyperparathyroidism, hypothyroidism, adrenal insufficiency
    - Heart Disease and the surgical patient with coronary artery disease
    - Renal Disease and the surgical patient with renal failure
    - Hematologic Disease and surgical patients with hematologic malignancies and/or receiving anticoagulants, disorders of hemostasis; coagulation factor concentrates
  - **Spleen:**
    - Hereditary spherocytosis, ITP, TTP, post-splenectomy sepsis, myeloid metaplasia
  - **Surgical Metabolism and Nutrition:**
    - Complications of parenteral nutrition, desirability of enteral nutrition
  - **Thoracic Wall, Pleura, Mediastinum, and Lung:**
    - Chylothorax, mesothelioma, superior vena cava syndrome, solitary pulmonary nodule, myasthenia gravis, Mediastinal masses, Lung tumors, Hemothorax/Pleural effusion/ Pneumothorax, Pulmonary embolism
  - **Trauma:**
    - penetrating, blunt, thermal (frostbite and burn) and chemical
  - **Urology:**

- Calculi, renal carcinoma, prostatic and testicular carcinomas
- **Veins and Lymphatics:**
  - Deep vein thrombosis, thromboembolism, lymphedema
- **Wound Healing:**
  - Biochemistry of healing; factors retarding healing

**Each student should be able to recognize, identify the cause and know the management of the following post-operative complications:**

- Adhesions
- Arrhythmias
- Atelectasis
- Cerebral vascular accidents
- Common bile duct injury
- Dehiscence and evisceration
- Diarrhea
- Constipation
- Fever
- Ileus
- Nausea / vomiting
- Pneumonia
- Pulmonary embolism
- Renal failure
- Urinary retention
- Wound infection

**Each student should possess knowledge of essential characteristics of surgical practice:**

- Examination of the patient from the surgical viewpoint
  - Special attention to the breast, abdominal and vascular exam
- Evaluation and care of the pre-operative and post-operative patient, including appropriate orders
- Sterile technique including scrubbing, gowning, gloving, prepping and draping a field
- Fluid resuscitation and therapy
- Basic wound evaluation and care
- Hemostasis, blood component therapy, and anticoagulation including DVT prophylaxis and treatment
- Nutritional support – enteral and parenteral
- Malignant neoplasia and its effect on body systems
- Infections and appropriate prophylactic and therapeutic antibiotic use
- Basic principles of minimally invasive surgery
- Effective management of pain and the amelioration of suffering

**Each student should be familiar with these general surgery procedures:**

- Abscess incision and drainage
- Appendectomy: lap / open
- Billroth I / Billroth II
- Roux-en-Y Gastric Bypass /Lap Band/ DISTAL Gastric Bypass (Duodenal Switch, Biliopancreatic Division)
- Bowel resection
- Breast mass removal
- Cholecystectomy: lap / open
- Colectomy / colostomy
- Hemorrhoidectomy
- Inguinal herniorrhaphy
- Lymph node dissection
- Mastectomy: simple / radical
- Nissen procedure
- Removal of benign and malignant skin tumors
- Thyroidectomy: total / partial

- Umbilical herniorrhaphy / Ventral herniorrhaphy
- Whipple procedure

**Each student will demonstrate his/her ability to develop a differential diagnosis and workup for these common surgical complaints:**

- Abdominal pain
- Abnormal stools
- Ascites
- Back / flank pain
- Breast mass / tenderness/ Nipple Discharge
- Diarrhea /Constipation/ Fecal incontinence
- Dysphagia / odynophagia/ Indigestion
- Groin mass
- Hematemesis /Hematochezia / Hemoptysis /
- Jaundice
- Leg pain / Lymphadenopathy/ Peripheral ischemia
- Nausea / vomiting
- Neck fullness / mass
- Skin cancer/ Skin masses

**For each presenting symptom, condition, or disease state, the student should be expected to know:**

- Anatomy
- Pathophysiology
- Common associated symptoms
- Positive physical findings
- Differential diagnosis
- Treatment
  - medical/surgical alternatives
  - when treated medically, indications for surgical intervention
  - risk factor assessment
  - pre- and post-operative management
  - complications: recognition and treatment
- Adjuvant therapies - indications and outcome
- Prognosis
- Discharge: timing, patient education, follow-up, resumption of activities

