



# Edward Via College of Osteopathic Medicine

## 3<sup>rd</sup> Year Clinical Rotation: Surgery

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### ROTATION SYLLABUS

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#### I. Rotation Description

The purpose of the VCOM Department of Surgery is to provide a high quality surgical educational experience. The Mission of the College is to provide medical education and research that prepares globally-minded, community-focused physicians and to improve the health of those most in need.

Third year medical student clerkships are offered by the majority of our regional hospitals. The general surgery rotation is four weeks in duration. The student acts as a surgical extern as he/she rotates with the Discipline. He/she learns how to do a surgical history, assess the patient by Goldmans criteria, provide pre- and post-op care, make rounds, write orders, and attend all conferences that are for surgical cases.

The Department of Surgery faculty believe the surgical disciplines have important roles in medical education and the provision of healthcare and that educational and healthcare advances are founded upon sound clinical and basic research.

During the third year surgery rotation, students expand their knowledge of surgical conditions and gain the ability to apply this knowledge in the clinical setting. The curriculum is taught through Med-U Wise-MD videos, assigned readings, and through one-on-one student-preceptor interaction in the clinical setting. Students are expected to complete their assignments for both surgery and the longitudinal OMM course. The practice of surgery occurs in the outpatient office setting and in the inpatient setting. Due to the variety of practice opportunities and formats in surgery, students should review their [specific site instructions](#) for a more detailed description of their specific practice setting.

## II. Course Goals and Objectives

### A. Goals of the Course

1. Practice – The student will become familiar with the characteristics of the practice of general surgery, including the knowledge base required, manner of patient communications, intermittent patient encounters, and aspects of clinical reasoning, lifestyle considerations, and continuing education issues.
2. Surgical / Clinical Reasoning – The student will develop knowledge and skills in learning to differentiate between elective, urgent, and emergent surgical clinical problems from the perspective of clinical reasoning skills.
3. Communication –The student will develop the ability to transmit information through a concise, accurate, and timely oral presentation, as well as documenting their History and Physical and recording progress notes in the hospital chart where applicable.

### B. Objectives of the Course

1. To provide a working knowledge of surgical conditions of patients a primary care physician is likely to encounter in daily practice.
2. To provide a challenging and interesting introduction to surgery as a choice to practice, recognizing the need for general surgeons in rural and underserved areas.
3. To broaden the students' knowledge of surgical disease and procedures.
4. To provide clinical research in new techniques and surgical devices that will enhance the health of all humans.
5. To foster compassionate and altruistic care by participation in our Appalachian and International Medical Missions.
6. To promote the development of surgical technical skills in students and residents including:
  - a. Basic surgical instruments, knots and ties
  - b. Elementary wound closure and local anesthesia
  - c. Subcutaneous and fascial closures
  - d. Wound debridement, irrigation and drainage, securing tubes, Z plasties, VY plasties, rotation flaps
7. To become familiar with more complicated procedures including skin grafts, nerve, vessel and tendon repair.
8. To become familiar with the surgical specialties and how they are practiced, including:
  - a. Otorhinolaryngology
  - b. Ophthalmology
  - c. Neurosurgery
  - d. Cardiovascular Surgery
  - e. Orthopedics
  - f. Urology
  - g. Plastic Surgery

### C. Clinical Performance Objectives

While the end-of-rotation exam is derived from the didactic curriculum and objectives described above in the “Clinical Modules – Required Curriculum” section, the end-of-rotation evaluation completed by your surgery preceptor is based on clinical core competencies. These core competencies reflect student performance in 6 key areas: communication, problem solving, clinical skills, medical knowledge, osteopathic medicine and professional and ethical considerations. Your end-of-rotation evaluation from your preceptor will be based directly on your performance in these 6 core competencies as described below.

1. **Communication** - the student should demonstrate the following clinical communication skills:
  - a. Effective listening to patient, family, peers, and healthcare team
  - b. Demonstrates compassion and respect in patient communications
  - c. Effective investigation of chief complaint, medical and psychosocial history specific to the rotation
  - d. Considers whole patient: social, spiritual & cultural concerns
  - e. Efficiently prioritizes essential from non-essential information
  - f. Assures patient understands instructions, consents & medications
  - g. Presents cases in an accurate, concise, well organized manner
2. **Problem Solving** – the student should demonstrate the following problem solving skills:
  - a. Identify important questions and separate data in organized fashion organizing positives & negatives
  - b. Discern major from minor patient problems
  - c. Formulate a differential while identifying the most common diagnoses
  - d. Identify indications for & apply findings from the most common radiographic and diagnostic tests
  - e. Identify correct management plan considering contraindications & interaction
3. **Clinical Skills** - the student should demonstrate the following problem solving skills:
  - a. Assesses vital signs & triage patient according to degree of illness
  - b. Perform good auscultatory, palpatory & visual skills
  - c. Perform a thorough physical exam pertinent to the rotation
4. **Osteopathic Manipulative Medicine** - the student should demonstrate the following skills in regards to osteopathic manipulative medicine
  - a. Apply osteopathic manipulative medicine successfully when appropriate
  - b. Perform and document a thorough musculoskeletal exam
  - c. Utilize palpatory skills to accurately discern physical changes that occur with various clinical disorders
  - d. Apply osteopathic manipulative treatments successfully
5. **Medical Knowledge** – the student should demonstrate the following in regards to medical knowledge
  - a. Identify & correlate anatomy, pathology and pathophysiology related to most disease processes
  - b. Demonstrate characteristics of a self-motivated learner including demonstrating interest and enthusiasm about patient cases and research of the literature
  - c. Are thorough & knowledgeable in researching evidence based literature
  - d. Actively seek feedback from preceptor on areas for improvement
  - e. Correlate symptoms & signs with most common disease
6. **Professional and Ethical Behaviors** - the student should demonstrate the following professional and ethical behaviors and skills:
  - a. Is dutiful, arrives on time & stays until all tasks are complete
  - b. Consistently follows through on patient care responsibilities
  - c. Accepts & readily responds to feedback, is not resistant to advice
  - d. Assures professionalism in relationships with patients, staff, & peers
  - e. Displays integrity & honesty in medical ability and documentation
  - f. Acknowledges errors, seeks to correct errors appropriately
  - g. Is well prepared for and seeks to provide high quality patient care
  - h. Identifies the importance to care for underserved populations in a non-judgmental & altruistic manner

