



## **University of Illinois, Metropolitan Group Hospitals Program in General Surgery**

**Rotation Title:** Service B – AIMMC

**Level of Training:** PGY I: One month, PGY II, and V: Two months

**Attending in Charge of Rotation:** Dr. Vijay K. Maker (Chairman Surgery)

**Faculty:** Dr. Vijay K. Maker, Dr. Terrence Lerner, Dr. Marek Rudnicki, Dr. Ajay Maker, Dr. Ashwin Shah, Dr. Allan Fredland, Dr. Richard Fantus, Dr. Michelle Mellett, Dr. Rebecca Rico, Dr. Estrada, Dr. Maitar, and Dr. Sundaresan.

### **Rotation description:**

General surgery rotation at Masonic consists of two services each with a component of wide spectrum of general surgery cases, and surgical oncology. Service B is the chairman service with very heavy reliance on the surgical education, cognitive thinking, and developing a process of learning complicated basic science and surgical problems. This again is very busy service with predominance in oncologic, endocrine, hepatobiliary and surgical research. The service also has abundance of bread and butter general surgical elective and emergency cases. The service also teaches the autonomy. The senior resident on the service is the site administrative chief.

### **Responsibilities of Chief Resident**

The chief resident's responsibilities are divided into academic, clinical and administrative.

### **Academic responsibilities**

- Preparation of the daily morning conference schedule
- The chief resident will work with the site program director to develop, assign and moderate topics for discussion.
- The chief resident is to report all surgical morbidities and mortalities and, in conjunction with the chairman of the department, prepare and research the pertinent literature for their presentation.
- Teaching of residents, medical students during daily rounds, in the operating room, and at every opportunity

### **Clinical responsibilities**

- Organize the day-to-day coverage of the OR cases, floor and ER coverage
- Assist and supervise the junior residents in daily care of patients. The Chief resident will round with the junior residents and provide them with direction in carrying our managements plan for all patients
- The Chief resident will ensure that adequate chart documentation occurs on all patients, and that residents complete dictations.
- Operating room attendance at the majority of the team's cases is expected. The Chief resident's role will vary according to the case and the learning requirements of the junior members. The chief resident will act as a teaching assistant to junior resident on appropriate cases.
- All chief residents are expected to attend the OR in a timely fashion to help with patient positioning and to become familiar with the patient's chart if the case is being done on an outpatient basis.
- Available to assist junior residents with management of ER patients especially the very sick and or the complex patients.
- The chief resident is responsible to provide an operative experience commensurate with the training level of the resident to maximize the educational benefit for all residents.
- Each afternoon the chief resident is to review the entire inpatient service with the team and to call the attending-on-call with an update. This review will also serve as sign out rounds for the on-call team, as a continuity of care.
- Service B will do upper/lower endoscopy on Friday mornings with Dr. Maitar and Dr. Sundaresan. Residents are responsible for pre-operative knowledge of patient condition and procedural duties.

### **Administrative responsibilities**

- Responsible for alternating home call with the other senior resident on a weekly basis
- Responsible for making call schedule
- Making sure the residents are in compliance with duty hour regulations
- Acting as liaison between the attending staff and residents.

**In the preparation for chief resident to assume the role of attending, he/she is expected to review all the new consults with intermediate resident, attend and sign the consultation notes, document in the progress note any significant event in the patient's condition, call the primary care physician and family with the plan of care.**

### **ASSESSMENT:**

Monitoring of the accomplishment of the stated objectives will be performed using the following methods:

1. 360 degree evaluation: End of rotation evaluation of resident performance to assess the Resident's demonstration of Core Competencies with respect to the stated objectives by faculty, other team resident members, students, nursing staff, and patients using multiple tools.
2. Case Logs: Auditing of operative cases pertinent to the specialty in the Surgical Operative Log.
3. Written Examination: Performance on the annual ABSITE examination, Gastrointestinal, Skin and Soft Tissue, hepatobiliary systems section.