**Have some Questions on scrubbing in? Here are some links to help make you feel more comfortable before your rotation starts:**

- [Closed Cuff Gloving](#)
- [Eye Protection](#)
- [Gown Adjustment](#)
- [Hand Drying](#)
- [Removing Gown](#)
- [Shoe Covers](#)
- [Solo Surgical Gowning](#)
- [Surgical Cap](#)
- [Surgical Mask](#)
- [Surgical Scrub](#)
- [Turning](#)
- [Two-Person Gowning](#)
- [Scrubbing 101 Tulane Medical Center](#)
- [Gowning and Glove Sterile Technique from Tulane](#)

**Call Schedules:** Your rotation schedule is clinical site dependent and you are required to complete and participate in the schedule given to you by your preceptor. Failure to comply with your preceptors set schedule can result in remediation and is at the discretion of your preceptor and clinical dean.

**Attire/Scrub wear:** Appropriate professional attire must be worn during all clerkship activities. This includes proper grooming, bathing and lack of distracting jewelry or body piercing. Inappropriate appearance is not tolerated and subject to disciplinary action.

## 6.2 PATIENT CARE

Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

- Elicit thorough and pertinent patient histories
- Perform both a comprehensive and organ system specific examination
- Write pertinent surgical notes
  - Operative notes
  - Post-operative checks
  - Progress notes
  - Effective consultation notes
- Interpret results of commonly used diagnostic tests with recognition of their limitations
  - Review and interpret most frequent clinical laboratory, radiologic and pathologic manifestations of common maladies
- Engage in effective surgical decision making including timing, need for surgery, assessment of surgical risk/benefit ratios
- Skills: The student will be able to perform the following:
  - Evaluate and assess patients with surgical diseases.
  - Understand and possibly perform various basic procedures, such as:
    - venipuncture
    - placement of intravenous catheter
    - insertion of urethral (Foley) catheter
    - insertion of nasogastric tube
    - removal of surgical drains
    - closure of surgical incisions
    - removal of suture/staples
    - dressing changes
  - Understand how to and possibly apply specific protocol in the operating room (scrubbing, gowning, gloving, prepping and draping)
  - Interpret common laboratory tests (CBC, electrolytes, blood gases, urinalysis, coags)
  - Interpret common radiologic tests (CXR, KUB, UGI, BE, bone, nuclear tests, US, CT)
  - Understand how to obtain and interpret EKG

## 6.3 INTERPERSONAL AND COMMUNICATION SKILLS

Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates.

- Communicate effectively with patients, their families and members of the healthcare team
  - Demonstrate an ability to combine speed, compassion, clarity and precision in communicating surgical issues for acute and urgent problems
  - Demonstrate an ability to combine respect, compassion and empathy when communicating surgical issues for unexpected, serious, life-threatening diagnoses
- Consider the psychological ramifications of surgical diagnoses on patients and their families when communicating
- Avoid use of technical surgical jargon when communicating with patients, families and other physicians and staff who are involved in the care of the patient



## 6.4 PRACTICE-BASED LEARNING AND IMPROVEMENT

Investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.

- Identify and utilize sources of content that allow for the provision of the most updated standards of care in surgical practice
- Utilize evidence-based medicine whenever appropriate to the care of the patient
- Utilize surgical complications, post-operative pathological findings and other sources of feedback to continuously hone one's diagnostic and therapeutic skills in surgery
- Develop means for practicing and refining surgical skills that will be needed over time, especially those that may be infrequently utilized
- Recognize and accept limitations in one's knowledge and clinical skills as a means for continuously improving
  - Accept that surgery involved extreme outcomes, both positive and negative, and that the nature of these outcomes is not always predictable

## 6.5 SYSTEMS-BASED PRACTICE

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.