### III. Rotation Design

#### A. Educational Modules

Educational modules using lectures, cases, and other forms of delivery are used for third year curriculum. Each student must complete a post-rotation exam to assure that the expected basic content or medical knowledge has been acquired during the rotation. In addition to the experiences received in the clinical training sites, students are expected to read the content of the assigned textbooks and on line materials in order to complete the entire curriculum assigned for the clinical module.

#### B. Formative Evaluation

Student competency based rating forms are used by the preceptor to evaluate each student's clinical skills and the application of medical knowledge in the clinical setting. These forms are only completed by the clinical faculty member or preceptor. Performance on rotations will be evaluated by the primary clinical faculty member precepting the student. VCOM uses a competency based evaluation form which includes the osteopathic core competencies. These competencies evaluated include:

- a. Medical knowledge;
- b. Communication;
- c. Physical exam skills;
- d. Problem solving and clinical decision making;
- e. Professionalism and ethics;
- f. Osteopathic specific competencies; and
- g. Additional VCOM values.

Student competency is judged on clinical skill performance. Each skill is rated as to how often the student performs the skill appropriately (i.e. unacceptable, below expectation, meets expectation, above expectation, exceptional).

#### C. Procedure and Reading Assignment Log

Students are required to maintain a log to identify the procedures performed, and the number of essential patient encounters. The log contains the surgery rotation modules with their accompanying reading assignments (269 pages). The surgery end-of-rotation exam questions will be derived directly from the designated readings found in the surgical log.

The faculty member will verify the information at the end of the rotation either online using a password signature, or by signing the log.

### IV. Credits

5 credit hours

### V. Course Texts

#### A. Required Textbooks

- Townsend, C.M., Beauchamp, R.D., Evers, B.M., & Mattox, L.L. (2016). *Sabiston textbook of surgery* (20<sup>th</sup> ed.). Philadelphia, PA: Elsevier. ISBN-13: 978-0323299879
- Kuchera, M. & Kuchera, W. (1994). *Osteopathic considerations in systemic dysfunction* (Rev 2<sup>nd</sup> ed.). Dayton, OH: Greyden Press. ISBN: 978-1570741548
- American Osteopathic Association, & Chila, A. *Foundations of osteopathic medicine* (3rd ed.). Baltimore, MD: Lippincott Williams & Wilkins. ISBN: 978-0781766715  
Available in electronic format on the VCOM Library – on LWW Osteopathic Medicine Collection

## B. Recommended Textbooks

- Silen, W. (2010). Cope's early diagnosis of the acute abdomen (22<sup>nd</sup> ed.). New York, NY: Oxford University Press. ISBN-13: 978-0199730452

## VI. Course Grading and Requirements for Successful Completion

### A. Requirements

- Attendance according to VCOM and preceptor requirements as defined in the [College Catalog and Student Handbook](#).
- Completion of all Clinical Modules in the required curriculum.
- Completion of the Aquifer Wise-MD cases from the Required Curriculum (6 hours, 20 minutes). The Summary of Case Credit button must be clicked at the end of each case in order to receive credit for the case. Be aware that the videos contain "Additional Information" sections which will also serve as material for testing.
  - Register for the Aquifer Wise-MD cases:
    - Go to <https://www.aquifer.org>
      - ❖ If you are a first-time user:
        - Click "Sign in" in the top right corner.
        - Enter your institutional email address in the email box. Then click on the "Register" button at the bottom of the page.
        - You will be sent an email with a link to complete registration. Upon receipt of the registration email, click on the link "Click Here". You will then be brought to the profile setup page. An email will be sent to you. Follow the instructions in the email to setup your account.
        - You will be asked to fill in your profile information and set up a password (8 character minimum). Once you have completed your user profile and created a password, you will receive a welcome email with links to useful information and guides. You would also be logged into the Aqueduct learning management system.
        - Once your profile is completed successfully, you will be brought to your institution's Course page.
        - You will also receive a "Thank you for registering with Aquifer" email with links to tools, resources, and Aquifer news.
      - ❖ If you are a returning user:
        - Click "Sign in" in the top right corner.
        - Please log in with your institutional email and account password and click "Sign In".
  - Procedure and Reading Assignment Log:

Students are required to maintain a log to identify the procedures performed, and the number of essential patient encounters. The log also contains the required reading assignments (269 pages). The surgery end-of-rotation exam questions will be derived directly from the designated readings found in the surgical log.

    - Please submit completed procedure logs electronically on the VCOM Portal by the last day of the rotation.
    - [Please print out a copy of the procedure log.](#)
    - During the rotation, keep track of the number of each procedures you perform or witness.