### **Surgical Skills Advancement:**

The resident will exhibit surgical performance skills based on the following guidelines:

1. Utilize the simulation lab for improvement and experience with surgical procedures, offering the opportunity for advancement along the skills lab curriculum outlined in the simulation OSAT.
2. By the end of the rotation, have completed (per necessity) the OSAT/OSCA for the following procedures:
  - a. PGY 1: Boot camp

- b. PGY 2: Open appendectomy, open inguinal hernia repair, laparoscopic appendectomy and cholecystectomy
- c. PGY 5: Operative dictation, laparoscopic inguinal hernia repair, intra operative ultrasound, 3 D simulation of advanced surgical oncology

## **COMPETENCY BASED LEARNING OBJECTIVES**

### **Patient Care:**

1. Perform a complete and thorough history and physical examination, with emphasis in elements unique to hepatobiliary, pancreatic, and general surgery patients.
2. Understand outlined disease processes, have working knowledge of the tests to make the diagnosis and be able to initiate the appropriate labs and test. Also be able to initiate the appropriate care plan.
3. Make informed decisions about diagnostic and therapeutic interventions on general, hepatobiliary, and pancreatic surgery patients with the guidance of senior residents and faculty. In the case of chief residents, be able to do so and guide the junior resident through such process.
4. Be proficient in the preoperative preparation of the patients for general, hepatobiliary, and pancreatic surgery and routine postoperative care.
5. Understand basic pathophysiology of oncologic disease and begin to master the skills necessary to care for the ICU patient under the guidance of the senior residents and faculty members. In the case of chief residents, be able to do so and guide the junior resident through such process.
6. Understand basic pathophysiology of surgical disease, principles of resuscitation, preoperative and postoperative care of hepatobiliary, pancreatic, and general surgery patients under the guidance of the senior residents and attendings. In the case of chief residents, be able to do so and guide the junior resident through such process.
7. Understand the basic indications for common radiological and interventional studies used in the care of hepatobiliary, pancreatic, and general surgery patients such as plain chest, CT scans, non- invasive cardiac function tests, and mammography.
8. Demonstrate the ability to effectively set priorities and coordinate the care of these patients.
9. Physical Examination
  - a. To understand the significance of observational signs, such as skin color and texture, swelling, fever, and weight loss.
  - b. To detect and evaluate abdominal masses, breast masses, abnormal

mammograms.

- c. To develop the skills necessary to palpate the abdomen, neck, and extremities in order to localize sites of tenderness, enlarged lymph nodes, and to recognize the presence of masses and abnormal pulsations.
- d. To be capable of performing basic surgical evaluations.
- e. To interpret physical findings, understand how they contribute to the diagnosis, recognize their limitations, and be aware of other diseases that might mimic the findings.
- f. To be familiar with commonly used noninvasive instruments and screening modalities, such as magnetic resonance imaging (MRI), digital mammography, and computerized tomography (CT).
- g. To become familiar with the use of intraoperative ultrasound to identify liver and pancreatic masses.
- h. To become familiar with the use 3D CT reconstruction and its use in the preoperative planning of major hepatobiliary and pancreatic surgery.

## **Curriculum/Goals**

### **1. Intern:**

- 1 Maintain working knowledge of diseases processes described below
- 2 Understand preoperative work-up and post-operative management of common surgical conditions. Particular focus should be paid to management of liver and pancreatic patients
- 3 Identify and initiate appropriate treatment for acute appendicitis, acute cholecystitis, and bowel obstruction.
- 4 Understand inguinal anatomy and develop skills to assess inguinal hernias
- 5 Surgical skills (Procedures to be competent in)
  - o Pass all portions of the Skills lab curriculum
  - o Bedside incision and drainage
  - o Appendectomy
  - o Umbilical and inguinal hernias

### **2. Intermediate**

- 1 Have thorough knowledge of all outlined disease processes
- 2 Have ability to perform pre-operative work-up and post-operative care for all patients.
- 3 Surgical Skills
  - o Completion of all Skills lab curriculum
  - o Increasing independence in performing routine procedures such as

- o appendectomy and hernia repairs
- o Development of laparoscopic skills
- o Ability to adequately perform laparoscopic cholecystectomy with assistance of either senior resident or attending
- o Have ability to perform exploratory laparotomy, bowel resection... and have the ability to close the abdomen in an appropriate fashion.

