

DEPARTMENT OF SURGERY

DIVISION OF MINIMALLY INVASIVE SURGERY

MINIMALLY-INVASIVE SURGERY ROTATION
GENERAL SURGERY BLUE (SGB)

University Hospital
East Ann Arbor Surgery Center

House Officer I
House Officer II
House Officer III
House Officer IV
House Officer V

Curriculum/Rotation Goals and Objectives for
Surgery Residents

Minimally-Invasive Surgery Service (Blue Service)

House Officer I

Goal: The goal of the HO I Minimally Invasive Surgery rotation is to build on the residents' overall general surgical knowledge and operative experience and provide more concentrated exposure in those clinical conditions treated with advanced laparoscopic techniques, including hernias, morbid obesity, gastro-esophageal reflux, diseases of the spleen, among others, and to begin the residents' introduction to basic and advanced laparoscopic surgery techniques.

Learning Objectives:

Patient Care:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather essential and accurate information about their patients, especially regarding hernias, morbid obesity, gastro-esophageal reflux, and splenic diseases
3. Suggest diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
4. Counsel and educate patients and their families, under the guidance and direction of senior residents and faculty
5. Use information technology effectively to support patient care decisions and patient education
6. Assist and perform portions of basic minimally invasive procedures or hernia repairs (under supervision), with particular attention to intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches), and port placement for basic laparoscopic procedures.
PRE-REQUISITE: completion of basic laparoscopic skills curriculum to Silver Level is required to serve in Surgeon Junior role in a laparoscopic case
7. Collaborate with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the obese patient which includes interactions with medical endocrinology, psychology, dietitians, and mid-level providers from the clinic and inpatient service

Medical Knowledge:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Inguinal and Femoral Hernia

- a. Explain the anatomy and physiology of primary and recurrent inguinal and femoral hernias, including the anatomy for laparoscopic approaches
- b. Categorize the common treatment options for groin hernia including both open and laparoscopic approaches
- c. Delineate the intra-operative risks of both open and laparoscopic groin hernia repair
- d. Demonstrate safe and effective post-operative management of uncomplicated groin hernia repairs, including provision of adequate pain control and wound management
- e. Delineate post-operative complications, both short and long term for groin hernia repair
- f. Demonstrate safe and effective management of post-operative complications, including

hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

2. Ventral and Incisional Hernia

- a. Explain the anatomy of the abdominal wall and physiology of primary and recurrent ventral hernias, including umbilical, epigastric, incisional and Spigelian hernias
- b. List the common treatment options for ventral hernia including both open and laparoscopic approaches
- c. Explain the anatomy and technique relevant to component separation abdominal wall reconstruction procedures
- d. Delineate the intra-operative risks of both open and laparoscopic ventral hernia repair
- e. Demonstrate safe and effective post-operative management of ventral hernia repairs, including provision of adequate pain control and wound management.
- f. Summarize post-operative complications, both short and long term for ventral hernia repair
- g. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

3. Morbid Obesity and Bariatric Surgery

- a. List the indications for surgical management of obesity
- b. List the different surgical procedures currently used for treatment of obesity, with particular attention to laparoscopic gastric bypass, sleeve gastrectomy, and common revision procedures
- c. Explain a rationale for selecting one procedure over another, especially the most common contraindications to gastric bypass or sleeve gastrectomy
- d. List the relevant clinical specialties who have input in the multidisciplinary management of obese patients
- e. Describe the technique for each commonly used bariatric surgery procedure
- f. Enumerate the intra-operative risks of bariatric surgery procedures
- g. Demonstrate safe and effective post-operative management of bariatric surgery patients, including provision of dietary counseling, type 2 diabetes management (e.g., insulin dosing)
- h. Explain post-operative complications of bariatric surgery, both short and long term
- i. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) of conditions including leaks, bleeding, venous thromboembolism
- j. Recite the "red flags" that may indicate a need for reoperation in bariatric surgery patients