- At the end of the rotation, your preceptor must review and sign the procedure log.
- Input the number of each procedure into the electronic log on the Portal once rotation has been completed. Please see the website at: [www.vcom.edu/sites/default/files/clinical/files/Online%20Procedure%20Logs%20Instructions.pdf](http://www.vcom.edu/sites/default/files/clinical/files/Online%20Procedure%20Logs%20Instructions.pdf) for instructions. Note: Once this information is submitted, you cannot re-enter the log on the Portal.
- Keep the signed paper copy for your records. (It does not need to be turned into the site coordinator or VCOM.)
- Rotation Evaluations:
  - Student Site Evaluation: Students must complete and submit at the end of rotation. See the VCOM website at: <http://intranet.vcom.vt.edu/clinical/Login/index.cfm?fuseaction=LoginInfo&LoginPage=ViewStudentSchedule> to access the evaluation form.
  - Third-Year Preceptor Evaluation: It is the student's responsibility to ensure that all clinical evaluation forms are completed and submitted online or turned in to the Site Coordinator or the Clinical Affairs Office at the completion of each rotation. Students should inform the Clinical Affairs Office of any difficulty in obtaining an evaluation by the preceptor at the end of that rotation. See the VCOM website at: [www.vcom.edu/academics/clinical-forms](http://www.vcom.edu/academics/clinical-forms) to access the evaluation form.
  - Mid-Rotation Evaluation: The mid-rotation evaluation form is not required but highly recommended. See the VCOM website at: [www.vcom.edu/academics/clinical-forms](http://www.vcom.edu/academics/clinical-forms) to access the mid-rotation evaluation form.
- Completion of the [Surgery Learning Contract](#). Your learning contract must be submitted to the Surgery Administrative Assistant on your campus at the end of your rotation.
- Successful completion of the end-of-rotation written exam. The end-of-rotation exam questions will be derived directly from the specific objectives presented in each of the below modules.

## B. Grading

Students must pass both the "module" and "rotation" portions of the course. All rotations have a clinical rotation grade and clinical modules/exam grade. The clinical rotation grade uses the Honors, High Pass, Pass, Fail system; these grades are not calculated in the GPA. The rotation modules are assigned an exam grade.

Clinical Grading Scale and GPAs						
OMS 3 End-of-Rotation Exam Grades			OMS 3 AND OMS 4 Clinical Rotation Grades		Other Grades	
A	90-100	4.0	H	Honors	IP	In Progress
B+	85-89	3.5	HP	High Pass	INC	Incomplete
B	80-84	3.0	P	Pass	CP	Conditional Pass
C+	75-79	2.5	F	Fail	R	Repeat
C	70-74	2.0			Au	Audit
F	<70	0.0				

## B. Remediation

Students who fail one or more rotations or one or more end-of-rotation exams twice will be referred to the Promotion Board. If a student fails the professionalism and ethics portion of the evaluation he or she may be removed from the rotation and referred to the Professionalism and Ethics Standards Board. No grade will be changed unless the Office of Clinical Affairs certifies to the Registrar, in writing, that an error occurred or that the remediation results in a grade change.

- **Failure of an End-of-Rotation Exam**

Students must pass each end of rotation exam with a C (70%) or better to receive a passing grade for the clinical medical knowledge module. Students who fail an end of rotation exam but pass the clinical rotation evaluation component have a second opportunity to pass the exam within 30 days of notification. If the student passes the remediation exam, the remediated exam grade will be the grade recorded on the transcript and be GPA accountable. If the student fails the second attempt at the end-of-rotation exam, an F is recorded for the exam grade, and the student will be brought before the Promotion Board.

- **Failure of a Rotation**

The student who does not receive a satisfactory evaluation for a clinical rotation in the second semester will receive a failing grade for the rotation and will be brought before the Promotion Board. If the student is allowed to repeat the rotation, all components of the rotation must be repeated. In this case, the "F" grade remains the permanent grade for the first rotation and the student will receive a new grade for the repeated rotation. The grade will be recorded in a manner that designates that it is a repeated rotation (eg. R-pass).

- **Failure to Make Academic Progress**

Repeated poor or a failing performance in a specific competency area on the evaluation form across more than one rotation may also be a reason for a required remediation at the discretion of the Associate Dean for Clinical Affairs in consultation with the clinical chair and the preceptor, and the Promotion Board. In general, rotations should show a progression of improvement in clinical performance. Those students who continually score in the "unsatisfactory" category or repeated "performs some of the time, but needs improvement" and who do not improve over time may be deemed as not making academic progress and, as a result, may be referred to the Promotion Board and be required to complete additional curriculum.

Poor ratings on the clinical rotation evaluation in the professional and ethical areas of the assessment are addressed by the Associate Dean for Clinical Affairs. The Associate Dean may design a remediation appropriate to correct the behavior or if needed may refer the student to the Professionalism and Ethics Board. In the case of repeated concerns in a professional and/or ethical area, the Associate Dean for Clinical Affairs may refer the student to the Campus Dean for a Behavioral Board or Promotion Board hearing. The Campus Dean will act upon this referral depending on the severity and the area of the performance measure. Poor ratings in this area will include comments as to the exact nature of the rating.

## **VII. Academic Expectations**

Grading policies, academic progress, and graduation requirements may be found in the *College Catalog and Student Handbook* at: <http://www.vcom.edu/handbooks/catalog/index.html>

### **A. Attendance**

Attendance for all clinical rotations is mandatory. Students are required to work a minimum of 20 days in a four week rotation period but should not work greater than 12 out of every 14 days or more than 12 hours daily exclusive of call assignments. Students may be required to work up to 24 days in a 4 week period or 25 days in a one month rotation including call and weekends at the discretion of the clinical faculty member providing the educational experience. For those rotations consisting of shift work such as Emergency Medicine or Hospitalist services, students should work a minimum of 160 and up to 200 hours for the month as required by the clinical site.