3. Senior:

- 1 Have complete knowledge of all designated knowledge
- 2 Appropriately direct care of all patients as a junior attending
- 3 Have adequate knowledge and ability to perform routine cases (hernias, cholecystectomy, and routine laparotomies) independently and with assistance of junior resident.
- 4 Knowledge and ability to perform liver and pancreatic surgery with the assistance of attending.

**Medical Knowledge:**

1. Summarize the surgical procedures available for repair of the hernias:

- a. Direct, indirect, inguinal, and femoral
- b. Sliding hiatal
- c. Paraesophageal
- d. Ventral
- e. Umbilical
- f. Spigelian
- g. Paraduodenal
- h. Obturator
- i. Lumbar
- j. Parastomal
- k. Diaphragmatic
  - (1) Posterolateral (Bochdalek)
  - (2) Anterior (Morgagni)
  - (3) Traumatic
- l. Internal
- m. Petit

2. Outline the uses of prosthetic material and management of infection for incisional or recurrent hernias involving prosthetic material.

3. Explain the operative approaches (incisions) for each of the following, including

laparoscopic:

- a. Abdominal cavity: liver/biliary tract, spleen, small bowel, pelvis
- b. Neck: thyroid, parathyroid

4. Outline the techniques for wound closure (including type of suture material) for each of the incisions named in #6 immediately above.
5. Describe the use and method of placement of retention sutures.
6. Explain the rationale for use, technique for placement, and common complications associated with peritoneal dialysis catheters.
  - a. Renal failure
  - b. Management of peritoneal infections or pancreatitis
7. Assess the treatment of secondary peritoneal infections due to peritoneal dialysis catheters.
8. Describe the pathophysiology and treatment of ascites when associated with the following conditions:
  - a. Malignancy
  - b. Hepatic disease: cirrhosis, Budd Chiari Syndrome
  - c. Chylous leak
  - d. Pancreatic leak
  - e. Cardiac disease
  - f. Renal disease
  - c. Bile leak
9. Perform, record, and report complete patient evaluation and assessment.
10. Evaluate and diagnose the acute abdomen.
11. Assist with hernia repairs in the groin or umbilical regions, demonstrating a basic understanding of the anatomy and surgical repair.
12. Interpret the following in coordination with attending radiologists and staff:
  - a. Acute abdominal series (identify free air, small bowel obstruction, ileus, colonic pseudo-obstruction, volvulus; the presence of ascities, atelectasis vs. pneumonia)
  - b. Upper GI series
  - c. Abdominal ultrasound and CT scans

13. Evaluate and institute management of abdominal wound problems, including:
  - a. Infection
  - b. Evisceration
  - c. Fasciitis
  - d. Dehiscence
14. Coordinate pre- and post- operative care for the patient with the acute abdomen.
15. Assist in closure of abdominal incisions; exhibit competency in suture technique.
16. Open and close abdominal incisions of all varieties.
17. Perform laparotomy for acute abdomen, demonstrating a systematic approach for determination of the etiology of the process and appropriate measures for its management (e.g., acute appendicitis, small bowel obstruction, perforated peptic ulcer [the 5th year resident should be able to guide the more junior resident through the case]).
18. Coach a junior resident through the repair of simple hernia (indirect inguinal or umbilical). (The chief resident should be able to perform repair of any of the hernias mentioned earlier in the text.)
19. Senior resident should be able to coach junior resident through laparoscopic cholecystectomy.
21. Provide appropriate surgical drainage for any intra-abdominal abscess.
22. Serve as an effective surgical team leader.

### **Liver and Biliary Tract**

1. Describe the anatomy of the liver and biliary system, including commonly found variations.
2. Describe the physiology and function of liver and biliary system to include:
  - a. Glucose metabolism
  - b. Protein synthesis
  - c. Coagulation
  - d. Drug metabolism
  - e. Reticuloendothelial system
  - f. Function of bile in fat