4. Gastro-esophageal Reflux and Para-esophageal Hernia

- a. Explain esophageal and gastric and physiology, including the location and function of the gastro-esophageal junction
- b. Explain the pathophysiology and clinical presentation of gastro-esophageal reflux disease (GERD), including both classic and atypical symptoms
- c. Explain the pathophysiology and clinical presentation of para-esophageal hernia (including Types I-IV), including urgent and chronic symptoms
- d. Explain the management of acute gastric volvulus in the context of a para-esophageal hernia
- e. List the common treatment options for GERD, with particular attention to laparoscopic approaches
- f. Explain the difference between complete and partial fundoplication
- g. Explain the common treatment options for para-esophageal hernia, with particular attention to laparoscopic approaches
- h. List the intra-operative risks of both open and laparoscopic hiatal hernia repair and/or fundoplication
- i. Demonstrate safe and effective post-operative management of hiatal hernia repairs, including provision of dietary counseling
- j. Explain possible post-operative complications, both short and long term for hiatal hernia repair and fundoplication
- k. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) of conditions including esophageal perforation, bleeding, dysphagia, recurrence, and "red flags" that may indicate a need for reoperation

5. Diseases of the Spleen

- a. Explain the splenic and surrounding anatomy including anatomic vascular variants
- b. Explain the most common diseases presenting for possible splenectomy, especially the most common diseases treated laparoscopically (e.g., ITP)
- c. Explain the basic technique of open and laparoscopic splenectomy
- d. List the intra-operative risks of both open and laparoscopic splenectomy
- e. Demonstrate safe and effective post-operative management of splenectomy, especially the recognition of post-operative "red flags" that indicate bleeding and the need for reoperation

Systems-Based Practice:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Explain the role of systems in delivering optimal health care, including how "system problems" contribute to quality problems
2. Explain how his or her patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
3. Explain how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
4. Practice cost-effective health care and resource allocation that does not compromise quality of care
5. Advocate for quality patient care and assist patients in dealing with system complexities
6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

Practice-Based Learning and Improvement:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Analyze patient care experience and perform practice-based improvement activities using a systematic methodology (discussed in QI curriculum)
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
3. Conduct an effective literature search about a given minimally invasive surgery topic
4. Obtain and use information about their own population of patients and the larger population from which their patients are drawn, including knowledge of the Michigan Bariatric Surgery Collaborative (MBSA) database and reporting platform
5. Describe/design a systematic approach to evaluate the results of one's own practice
6. Use information technology to manage information, access on-line medical information; and support self-directed education

Professionalism:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supercedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices

5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Interpersonal and Communication Skills:

By the end of the Minimally-Invasive Surgery rotation, the HO I resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of a health care team or other professional group
4. Demonstrate the ability to interview and evaluate the patient, especially the obese bariatric surgery candidate

Minimally-Invasive Surgery Service (Blue Service)

House Officer II

Goal: The goal of the HO II Minimally Invasive Surgery rotation is to continue to build on residents' overall general surgical knowledge and operative experience and provide more concentrated exposure in those clinical conditions treated with advanced laparoscopic techniques, including hernias, morbid obesity, gastroesophageal reflux, diseases of the spleen, among others, and to further develop basic laparoscopic surgery techniques (e.g., laparoscopic cholecystectomy and laparoscopic umbilical/ventral hernia repair). The HO II rotation will also begin to expose residents to more advanced laparoscopic procedures (e.g., laparoscopic inguinal hernia repair and laparoscopic sleeve gastrectomy).