It should be noted that preceptors will have final determination of the distribution of hours, which may vary from this policy but should not in general be less than 160 hours.

Students must complete an Excused Absence Clinical Rotations Approval form. Forms are available at: [www.vcom.edu/academics/clinical-forms](http://www.vcom.edu/academics/clinical-forms). The Office of Clinical Affairs requires that the medical student complete and submit this form for any time "away" from clinical rotations. The student must have this form signed by their preceptor and others designated on the form to obtain an excused absence. The form must be completed prior to the beginning of the leave. If an emergency does not allow the student to submit this prior to the absence, the "Excused Absence Clinical Rotations Approval" form must be submitted as soon as the student is physically able to complete the form. In addition to completion of the form, students must contact the Department of Clinical Affairs by 8:00 AM of the day they will be absent due to an illness or emergency and contact the Site Coordinator and preceptor(s). No excused absence will be granted after the fact except in emergencies as verified by the Associate Dean for Clinical Affairs. Regardless of an excused absence, students must complete a minimum of 160 hours.

OMS 3 students who have any unexcused absences will be referred to the Promotion Board and/or Professional and Ethics Standards Board as determined by the Associate Dean. Clinical site coordinators and preceptors document attendance on the student's rotation evaluation form. This information is reviewed by the Director of 3rd Year Clinical Rotations and the Associate Dean for Clinical Affairs.

A student is expected to arrive on time to all clinical rotations. If a student is late, he or she must notify the site coordinator and the preceptor prior to or at the time they are scheduled arrive. Students must have a reason for being late such as illness or vehicle issues and it is not anticipated that this would occur more than one occasion AND it is important the student call in prior to being late. Repeated tardiness is a reason for a referral to the Promotion Board and/or Professional and Ethics Standards Board as determined by the Associate Dean.

Any time missed must be remediated during the course of the month for credit to be issued. Students may remediate up to four missed days or 48 hours missed during any rotation period by working on normal days off.

## **VIII. Professionalism and Ethics**

It is advised that students review and adhere to all behavioral policies including attendance, plagiarism, dress code, and other aspects of professionalism. Behavioral policies may be found in the *College Catalog and Student Handbook* at: <http://www.vcom.edu/handbooks/catalog/index.html>

### **A. VCOM Honor Code**

The VCOM Honor Code is based on the fundamental belief that every student is worthy of trust and that trusting a student is an integral component in making them worthy of trust. Consistent with honor code policy, by beginning this exam, I certify that I have neither given nor received any unauthorized assistance on this assignment, where "unauthorized assistance" is as defined by the Honor Code Committee. By beginning and submitting this exam, I am confirming adherence to the VCOM Honor Code. A full description of the VCOM Honor Code can be found in the *College Catalog and Student Handbook* at: <http://www.vcom.edu/handbooks/catalog/index.html>

## **IX. Pre-requisites to a Successful Clerkship**

Prior to beginning the rotation it would be advisable to review the [Video on Scrubbing technique](#) found on VCOM-TV.

## X. Clinical Modules

### 1. Acute Abdomen

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1120-1136

**Learning Objectives:**

- i. Define what is meant by Acute Abdomen
- ii. Discuss the anatomy of the region
- iii. Describe the investigative studies used in the workup of the acute abdomen
- iv. Discuss the role of laparoscopy
- v. Develop a differential diagnosis for a patient with an acute abdomen
- vi. Describe the algorithm for management of the acute abdomen
- vii. Describe the indications and preparation for surgical exploration
- viii. Discuss pre-operative management
- ix. Discuss the preparation for emergency surgery

### 2. Adrenal Masses

**Reading Assignment:** Sabiston Textbook of Surgery, pages 963-994, 996

**Online Case:** [Aquifer Wise-MD – Adrenal Adenoma](#)

**Learning Objectives:**

- i. Define the work-up of an adrenal mass noted incidentally (incidentaloma) on a CT scan
- ii. Define the basic physiology of aldosterone secreting tumors (Conn syndrome)
- iii. Define the basic physiology of pheochromocytoma. Understand the basic diagnostic work-up. Learn the rule of 10's as a mnemonic tool (10% malignant, 10% bilateral, 10% extra-adrenal, 10% familial p980). Define which MEN syndrome is related to pheochromocytoma
- iv. Define glucocorticoid physiology and the difference between Cushing syndrome and Cushing disease
- v. Identify the characteristics of adrenal cortical carcinomas (size, symptoms, CT appearance)
- vi. Identify the indications for, and the risks and benefits of, biopsy of an adrenal mass
- vii. Compare open versus laparoscopic adrenalectomy and define the major complications of adrenal surgery and the anatomy of the region

### 3. Anorectal Disease

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1394-1415

**Online Case:** [Aquifer Wise-MD - Anorectal Disease](#)

**Learning Objectives:**

- i. Identify the important anatomical landmarks of the anorectal area
- ii. Define the causes and treatment of pelvic floor disorders, including incontinence
- iii. Define the causes and treatment of pelvic floor disorders, including:
  - a. urinary obstruction
  - b. rectal prolapse
- iv. List a differential diagnosis for a patient with perianal pain
- v. Identify the signs, symptoms and treatment plan, including non-operative intervention and timing, for the following conditions. Discuss the characteristic history including, character and duration of complaint, presence or absence of associated bleeding and relationship of complaint to defecation. Indicate in which part of exam (external, digital, anoscopic, or proctoscopic) these findings are identified.
  - a. Hemorrhoids
  - b. Anal fissures
  - c. Perianal fistulas
  - d. Perianal abscess