## metabolism

3. Explain the formation of bile, its composition, and its function in digestion. Describe the pathophysiology of gallstone formation.
4. Correlate bile formation and composition with disease states affecting the biliary system such as gallstone formation and biliary obstruction.
5. Discuss the enterohepatic circulation of bile.
6. Discuss various types of liver cysts (echinococcal or hydatid, nonparasitic) and the appropriate management of each.
7. Summarize the etiologies and management of pyogenic and amebic hepatic abscesses.
8. Discuss the principal characteristics of and the treatment for the following:
  - a. Metastatic lesions to the liver
  - b. Primary malignancies of liver and biliary tree
  - c. Benign tumors of the liver
9. Explain types of infectious hepatitis (A, B, C) with:
  - a. Modes of transmission
  - b. Diagnosis
  - c. Time course for serologic conversion
  - d. Natural course
10. Outline the pathophysiology, evaluation, and management of the following:

a. Choledochal cysts	h. Gallstone pancreatitis
b. Caroli's disease	i. Benign biliary strictures
c. Sclerosing cholangitis	j. Acute cholecystitis
d. Primary biliary cirrhosis	k. Symptomatic gallstones
e. Secondary biliary cirrhosis	l. Acalculous cholecystitis
f. Cholangitis	m. Biliary dyskinesia
g. Gallstone ileus	
11. Analyze alternatives to surgery in the management of gallstones, such as:
  - a. Oral dissolution with ursodeoxycolic acid
  - b. Extracorporeal shock wave lithotripsy
  - c. Endoscopic sphincterotomy

12. Understand the indications for open cholecystectomy vs. laparoscopic cholecystectomy
13. Analyze the potential significance of finding a filling defect on ultrasonography or liver scan in an elderly patient. Discuss:
  - a. Frequency of metastatic cancer vs. primary tumors in liver
  - b. Correlation between incidence of gastrointestinal malignancy and increasing age
14. Assess management alternatives for common bile duct stones:
  - a. Open versus laparoscopic common bile duct exploration
  - b. ERCP
15. Since acute cholecystitis is becoming one of the more common indications for emergency admissions of elderly patients to a surgical service, specify factors contributing to its being a more complex disease in elderly vs. young patients by considering:
  - a. Incidence of comorbid disease such as diabetes
  - b. Atypical clinical presentation (right upper quadrant pain, fever, leukocytosis)
  - c. Signs of sepsis or septic shock
  - d. Jaundice
  - e. Altered mental status
16. Explain factors important to the choice of treatment options for the elderly patient with hepatobiliary disease, including:
  - a. Cardiovascular disease
  - b. Cerebrovascular disease
  - c. Renal insufficiency
  - d. Systemic hypoperfusion
  - e. Curative/palliative procedure
  - f. Quality of life issues
17. Summarize the principles of perioperative management of liver and biliary tract disease.
18. Summarize the common complications associated with surgical management of liver and biliary tract disease.
19. Coordinate overall care of patients with hepatobiliary disease including:
  - a. Initial evaluation
  - b. Appropriate diagnostic studies

- c. Indicated consultations
  - b. Operative management
20. Perform complex hepatic and biliary surgery:
- a. Anatomic liver resection
  - b. Portosystemic shunts:
    - (1) Portocaval, end-to-side and side-to-side
    - (2) Mesocaval
    - (3) Distal splenorenal (Warren)
    - (4) Central splenorenal
  - c. Complicated procedures on extrahepatic bile ducts for:
    - (1) Cholangiocarcinoma
    - (2) Choledochal cyst
    - (3) Benign biliary stricture
  - d. Liver transplant
  - e. Kasai procedure (hepatportoenterostomy)

## **Pancreas**

1. Describe the anatomy of the pancreas, including regional vascular anatomy.
2. Summarize changes that occur in the anatomy of the pancreas with aging by considering:
  - a. Duodenal C loop
  - b. Head of the pancreas
  - c. Atrophy of pancreas
  - d. Pancreatic ductal anatomy
3. Discuss the physiology of the pancreas, including endocrine and exocrine function and hormonal regulation.
  - a. Endocrine--islet cells
    - (1) Alpha (Glucagon)
    - (2) Beta (Insulin)
    - (3) Delta (Somatostatin)
    - (4) Non-Beta (pancreatic polypeptide)
  - c. Exocrine--acinar cells
    - (1) Lipase
    - (2) Amylase
  - d. Hormonal regulation
    - (1) Secretin--bicarbonate secretion
    - (2) Cholecystokinin--enzyme secretion