- Develop and demonstrate respect and honor for the roles of the many health care professionals required for collaborative surgical care
  - Primary care, emergency and attending physicians
  - Medical and other consultants
  - Operative and nursing personnel
  - Social workers and discharge planning personnel
  - Pain management specialists
  - Nutritionists
  - Therapists – physical and occupational
  - Hospice
  - Clergy
- Develop an awareness of the payment issues involved in surgical care
  - Managed care requirements for pre-operative clearance
  - Issues regarding length of stay
  - Issues regarding decision to admit to hospital or utilize same-day surgical approaches
  - Cost of surgical supplies and their impact on hospital operating budgets

## 6.6 PROFESSIONALISM:

Professionalism should imbue all aspects of your performance. Medicine as a whole will continue to evolve and change but this aspect of your character will stick with you forever. Each student should understand and be able to demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- Apply ethical and legal standards to surgical decision making
  - Differentiate between the ability to do a surgical procedure and the appropriateness of choosing to actually schedule that procedure for a specific patient
  - Apply principles from end-of-life care to surgical decision making
- Practice with compassion
  - Respect the privacy and dignity of patients and their families
  - Respect confidentiality
  - Remain present to the overwhelming concerns of patients and families who are receiving bad news for, perhaps, the first time
  - Displaying good manners
  - Showing discernment while avoiding deception when communicating with patients and their families
  - Effectively communicates empathy
  - Puts patients' needs above own (altruism)
  - A commitment to caring for all patients regardless of their medical diagnoses or social factors.
  - Displaying sensitivity to cultural differences
  - Convey humility

- Demonstrate tolerance for issues related to cultural, religious, spiritual and socioeconomic diversity
  - Act in accord with the unique surgical issues raised by groups such as Jehovah's Witnesses
- Maintain honesty and integrity in all relationships centered on the provision of surgical care
  - Communicate honestly regarding potential surgical risk and potential benefits from surgery
  - Report all conflicts of interest that may impact on surgical decision making, for example ownership relationships with surgical centers or specialty hospitals
  - Treat all patients, staff, and colleagues with respect.
  - Avoiding confrontations
  - Demonstrate a positive attitude towards learning by showing intellectual curiosity, initiative, honesty, integrity, and dedication.
- Show intellectual curiosity
- Accept responsibility for your patients
- Being prepared and on-time
- Being dependable
- Reliable attendance and participation
- Strive for excellence
- Not passing others' work off as your own
- Actively seek to broaden education and experience beyond clerkship requirements
- Avoid complaining

## 6.7 OSTEOPATHIC PHILOSOPHY AND OSTEOPATHIC MANIPULATIVE MEDICINE

Integrate Osteopathic Concepts and OMT into the medical care provided to patients as appropriate. Understand and integrate Osteopathic Principles and Philosophy into all clinical and patient care activities.

- Comprehend and apply osteopathic medical concepts in the diagnosis and treatment of the surgical patient
- Utilize OMT skills to aid in presurgical diagnosis, for example with respect to appendicitis, ovarian disease, obstructive colonic disease
- Utilize OMT skills as appropriate in the management of surgical disease
  - Otitis media and myringotomy, tonsillitis, thyroid disease, torticollis, carpal tunnel syndrome, sternotomy, post-CABG sympathectomy, mastectomy, ileus, urolithiasis, appendicitis, herniated nucleus pulposus, caesarian section, episiotomy, CABG/saphenous vein graft, knee internal derangement, hip replacement
- Utilize OMT skills as appropriate in the management of surgical complications
  - Wound infections, peritonitis, subphrenic and subhepatic abscess, empyema, mediastinitis, pneumonia, ARDS, renal failure, post-operative jaundice, post-operative ileus, bowel obstruction, acute gastric hemorrhage, multiple organ failure, myocardial infarction, edema, atelectasis, nausea and vomiting, gastrectasia, post-operative back ache, apprehension and tenseness, headache, hypertension, dumping syndrome, embolic phenomena, laminectomy, fixed nerve pathway (post cholecystectomy syndrome), lumbar myospasm, radiculopathy following epidural anesthesia

**The following topics cover important OMM objectives while on your first and second General Surgery rotation. The topics are taken from the below:**

1. American Osteopathic Association, and Anthony Chila. **Chapter 68: Abdominal Pain.** *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, **pp. 999-1005**
2. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 114: Gastrointestinal Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. **pp. 631-638.**
3. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 110: Visceral Manipulation Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. **pp. 602-605.**