- e. Pilonidal disease
- f. Hidradenitis
- g. Perianal condyloma
- h. Crohn's Disease
- i. Anal tumors

#### 4. Appendicitis

**Reading Assignment:** Sabiston Textbook of Surgery, pages 348, 1296-1309

**Online Case:** [Aquifer Wise-MD - Appendicitis](#)

**Learning Objectives:**

- i. Describe the anatomy of the appendix and its relation to other abdominal and retroperitoneal structures
- ii. Describe the pathophysiology and clinical presentation of acute appendicitis. Discuss its diagnosis and differential diagnosis (be specific regarding different age groups and male vs. female)
- iii. Describe the diagnostic algorithm for appendicitis
- iv. Describe the management of uncomplicated appendicitis
- v. Discuss perforated appendix and an appendiceal abscess
- vi. Discuss chronic or recurring appendicitis
- vii. Describe appendicitis occurring in the elderly.
- viii. Describe the diagnosis and treatment of appendiceal cancer.
- ix. Recognize the special physical signs that are relevant to appendicitis:
  - a. McBurney's Point tenderness
  - b. Positive Rovsing's Sign
  - c. Positive Psoas Sign

#### 5. Anesthesia

**Reading Assignment:** Sabiston Textbook of Surgery, pages 368-384

**Learning Objectives:**

- i. Describe preoperative evaluation for the patient undergoing anesthesia
- ii. Describe airway assessment
- iii. Describe assessment of physical status using the ASA classification
- iv. Recognize the risks of death or major complications with anesthesia
- v. Discuss the pharmacology and risks of local anesthetics
- vi. Describe the factors behind selection of anesthetic techniques.
- vii. Identify the benefits and risks among the regional anesthetic techniques including Local, Spinal, Epidural and peripheral blocks.
- viii. Describe "Conscious Sedation", its benefits and risks.
- ix. Recognize malignant hyperthermia and its treatment
- x. Recognize potential complications in post-anesthesia care:
  - a. respiratory complications
  - b. nausea and vomiting
  - c. hypothermia
  - d. circulatory complications

## 6. Bowel Obstruction

**Reading Assignment:** Sabiston Textbook of Surgery, pages 306-307, 347-348, 1247-1254, 1336-1339

**Online Case:** [Aquifer Wise-MD – Bowel Obstruction](#)

### Learning Objectives:

- i. Describe the pathophysiology behind SBO and its typical etiologies
- ii. Discuss the clinical manifestations and diagnosis of SBO including:
  - a. history
  - b. physical examination
  - c. radiologic and laboratory studies
- iii. Describe the causes of and the terms used to describe ileus and postoperative bowel obstruction
- iv. Discuss the nuances of simple versus strangulated obstruction
- v. Describe diagnostic modalities for diagnosing SBO.
- vi. Discuss treatment of SBO to include:
  - a. fluid resuscitation and antibiotics
  - b. tube decompression
  - c. operative management
- vii. Describe the unique aspects of etiology, diagnosis, and treatment of SBO in the geriatric population.
- viii. Discuss the presentation of patients with postoperative small bowel obstruction (SBO)
- ix. Discuss management of specific SBO issues including:
  - a. recurrent intestinal obstruction
  - b. acute postoperative obstruction
  - c. ileus
- x. Discuss the classification, diagnosis and treatment of Large Bowel Obstruction (LBO) and pseudo obstruction
- xi. Describe Ogilvie's Syndrome
- xii. Discuss the diagnosis and treatment of LBO.

## 7. Burn Management

**Reading Assignment:** Sabiston Textbook of Surgery, pages 505-529

**Online Case:** [Aquifer Wise-MD – Burn Management](#)

### Learning Objectives:

- i. Describe the more common types of burns and the most common types of burns and their mechanisms of injury.
- ii. Recognize the role of education and prevention.
- iii. Recognize the difference between chemical, electrical and thermal injuries
- iv. Define first, second, and third degree burns
- v. Define emergency care of first and uncomplicated second degree burns
- vi. Define the rule of Nines for burn assessment
- vii. Define criteria for transfer to a major burn center
- viii. Recognize the rationale for burn resuscitation for major burns
- ix. Recognize the Parkland and similar formulas and recognize the magnitude of fluid that may be required to manage a major burn
- x. Recognize inhalational injury - the importance of careful assessment of patients burned in closed spaces (apartments, garages, etc.)
- xi. Recognize the necessity of tetanus prophylaxis in burns
- xii. Recognize the basics of treatment of chemical burns in the emergency setting

## 8. Cholecystitis and Biliary System Disease

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1482-1512

**Online Case:** [Aquifer Wise-MD – Cholecystitis](#)

### Learning Objectives:

- i. Describe the anatomical arrangement of the hepatobiliary system
- ii. Discuss the general considerations of biliary tree disease, including:
  - a. biliary colic
  - b. fever
  - c. jaundice
  - d. cholangitis
- iii. Identify pertinent historical and physical examination facts related to gallbladder disease, including:
  - a. gallstones
  - b. acute and chronic cholecystitis
  - c. emphysematous cholecystitis
  - d. gallstone ileus
  - e. bacterial cholangitis
  - f. choledocholithiasis
  - g. biliary dyskinesia
  - h. Sphincter of Oddi dysfunction
- iv. Differentiate among the various diagnostic modalities used to diagnose hepatobiliary disease (ultrasonography, CT scan, HIDA scan, MRCP)
- v. Describe treatment options for the above hepatobiliary disorders including laparoscopic or open cholecystectomy and ERCP
- vi. Describe the indications for selective cholangiography
- vii. Discuss the complications in dealing with these disorders, including:
  - a. bile duct injury
  - b. lost stones
  - c. postcholecystectomy pain
  - d. retained biliary stones
  - e. biliary leak
- viii. Describe the recognition and treatment of post cholecystectomy syndromes
- ix. Discuss noncalculous biliary disease, its diagnosis and management