4. Explain the pathophysiology of pancreatitis to include:
  - a. Common etiologies such as:
    - (1) Gallstones
    - (2) Alcohol related
    - (3) Trauma
    - (4) Steroid-induced
    - (5) Postoperative
    - (6) Post endoscopic retrograde cholangiopancreatography (ERCP)
    - (7) Idiopathic
  - b. Diagnosis, evaluation, and medical management
  - c. Role of peritoneal lavage
  - d. Complications of pancreatitis, such as
    - (1) Adult respiratory distress syndrome (ARDS; Acute lung injury- ALI also used)
    - (2) Hypovolemia
    - (3) Pseudocyst
    - (4) Abscess
    - (5) Infected pancreatic necrosis
  - e. Indications for operative management of pancreatitis
  - f. Management of gallstone pancreatitis with timing of surgery
  - g. Ranson's criteria for assessing pancreatitis and its correlation with prognosis
  
5. Describe the incidence of these diseases in the elderly:
  - a. Cholelithiasis
  - b. Acute gallstone pancreatitis
  - c. Pancreatic carcinoma
  
6. Explain the pathophysiology of carcinoma of the pancreas to include:
  - a. Typical history and presentation
  - b. Diagnostic evaluation using:
    - (1) Computed axial tomography
    - (2) Ultrasound
    - (3) ERCP
    - (4) Percutaneous transhepatic cholangiography (PTC)
    - (5) Arteriography
    - (6) Laparoscopy/laparotomy
  - c. Indications for:
    - (1) Operative versus nonoperative biliary drainage

- (2) Percutaneous versus endoscopic stenting
  - (3) Resection
  - (4) Concomitant gastrojejunostomy with operative biliary bypass
7. Discuss presentation, evaluation, and management of pancreatic pseudocysts with attention to:
    - a. Complications of pseudocysts (hemorrhage, infection, rupture)
    - b. Timing of drainage
    - c. Percutaneous versus surgical drainage
    - d. Indications for external versus internal drainage
    - e. Choice of internal drainage procedure
  8. Explain the diagnosis and management of pancreatic ascites.
  9. Describe the etiology, pathophysiology, and management of chronic pancreatitis to include:
    - a. Indications for operative management
    - b. Selection of appropriate operative procedure such as:
      - (1) Longitudinal pancreaticojejunostomy (Puestow-Gillesby Procedure)
      - (2) Caudal pancreaticojejunostomy (Duval Procedure)
      - (3) Subtotal pancreatectomy
      - (4) Pancreatoduodenectomy
    - c. Role of celiac ganglion ablation (chemical splanchnicectomy) in pain control
  10. Summarize the common sequelae of chronic pancreatitis to include pain, fat malabsorption, and diabetes.
  11. Discuss diagnosis, evaluation, and surgical management of cystic neoplasms of the pancreas (mucinous and serous cystadenomas; cystadenocarcinoma, IPMN).
  12. Compare the probabilities of coexisting intra-abdominal pathology in elderly vs. younger patients. Consider:
    - a. Acute pancreatitis
    - b. Mesenteric ischemia
    - c. Gangrenous cholecystitis
    - d. Perforated viscus
  13. Describe the diagnosis, evaluation, and surgical management of the following islet cell tumors of the pancreas:

- a. Gastrinoma (Zollinger-Ellison Syndrome)
  - b. Glucagonoma
  - c. Somatostatinoma
  - d. Insulinoma
  - e. VIPoma (Verner-Morrison Syndrome, WDHA Syndrome)
14. Describe the diagnosis and management of pancreas divisum.
15. Outline the appropriate surgical management of disorders of the pancreas to include:
- a. Pancreatoduodenectomy (Whipple Procedure)
  - b. Distal pancreatectomy
  - c. Total pancreatectomy
  - d. Subtotal (distal 95%) pancreatectomy
  - e. Longitudinal pancreaticojejunostomy (Puestow Procedure)
  - f. Internal drainage of pseudocysts (cystogastrostomy, cystoduodenostomy, Roux-en-Y cystojejunostomy)
16. Explain the technical details of the above procedures, including the options available and the pros and cons of each.
17. Describe the common complications associated with surgical management of diseases of the pancreas.
18. Summarize the principles of perioperative management of diseases of the pancreas.
19. Coordinate overall care of patients with complex pancreatic disease, including initial evaluation, appropriate diagnostic studies, and operative management of:
- a. Pancreatic abscess and infected pancreatic necrosis
  - b. Cystadenomas
  - c. Periapillary carcinoma
  - d. Endocrine tumors of the pancreas
20. Perform complex pancreatic procedures such as:
- a. Whipple resection
  - b. Total or subtotal pancreatectomy
  - c. Operative debridement and drainage of pancreatic abscess or infected necrosis