**Each student must be familiar with the following OMM learning objectives while on their **First General Surgery Rotation**:**

- Describe the structural issues that could compromise a patient about to undergo surgery as well as the structural issues that could compromise a patient during surgery and the recovery stage.
- How to effectively evaluate, create an adequate differential diagnosis, appropriately diagnose, demonstrate a constructive clinical approach to treatment, and be able to apply OMT (if applicable) in the treatment of the patient with the following common gastrointestinal problems:
  - ❖ Appendicitis
  - ❖ Bowel Obstruction

- ❖ Colitis
- ❖ Cystitis
- ❖ Diarrhea
- ❖ Diverticular Disease
- ❖ Gall bladder disease
- ❖ Gastritis and peptic ulcer disease
- ❖ GYN causes (see OBGYN section)
  - Ectopic pregnancy
  - Ovarian Cyst/Torsion
  - Salpingitis
  - Endometriosis
- ❖ Hemorrhoids
- ❖ Hepatitis
- ❖ Hiccups
- ❖ Irritable bowel syndrome
- ❖ Internal Bleeding
- ❖ Kidney/Ureteral Stone
- ❖ Pancreatitis
- ❖ Perforated Bowel
- ❖ Postoperative ileus and atelectasis prevention and treatment
- Be familiar and be able to make a timely diagnosis of the several life threatening causes of abdominal pain and the 4 most common causes of abdominal pain that warrant surgical intervention.
- Describe and demonstrate an understanding of the major elements of gastrointestinal anatomy and physiology to include:
  - ❖ Cranial nerve innervation of the muscles of mastication and swallowing
  - ❖ Lymphatics of abdominal and pelvic organs
  - ❖ Muscular structure and functionality
  - ❖ Parasympathetic innervation of abdominal and pelvic organs
    - Be able to list the areas of parasympathetic hypo/hyperactivity that may reflect an upper or lower GI process
    - Be able to list the signs and symptoms associated with parasympathetic hypo/hyperactivity
  - ❖ Sympathetic innervation of abdominal and pelvic organs
    - Be able to list the areas of sympathetic hypo/hyperactivity that may reflect an upper or lower GI process
    - Be able to list the signs and symptoms associated with sympathetic hypo/hyperactivity
  - ❖ Be able to map the sympathetic and parasympathetic innervations of the abdominal and pelvic organs, including:
    - Vertebral levels of sympathetic innervations
    - Which nerves carry parasympathetic innervations to which organs
- Be familiar with the 5 different domains in the osteopathic evaluation of the patient who presents with abdominal pain.
- Understand the osteopathic evaluation and treatment of the patient who presents with abdominal pain while considering the effects of somatovisceral and viscerosomatic reflexes as well as somatosomatic and visceroviscero reflexes. This entails knowing the specific pathophysiology of a viscerosomatic reflex, being able to identify the areas of facilitation with GI dysfunction, and being able to consider the effects of somatovisceral and viscerosomatic reflexes as well as somatosomatic and visceroviscero reflexes.
- Understand that somatic dysfunction may be a primary cause or a secondary finding in patients with abdominal pain and gastrointestinal dysfunction.
- Understand the theory of referred pain and describe the mechanism that explains why visceral pain is initially perceived as vague in location and quality.
- Describe and apply the five pathophysiologic models for musculoskeletal medicine for each of the above gastrointestinal problems:
  - ❖ **Biomechanical model:**
  - ❖ **Respiratory-circulatory model:**
  - ❖ **Neurological model:**
  - ❖ **Metabolic-energy model:**
  - ❖ **Behavior model:**
- Be familiar with Thomas Test and be able to list and describe the common osteopathic structural findings associated with psoas syndrome as well as being able to identify the following:

- One condition that will give a false positive test and one condition that may result in a false negative test.
- Four positions associated with psoas spasm and the mechanism that may initiate psoas muscle spasm
- Be familiar with Psoas syndrome, its possible organic causes, most common key somatic dysfunctions, osteopathic structural exam findings, manipulative treatment options.
- Identify the steps that follow the obstruction of a hollow viscous and lead to ischemia.
- Identify 3 behavioral issues that may cause abdominal pain.
- Describe the common GI syndromes that have autonomic dysregulation as a significant contributing factor as well as the significance of venous and lymphatic drainage from the abdomen.
- Be familiar with the common somatic dysfunctions and Chapman's points present in acute appendicitis.
- Understand the physiology of postoperative ileus, the involvement of the mechanical and autonomic nerve-mediated processes, osteopathic exam findings and OMT treatment applications.
- Understand the physiology of IBS along with its usual presentation, most likely cause, osteopathic exam findings, and OMT treatment techniques.
- Identify the diagnostic and therapeutic use of Chapman's Reflex Points and be able demonstrate the musculoskeletal evaluation of GI dysfunction and perform the following diagnostic techniques in the structural diagnosis and concepts of the patient as it relates to common gastrointestinal problems:
  - ❖ Thoracic soft tissue diagnosis of the related sympathetic areas: acute viscerosomatic.
  - ❖ Thoracic skeletal/arthrodial diagnosis of the related sympathetic areas
  - ❖ Fascial assessment of the abdominal secondary chain ganglia
  - ❖ OA and sacral soft tissue diagnosis of the related parasympathetic areas: acute viscerosomatic
  - ❖ OA and sacral skeletal/arthrodial diagnosis of the related parasympathetic areas
- Identify 3 ways osteopathic treatment may still benefit a patient in which OMT is not considered the primary treatment for the patient.
- Describe and perform Osteopathic Visceral Manipulation techniques to the upper and lower GI tract that improve the following:
  - ❖ Lymphatic congestion
  - ❖ Circulatory dysfunction
  - ❖ Dysfunctional sympathetic tone (i.e. treatment of constipation, abdominal pain, flatulence, distention)
  - ❖ Dysfunctional parasympathetic tone (i.e. headache, nausea, vomiting diarrhea, cramps)
- Describe and perform the following key OMT techniques utilized in the treatment of common gastrointestinal problems:
  - ❖ Craniosacral techniques including but not limited to condylar decompression
  - ❖ Counterstrain
  - ❖ Direct and Indirect: rib techniques/sacrum
  - ❖ Esophageal Release
  - ❖ Facilitated Positional Release
  - ❖ HVLA
  - ❖ Lymphatic pump techniques
  - ❖ Mesenteric Lift Techniques
  - ❖ Muscle Energy and thrusting techniques to somatic dysfunctions
  - ❖ Myofascial release: abdomen, thorax, diaphragm, and secondary chain ganglia
  - ❖ Paraspinal inhibition
  - ❖ PINS technique
  - ❖ Redome diaphragm
  - ❖ Release thoracic inlets
  - ❖ Rib raising
  - ❖ Soft tissue: knead, stretch, paraspinal inhibition
  - ❖ Splenic Pump Techniques
  - ❖ Still Techniques
  - ❖ Visceral Techniques

**Each student must be familiar with the following OMM learning objectives while on their **Second General Surgery Rotation**:**

1. American Osteopathic Association, and Anthony Chila. **Chapter 68: Abdominal Pain.** *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, pp. 999-1005. **(Overflow applications from prior reading lesson)**

2. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 115: Renal and Urological Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. pp. 639-645.

Each student must be familiar with the following learning objectives:

- Be familiar with the etiology, common presentations, signs and symptoms, diagnostic evaluation, and treatment options of the patient presenting with the following common genitourinary problems:
  - ❖ Benign Prostatic Hyperplasia
  - ❖ Cystitis
  - ❖ Hydronephrosis
  - ❖ Nephrolithiasis
  - ❖ Prostatitis
  - ❖ Pyelonephritis
- Demonstrate an understanding and be familiar with the major elements of the renal systems anatomy and physiology to include:
  - ❖ Kidney, bladder (and related structures)
  - ❖ Male & female reproductive system
  - ❖ Sacrum/pelvis
  - ❖ Psoas/iliopsoas/Iliolumbar
  - ❖ Piriformis muscles
  - ❖ Diaphragms (thoracoabdominal & ribs)
  - ❖ UG viscera with fascial attachments to the musculoskeletal, visceromotor, viscerosensory, lymphatics
  - ❖ Lymphatics of abdominal and pelvic organs
  - ❖ Parasympathetic innervation of abdominal and pelvic organs
  - ❖ Sympathetic innervation of abdominal and pelvic organs
    - Vertebral levels of sympathetic innervations
    - Which nerves carry parasympathetic innervations to which organs
    - Mapping of pre-vertebral ganglia
- Identify the appropriate structural diagnoses and concepts as they pertain to genitourinary signs and symptoms:
  - ❖ Chapman's Points
  - ❖ Collateral ganglia
  - ❖ Cranio-sacral dysfunction
  - ❖ Fascial asymmetry
  - ❖ Low back pain
  - ❖ Lymphatic Congestion
  - ❖ Musculoskeletal tenderpoints
  - ❖ Pelvic obliquity
  - ❖ Pelvic splanchnic nerves
  - ❖ Short leg syndrome
  - ❖ Somatic dysfunction of the sacral, lumbar, and thoracic spine
  - ❖ Thoracolumbar Scoliosis
- Be familiar with the most common somatic dysfunctions and Chapman's points present in the patient presenting with the following:
  - ❖ Prostate Diseases such as BPH and Prostatitis
  - ❖ Nephrolithiasis
  - ❖ Pyelonephritis
- Describe and perform the following key OMT techniques utilized in the treatment of common genitourinary problems:
  - ❖ HVLA
  - ❖ Lumbar rolls
  - ❖ Lymphatic pumps
  - ❖ Muscle strain/counterstrain
  - ❖ Myofascial release
  - ❖ Rib raising
  - ❖ Sacral base anterior
  - ❖ Shock release
  - ❖ Soft tissue

**Feedback:** Once the rotation evaluation is completed by a student, providing feedback about the rotation and online curriculum is much appreciated. Contact your clinical site or regional Dean about your clinical rotation experience. For comments and feedback about the online curriculum questions please email Dr. Travis Smith at [travis.smith@lecom.edu](mailto:travis.smith@lecom.edu).

## 7 REQUIRED READING

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During your clinical rotations these articles are meant to improve your knowledge base of common conditions seen while on the surgical wards. All of these articles are taken from the Scientific American Surgery Online text that is located in Stat Ref. During each week of your respective rotations you should read and know these articles as each topic will help you tremendously during your 2 month rotation. In addition to these articles you should continue to read your textbooks about specific patient's you might be taking care of and daily use of your study guides. These articles should be the bare bones MINIMUM you read from the text book.

These Reading Articles are not for distribution or for sharing on line. These articles and text are copyrighted and for sole use of LECOM students. Please use these board review resources in addition to the other reading articles for studying for your Shelf exam and Boards. Also please note the figures and pictures in the PDF files will not be visible or interactive when clicking on them. If you would like to access these features then you will need to log into Stat Ref through the [Learning Resource Center](#).

### Surgery Review for the Boards

- [Pestana Surgery Review](#)
- [Surgery Shelf Review](#)
- [Hopkins Surgery Review](#)

### 7.1 ROTATION 1 REQUIRED TOPICS & READINGS

- **Week 1 Readings**
  1. [Preoperative Evaluation](#)
  2. [Preparation of the Operating Room](#)
  3. [Postoperative Management of the Hospitalized Patient](#)
  4. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 114: Gastrointestinal Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. **pp. 631-638.**
  5. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 110: Visceral Manipulation Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. **pp. 602-605.**
  6. [Appendicitis/Appendectomy](#)
  7. [Diverticular Disease](#)
- **Week 2 Readings**
  1. [Abdominal Pain and Abdominal Mass](#)
  2. American Osteopathic Association, and Anthony Chila. **Chapter 68: Abdominal Pain.** *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, **pp. 999-1005**
  3. [Diagnosis and Management of Benign Gastric and Duodenal Disease](#)
  4. [Management of Uncomplicated Gallstones and Benign Gallbladder Disease](#)
  5. [Management of Complicated Gallstone Disease](#)
  6. [Bleeding and Transfusion](#)
  7. [Trauma: Initial Management of Life-Threatening Trauma](#)
  8. [Trauma Imaging](#)
- **Week 3 Readings**
  1. [Breast Procedures](#)