## 9. Colon Cancer

**Reading Assignment:** Sabiston Textbook of Surgery, pages 348-350, 1359-1381

**Online Case:** [Aquifer Wise-MD – Colon Cancer](#)

### Learning Objectives:

- i. Discuss colorectal cancer genetics and specific genetic mutations
  - a. Describe what is meant by “mismatch repair genes
  - b. Discuss the adenoma-carcinoma sequence
  - c. Discuss Lynch syndrome
- ii. Describe Colorectal polyps, their diagnosis and management
- iii. Describe the epidemiology of colorectal cancer regarding prevalence in different parts of the colon, age at diagnosis, gender predilection (if any), frequency of hereditary versus sporadic.
- iv. Discuss the importance of screening colonoscopy as a way to decrease colorectal cancer mortality
- v. Describe the preoperative workup (staging) for a patient diagnosed with colorectal cancer
- vi. Discuss the surgical management of colon cancer with respect to the location in the colon.
- vii. Discuss the role of chemotherapy in colorectal cancer and the role of radiotherapy for colorectal cancer
- viii. Describe the main postoperative complications for colon resections for colorectal carcinoma

- ix. Describe the indications for temporary and permanent colostomy, including rectal cancer, Hartmann's Procedure, large bowel obstruction (diverting colostomy)

## 10. Disease of the Breast

**Reading Assignment:** Sabiston Textbook of Surgery, pages 820-861

**Online Case:** [Aquifer Wise-MD – Breast Cancer](#)

### Learning Objectives:

- i. Recognize the anatomy of the breast and its lymphatic drainage
- ii. Describe breast development and physiology, both normal and abnormal
- iii. Describe the diagnosis of breast disease (breast cancer, fibro-adenoma, breast cysts, fibrocystic change, papilloma) and the use of radiographic-guided needle biopsy techniques for diagnosis
- iv. Describe breast imaging (mammography, ultrasonography, MRI) and the limitations of each modality.
- v. Identify and manage high-risk breast patients
  - a. Describe the Gail model and how it is useful to primary care physicians.
  - b. Describe the more common genetic aberrations that lead to an increase in risk for development of breast cancer
- vi. Describe benign breast tumors and related diseases with attention to diagnosis and treatment
  - a. Recognize breast pain vs. chest wall pain and the differential diagnosis and treatment
  - b. Describe treatment options for cyclical breast pain
  - c. Define pathologic nipple discharge and its work-up and treatment
- vii. Describe staging systems (TNM) used in breast cancer and the more common pathologic types
- viii. Discuss the surgical treatment issues in breast cancer
  - a. Breast preservation vs. mastectomy
  - b. Sentinel node biopsy
  - c. Post-mastectomy reconstruction
- ix. Describe the modern concept of breast cancer classification using molecular markers.
- x. Discuss adjuvant chemo- and radio- therapies
- xi. Describe recognition and treatment of special conditions including:
  - a. Disease in the elderly
  - b. Chronic subareolar breast abscesses
  - c. Paget's disease
  - d. Breast cancer in men

## 11. Diverticulitis

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1330-1334

**Online Case:** [Aquifer Wise-MD – Diverticulitis](#)

### Learning Objectives:

- i. Define diverticular disease
- ii. Discuss the anatomy and pathogenesis of diverticular disease.
- iii. Describe the Hinchey Classification used to assess severity of disease.
- iv. Compare the diagnosis and treatment of uncomplicated and complicated diverticulitis.
- v. Define a treatment algorithm based on pathology (perforated vs. nonperforated, abscess vs. no abscess etc.)
- vi. Define the impact of patient condition, physical findings such as localized or generalized peritonitis, and CT findings on your treatment plan
- vii. Identify the appropriate antibiotics for treatment of diverticulitis
- viii. Identify which patients require interventional radiology for abscess drainage
- ix. Define which patients require urgent surgical intervention
- x. Define which patients require a colostomy
- xi. Describe the surgical technique for primary anastomosis and Hartmann's procedure
- xii. Describe the management of patients with recurrent diverticulitis

- xiii. Discuss the diagnosis and treatment of complications of diverticulitis including abscess, fistula, generalized peritonitis, pneumoperitoneum, bowel stricture/obstruction.

## 12. Inguinal Hernia

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1092-1106

**Online Case:** [Aquifer Wise-MD – Inguinal Hernia](#)

### Learning Objectives:

- i. Describe the epidemiology of inguinal hernia (Age, gender, activities, etc.)
- ii. Describe the anatomy of the inguinal region as it pertains to indirect, direct, and femoral hernias
- iii. Define the key historical and physical findings in the diagnosis of an inguinal hernia.
- iv. List the differential diagnosis for:
  - a. groin masses
  - b. scrotal masses
- v. Define nonoperative management of an inguinal hernia
- vi. Define the operative management of inguinal hernias.
- vii. Define the diagnosis and management of a:
  - a. sliding inguinal hernia.
  - b. strangulated inguinal hernia.
  - c. bilateral inguinal hernias.
- viii. Define surgical site infection as a complication of inguinal hernia repair
- ix. Define the nerve injuries that occur as a complication of inguinal hernia repair
- x. Define injury to the spermatic cord, ischemic orchitis and testicular atrophy as a complication of inguinal hernia repair
- xi. Define inguinal hernia recurrence as a complication of inguinal hernia repair
- xii. List the pros and cons of open vs. laparoscopic repair of inguinal hernias including the rationale for using synthetic mesh for most inguinal hernia repairs.