- d. Surgical exploration for islet cell tumors of the pancreas
- e. Local resection for ampullary tumors

### **Practice Based and Life Long Learning:**

1. Develop a personal program of self-study and professional growth with guidance from the teaching staff and senior residents. An understanding of the etiology, pathogenesis, pathophysiology, diagnosis and management of hepatobiliary, pancreatic, and general surgery disorders will allow for sound surgical judgment, which relies on knowledge, rational thinking and the surgical literature.
2. Utilize current literature resources to obtain up-to-date information in the hepatobiliary, pancreatic, and general surgery patients and practice evidence-based medicine.
3. Participate in teaching and organization of the educational weekly conferences.
4. Participate in activities of the Department of Surgery (including all teaching conferences) and assume responsibility for teaching and supervision of subordinate surgical house staff, and medical students.
5. Participate in the Department Morbidity & Mortality conference and utilize information to further improve patient care.
6. Participate in daily teaching rounds and be able to present patients in an organized and complete fashion
7. Topic of the day in the computerized life long learning portfolio

### **Professionalism:**

1. Practice compassionate patient care maintaining the highest moral and ethical values with a professional attitude.
2. Demonstrate understanding of the needs and feelings of others, including the patient's family members, allied health care personnel (nurses, clerical staff, etc.), fellow residents, and medical students.
3. Communicate and collaborate effectively in a team of health care providers
4. Demonstrate respect, compassion and integrity in the care of hepatobiliary, pancreatic, and general surgery patients on a daily basis
5. Demonstrate mature and educated approach to Ethical issues commonly encountered in a hepatobiliary, pancreatic, and general surgery setting.
6. Show sensitivity to patients' culture, age, gender and disabilities
7. Recognize and appropriately handle sensitive cases of abuse
8. Be self-aware and have knowledge of professional limits by practicing on-going medical education and self-improvement.

9. Be accountable to profession in their actions and decisions

### **Interpersonal Relationships And Communication:**

1. Create and sustain a therapeutic and ethically sound relationship with patients and patient families
2. Work effectively with other members of the medical team including allied health care personnel (nurses, clerical staff, etc.), fellow residents, and medical students.
3. Maintain professional interactions with other health care providers and hospital staff

### **Systems Based Practice:**

1. Understand how the health care organization affects surgical practice of hepatobiliary, pancreatic, and general surgery
2. Demonstrate cost effective health care
3. Be able to coordinate multi-specialty and multidisciplinary care practice including discharge planning, social service, rehabilitation, and long-term care
4. Follow established practices, procedures, and policies of the Department of Surgery and integrated and affiliated hospitals.
5. Maintain complete of medical records operative notes staff sheets and notes, patient database cards and other patient care related documentation in a timely, accurate and succinct manner.

### **READING MATERIALS:**

Educational materials which will function as guides for resident education during this course include but are not limited to:

1. The SCORE General Surgery Resident Curriculum Portal accessed at <https://portal.surgicalcore.org/home>
2. Schwartz's Principles of Surgery
3. Zollinger's Atlas of Surgical Operations
4. The Surgical Core Curriculum accessed via Access Surgery through the University of Illinois-Chicago website

### **OUTCOMES:**

Outcomes for the various goals and procedures in this curriculum will be assessed along the following standards:

1. Superior: the resident exhibits conceptual understanding beyond that which is described in this bulletin, and practice performance which is at a standard for a resident at a more advanced PGY year.
2. Above-Average: the resident has shown understanding and performance that is above what is expected for the rotation.
3. Competent: the resident exhibits conceptual understanding and practice based performance standards that are minimal, for the appropriate PGY year, for advancing towards general surgical practice.
4. In Need of Remediation: the resident has failed to grasp the basic concepts and practices necessary to advance past this rotation for the PGY year, and shows need of repeating or training augmentation.