2. Breast Cancer
  3. Benign Breast Disease
  4. Soft Tissue Infection
  5. Trauma: Injuries to the Liver and Biliary Tract
  6. Trauma: Injuries to the Spleen and Diaphragm
  7. Non operative management of liver and spleen traumatic injuries
- **Week 4 Readings**
    1. Adenocarcinoma of the Colon and Rectum
    2. Inguinal Hernia
    3. Trauma: Injuries to the Stomach, Small Bowel, Colon, and Rectum
    4. Trauma: Injuries to the Pelvis and Extremities
    5. Trauma: Duodenal and Pancreatic Trauma
    6. Trauma: Injuries to the Chest
    7. Trauma: Injuries to the Urogenital Tract

## 7.2 ROTATION 2 REQUIRED TOPICS & READINGS

- **Week 1 Readings**
  1. Management of Acute Wounds
  2. Management of Chronic Wounds
  3. Management of the Burn Wound
  4. Miscellaneous Burns and Related Conditions
  5. Principles of Wound Management and Soft Tissue Repair
  6. Surgical Management of Melanoma and Other Skin Cancers
  7. The Skin and the Physiology of Normal Wound Healing
  
- **Week 2 Readings**
  1. Disorders of the Adrenal Glands
  2. The Endocrine System, Pituitary and Adrenals
  3. Neck Mass
  4. Parathyroid Disease
  5. Thyroid Diseases
  6. Trauma: Injuries to the Neck
  7. Trauma: Injuries to the Central Nervous System
  
- **Week 3 Readings**
  1. Colonic Volvulus
  2. Hemorrhoids
  3. Intestinal Obstruction
  4. Inflammatory Bowel Disease
  5. Fissure, Fistula, and Abscesses
  6. Fulminant Ulcerative Colitis
  
- **Week 4 Readings**
  1. Acute Limb Ischemia
  2. Asymptomatic Carotid Bruit/Carotid Artery Stenosis
  3. Surgical Treatment of Carotid Artery Disease
  4. Medical Management of Vascular Disease
  5. Repair of Infrarenal Abdominal Aortic Aneurysms
  6. Lower Extremity Ulcers
  7. Trauma: Injuries to the Great Vessels of the Abdomen

## 8 SURGICAL JOURNALS

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- [American Journal of Surgery](#)
- [Archives of Surgery](#)
- [Annals of Surgery](#)
- [Annals of Thoracic and Cardiovascular Surgery](#)
- [BMC Surgery](#)
- [British Journal of Surgery](#)
- [European Journal of Cardio-Thoracic Surgery](#)
- [European Journal of Trauma and Emergency Surgery](#)
- [International Journal of Surgery](#)
- [Journal of Cardiovascular Surgery](#)
- [Journal of Gastrointestinal Surgery](#)
- [Journal of the American College of Surgeons](#)
- [Journal of the Royal College of Surgeons](#)
- [Journal of Trauma](#)
- [Surgical Infections](#)
- [World Journal of Surgery](#)
- [World Journal of Emergency Surgery](#)

**Citation Articles:** Below are some suggested sources to consult in your search for classic papers for your presentations on various surgical topics.

- [Acute Abdomen - Sources for classic paper references](#)
- [Bariatric Surgery - Finding Important Papers](#)
- [Cholangiocarcinoma and Hepatocellular Carcinoma](#)
- [Classic Papers in Breast Cancer Surgery](#)
- [Gastric Cancer Classic Articles](#)
- [Soft Tissue Sarcomas - Suggested sources for classic papers](#)
- [Pancreatic Cancer](#)
- [Surgical Treatment for Peripheral Artery Disease](#)
- [Surgical Milestones 1875-1950](#)
- [Thyroid Cancer- Sources for Classic Paper](#)



## 9 SHELF AND BOARD EXAM REVIEW

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This test contains far more internal medicine than one might expect, therefore it is advantageous to have completed internal medicine before taking this exam. Know IV fluid management, diagnosis of acute abdomen, trauma survey. Be able to tell when a patient is truly in danger of dying (vital signs, etc....) there are a few questions on orthopedics, vascular surgery, urology, etc.... Dr. Carlos Pestana's Kaplan notes for surgery is the best recommended Strategy. Begin reading NMS at the beginning of the rotation if you wish to do extremely well. Use Case Files if you just want to pass. If you can get obtain the Pestana notes, use them as well. Do questions from PreTest, because the USMLE world surgery questions focus too much on subspecialty surgery and not enough on general surgery. Below is a breakdown of the topics on prior exams.