## 13. Lung Cancer

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1582-1592

**Online Case:** [Aquifer Wise-MD – Lung Cancer](#)

### Learning Objectives:

- i. Identify the epidemiology of lung cancer (prevalence, relation to gender and age, risk factors)
- ii. Compare the difference between the predominant pathologic types (adenocarcinoma, squamous cell carcinoma, and small cell carcinoma)
- iii. Define the role of helical CT screening in high risk individuals
- iv. Define the role of surgery and surgical staging in the treatment of lung cancer

## 14. Pancreatic Disease

**Reading Assignment:** Sabiston Textbook of Surgery, pages 1524-1552

**Online Case:** [Aquifer Wise-MD – Pancreatitis](#)

### Learning Objectives:

- i. Define and classify pancreatitis
- ii. Describe the risk factors associated with acute pancreatitis (AP)
- iii. Define the pathophysiology of AP
- iv. Define the clinical manifestations of AP
- v. Define the diagnosis and differential diagnosis of AP
- vi. Define the treatment for an episode of AP
- vii. Define the role of ERCP in the treatment of AP
- viii. Define the role of laparoscopic cholecystectomy in the treatment of acute pancreatitis
- ix. Define the treatment of complications of pancreatitis including:
  - a. Peripancreatic fluid collections
  - b. pancreatic necrosis

- c. pancreatic pseudocysts
- d. pancreatic ascites
- e. pancreatocutaneous fistula
- f. vascular complications
- x. Define the assessment tools used for prognosis including Ranson's Criteria for non-gallstone pancreatitis
- xi. Define the pathology, etiology, diagnosis and treatment of chronic pancreatitis
- xii. Define the management of chronic pain associated with pancreatitis
- xiii. Define malignant pancreatic tumors, their diagnosis, treatment and prognosis

## 15. Pediatric Inguinal Hernia and Hydrocele

**Reading Assignment:** Sabiston Textbook of Surgery, page 1884

**Online Case:** [Aquifer Wise-MD – Pediatric Surgery: Hernia and Hydrocele](#)

**Learning Objectives:**

- i. Define testicular descent and its relationship to pediatric inguinal hernias
- ii. Define the approach to a groin mass in a child
- iii. Identify the type of inguinal hernia that is most common in infants and children
- iv. Define reducible and non-reducible hernia
- v. Define the anatomy of an inguinal hernia including open vs obliterated processes vaginalis
- vi. Define the anatomy of a hydrocele in a child.
- vii. Define communicating hydrocele
- viii. Define non-communicating hydrocele
- ix. Define the surgical approach to inguinal hernias in children
- x. List the complications related to inguinal hernias in children

## 16. Principles of Preoperative, Operative, and Postoperative Surgery

**Reading Assignment:** Sabiston Textbook of Surgery, pages 202-231

**Learning Objectives:**

- i. Describe pre-operative, peri-operative and post-operative periods.
- ii. Describe the goal of a pre-operative evaluation.
- iii. Describe the top patient risk factors most predictive of post-operative mortality.
- iv. Describe the system used to categorize general risk using the American Society of Anesthesiologist (ASA) classification
- v. Describe a systems approach to preoperative evaluation considering the following topics:
  - a. Cardiovascular
    - 1. Revised Cardiac Risk Index using six predictors
    - 2. "Stepwise approach to preoperative cardiac assessment for non-cardiac surgery".
    - 3. Timing of surgery after PTCA and MI
    - 4. Ability to climb stairs
  - b. Pulmonary
    - 1. Indications for PFT's
    - 2. Risk factors for post-op complications
  - c. Renal
    - 1. Relationship to cardiac complications
    - 2. Timing of dialysis
  - d. Hepatobiliary
    - 1. Child-Pugh classification
  - e. Endocrine
    - 1. Insulin dosing
    - 2. Steroid dosing
  - f. Immunologic
    - 1. Steroids, sirolimus

- g. Hematologic
  - 1. Guidelines for RBC transfusion
  - 2. Management of patients on chronic anticoagulation
- vi. Define the considerations given to the following surgical issues:
  - a. Age
  - b. Risk factors for post-op delirium
  - c. Nutritional status
  - d. Obesity
- vii. Identify indications for antibiotic prophylaxis based on the types of operative wounds listed by the National Research Council
- viii. Identify the logic and evidence of pre-operative fasting.
- ix. Recognize the usual presentation and treatment for the following causes of intra-operative instability:
  - a. Myocardial infarction
  - b. Pulmonary embolism
  - c. Pneumothorax
  - d. Malignant hyperthermia
  - e. Anaphylaxis and latex allergy
- x. Recognize Universal Protocol with respect to Wrong-Site Surgery

## 17. Pyloric Stenosis

**Reading Assignment:** Sabiston Textbook of Surgery, page 1869

**Online Case:** [Aquifer Wise-MD – Pediatric Surgery: Pyloric Stenosis](#)

### Learning Objectives:

- i. Define the evaluation of the vomiting infant, specifically bilious vs non-bilious vomiting.
- ii. Define the typical history of a patient with hypertrophic pyloric stenosis (HPS)
- iii. Define the typical clinical presentation of a patient with HPS
- iv. Define the typical physical findings in an infant with HPS
- v. Define the important aspects of preoperative fluid and electrolyte management including the typical acid base abnormality
- vi. Define the options for preoperative imaging studies for HPS
- vii. Define the appropriate timing of surgical intervention
- viii. Define the surgical treatment of HPS.
- ix. List the possible complications of the surgical treatment of HPS and their management.