### General Principles 1%-5%

- Organ Systems 95%-99%
- Immunologic Disorders 1%-5%
- Diseases of the Blood and Blood-forming Organs 5%-10%
- Diseases of the Nervous System and Special Senses 5%-10%
- Cardiovascular Disorders 10%-15%
- Diseases of the Respiratory System 10%-15%
- Nutritional and Digestive Disorders 25%-30%
- Gynecologic Disorders 5%-10%
- Renal, Urinary, and Male Reproductive System 5%-10%
- Disorders of Pregnancy, Childbirth, and the Puerperium 1%-5%
- Disorders of the Skin and Subcutaneous Tissues 1%-5%
- Diseases of the Musculoskeletal System and Connective Tissue 5%-10%
- Endocrine and Metabolic Disorders 5%-10%

### Physician Tasks

- Promoting Health and Health Maintenance 1%-5%
- Understanding Mechanisms of Disease 20%-25%
- Establishing a Diagnosis 45%-50%
- Applying Principles of Management 25%-30%

### Surgery Resources

1. Case Files: Surgery: Excellent resource for case preparation, but it is not a good tool for the subject examination. Probably the 2nd best surgery subject exam resource. Not as much info as NMS. Not separated into body systems, just random cases
2. NMS: Surgery: Large resource in outline format. Very complete, but could be somewhat cumbersome to complete. Contains general surgery as well as subspecialty chapters. This could be used as a sole resource.
3. PreTest Surgery: Excellent question book that mimics the questions on the subject exam. Far more useful than USMLE world for the surgery subject exam. Read the question and the explanation. Absolutely not intended to be a sole resource.
4. Pestana Review Notes: Extremely high yield. This is regarded as the Holy Grail of surgery resources. It is hard to come by, because it is supposedly illegal to sell these. They are available on eBay and other websites, it just requires some searching.

# 10 EXTRA RESOURCES FOR LEARNING AND SURGICAL VIDEOS

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## Extra Resources for Learning:

- The Anatomy Lesson : Created by Georgetown professor Wesley Norman these slides take a regional approach
- Sponsored by the Stanford School of Medicine. Three-dimensional photographic images of human anatomy using innovations in dissection pioneered by Dr. Bassett.
- [Understanding the Heart](#) :understanding the anatomy of the heart using MRI images
- [Introduction to Chest Radiology](#)

## Surgery Videos:

- [Surgical Laparoscopic Videos](#) Laparoscopy Hospital, New Delhi, India
- [Medline Plus Videos of Surgical Procedures](#)
- [OR Live](#)
- [Brigham and Women's Hospital Live Surgery Web Casts](#): 14 operations available
  - [Arthroscopic Rotator Cuff Repair](#)
  - [Breast Cancer Surgery: Multidisciplinary treatment of breast cancer](#)
  - [Laparoscopic Adjustable Banding \(LAP-BAND® System\) Weight Loss Surgery](#)
  - [Carotid Artery Angioplasty and Stenting](#)
  - [Bilateral Nerve Sparing Radical Prostatectomy for Prostate Cancer](#)
  - [Mini Invasive Rotating Platform Total Knee Replacement](#)
  - [Catheter Ablation for the Treatment of Atrial Fibrillation](#)
  - [Minimally Invasive Aortic Valve Replacement](#)
  - [Extrapleural Pneumonectomy](#)
  - [Total Mesorectal Excision \(TME\)](#)
  - [Minimally Invasive Repair of Thoracic Aortic Aneurysm](#)
  - [Hepatectomy with Radiofrequency Resection](#)