## 18. Skin Cancer

**Reading Assignment:** Sabiston Textbook of Surgery, pages 724-750

**Online Case:** [Aquifer Wise-MD – Skin Cancer](#)

### Learning Objectives:

- i. Describe risk factors and treatment options for Basal Cell Carcinoma
- ii. Describe risk factors and treatment options for Squamous Cell Carcinoma
- iii. Define measures to prevent skin cancers
- iv. Recognize the ABCDEs of melanoma
- v. Recognize the risk factors for melanoma including pre-existing lesions and association with other cancers with gene mutations
- vi. Describe Breslow's thickness and recognize Clark's levels and their relevance to prognosis, treatment and survival
- vii. Describe the surgical treatment options for melanoma including width of surgical margins and indications for sentinel node biopsy
- viii. Describe the indication for sentinel node biopsy and subsequent treatment in the biopsy is positive
- ix. Recognize treatment alternatives for metastatic melanoma

- x. Recognize the risk of developing skin cancer in transplant patients and the necessity for life-long surveillance
- xi. Define Merkel Cell Carcinoma

## 19. Surgical Treatment of Thyroid Disease

**Reading Assignment:** Sabiston Textbook of Surgery, pages 881-920

**Online Case:** [Aquifer Wise-MD – Thyroid Nodule](#)

### Learning Objectives:

- i. Discuss the epidemiology of thyroid nodules (changing prevalence, gender variance, predisposing conditions)
- ii. Describe the typical symptoms of goiter and hyperthyroidism and the physical examination of the thyroid gland
- iii. Describe the work-up of thyroid nodules (TSH, ultrasound, fine needle aspiration).
- iv. Describe the indications (and alternative treatments) for surgical treatment of thyroid disease including: thyroid nodules, thyroid cancer, and hyperthyroidis
- v. Describe the general conduct of thyroid surgery including the relevant anatomy and common complications, including recurrent laryngeal nerve injury and parathyroid gland injury
- vi. Compare the four major types of thyroid cancer and differentiate them according to: prognosis, potential sites of metastases, need for post-operative treatment (radio-iodine, chemotherapy, etc.)

## 20. Trauma Resuscitation

**Reading Assignment:** Sabiston Textbook of Surgery, pages 413-417

**Online Case:** [Aquifer Wise-MD – Trauma Resuscitation](#)

### Learning Objectives:

- i. Describe the ABCDE of the primary survey
- ii. Describe airway management including indications and means of definitive airway control including:
  - a. Endotracheal intubation
  - b. Cricothyroidotomy
- iii. Recognize basic chest injuries and their treatment including
  - a. Simple pneumothorax
  - b. Tension pneumothorax
  - c. Hemothorax
  - d. Flail chest
- iv. Define means to determine adequacy of circulation
- v. Define means to control external bleeding
- vi. Define means to gain emergent vascular access including intraosseous needle insertion and the Seldinger technique for central venous access
- vii. Define means to determine neurologic deficits including the Glasgow Coma Score and AVPU
- viii. Define the steps and importance of complete patient exposure including log rolling, identification of a spinal “step off”, digital rectal exam, and the prevention of hypothermia
- ix. Define the secondary survey
- x. Define the role of the trauma team leader

## 21. Osteopathic Manipulative Medicine for the Surgical Patient

### A. Abdominal Pain

#### Reading Assignment:

- Foundations of Osteopathic Medicine, Chapter 68: Abdominal Pain, pages 999-1005

#### Learning Objectives:

- Identify five models of osteopathic patient care that may be utilized in the management of patients with abdominal pain.
- Identify 3 ways osteopathic treatment may still benefit a patient in which OMT is not considered the primary treatment for the patient.
- List the steps of the THOMAS TEST (regarding psoas spasm). Identify one condition that will give a false positive test and one condition that may result in a false negative test.
- Identify 4 positions associated with psoas spasm and the mechanism that may initiate psoas muscle spasm
- Describe the common osteopathic structural findings associated with psoas syndrome.
- Identify the steps that follow the obstruction of a hollow viscous and lead to ischemia (metabolic energy model).
- Identify 3 behavioral issues that may cause abdominal pain (behavioral model).
- Describe the mechanism that explains why visceral pain is initially perceived as vague in location and quality (neurological model).
- Describe the theory of referred pain (neurological model) and identify where gallbladder pain may be referred to.

### B. Lower Bowel Disorders

#### Reading Assignment: Osteopathic Considerations in Systemic Dysfunction, Lower Bowel Disorders, pages 95-106

#### Learning Objectives:

- List the areas of sympathetic hyperactivity that may reflect a gastrointestinal disease process.
- List the signs symptoms associated with hypersympathetic stimulation of the lower GI system.
- Describe the parasympathetic innervation to the colon.
- Describe the structural and physiological association between the drainage of lymphatic fluid from the intestines and the thoracic diaphragm.
- List the signs symptoms associated with parasympathetic hyperactivity of the lower GI system
- List the signs symptoms associated with parasympathetic hypoactivity of the lower GI system
- Describe the suggested protocol for providing Osteopathic manipulative treatment for post-operative patients stages (I, II, III)
- Describe supportive manipulation for patients with sympathetic dominant colon complaints (constipation, abdominal pain, flatulence, distention)
- Describe supportive manipulation for patients with parasympathetic dominant colon complaints (headache, nausea, vomiting diarrhea , cramps)
- Describe supportive manipulation for patients with other related complaints in all diseases of the colon where lymphatic congestion may be a problem.