Learning Objectives:

Patient Care:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather essential and accurate information about their patients, especially regarding hernias, morbid obesity, gastroesophageal reflux, and splenic diseases
3. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
4. Counsel and educate patients and their families, under the guidance and direction of senior residents and faculty
5. Use information technology effectively to support patient care decisions and patient education
6. With appropriate indirect supervision and intraoperative assistance, perform surgical procedures considered essential for the area of practice, with particular attention to the following:
 - a. Intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches)
 - b. Port placement for all basic laparoscopic (e.g., cholecystectomy) and some advanced procedures (e.g., sleeve gastrectomy)
 - c. The majority of the dissection in a straightforward laparoscopic cholecystectomy.
 - d. The majority of the lysis of adhesions and mesh placement in a laparoscopic ventral or umbilical hernia repair
 - e. The early dissection in a laparoscopic inguinal hernia repair (defining medial and lateral spaces)
7. Collaborate with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the obese patient which includes interactions with medical endocrinology, psychology, dietitians, and mid-level providers from the clinic and inpatient service

Medical Knowledge:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Inguinal and Femoral Hernia

- a. Describe the anatomy and physiology of primary and recurrent inguinal and femoral hernias
- b. Describe in detail the anatomy for laparoscopic approaches to groin hernia repair, including locations of the "triangle of doom" and "triangle of pain"

- c. Discuss the common treatment options for groin hernia including both open and laparoscopic approaches
- d. Recall the intra-operative risks of both open and laparoscopic groin hernia repair
- e. Demonstrate safe and effective management of uncomplicated groin hernia repairs, including provision of adequate pain control and wound management
- f. Recite and discuss post-operative groin hernia complications, both short and long term
- g. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

2. Ventral and Incisional Hernia

- a. Describe and discuss the anatomy of the abdominal wall and the physiology of primary and recurrent ventral hernias, including umbilical, epigastric, incisional and Spigelian hernias
- b. Explain and contrast the common treatment options for ventral hernia including both open and laparoscopic approaches
- c. Describe and discuss the anatomy and technique relevant to component separation abdominal wall reconstruction procedures
- d. Recite and discuss the intra-operative risks of both open and laparoscopic ventral hernia repair
- e. Demonstrate safe and effective management of ventral hernia repairs, including provision of adequate pain control and wound management
- f. Recall post-operative complications, both short and long term for ventral hernia repair
- g. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

3. Morbid Obesity and Bariatric Surgery

- a. Recite and discuss the indications for surgical management of obesity
- b. Explain the different surgical procedures currently used for treatment of obesity, with particular attention to laparoscopic gastric bypass, sleeve gastrectomy, and common revision procedures
- c. Discuss the rationale for selecting one procedure over another, especially the most common contraindications to gastric bypass or sleeve gastrectomy
- d. Describe the key steps of the technique for each commonly used bariatric surgery procedure
- e. Describe and discuss the roles of the relevant clinical specialties who have input in the multidisciplinary management of obese patients
- f. Describe and discuss the intra-operative risks of bariatric surgery procedures
- g. Demonstrate safe and effective post-operative management of bariatric surgery, including provision of dietary counseling, type 2 diabetes management (e.g., insulin dosing)
- h. List and recite post-operative complications of bariatric surgery, both short and long term
- i. Demonstrate safe and effective management of post-operative identification of complications and management in conjunction with senior residents and faculty, including leaks, bleeding, venous thromboembolism
- j. Recite the "red flags" that may indicate a need for reoperation in bariatric surgery patients

4. Gastro-esophageal Reflux and Para-esophageal Hernia

- a. Describe esophageal and gastric and physiology, including the location and function of the gastro-esophageal junction
- b. Discuss the pathophysiology and clinical presentation of gastro-esophageal reflux disease (GERD), and to list both classic and atypical symptoms of GERD
- c. Explain the pathophysiology and clinical presentation of para-esophageal hernia (including Types I-IV), and recite both the most common urgent and chronic symptoms
- d. Describe the management of acute gastric volvulus in the context of a paraesophageal hernia
- e. Explain and contrast the common treatment options for GERD, with particular attention to laparoscopic approaches
- f. Discuss the difference in technique and explain the rationale for complete and partial fundoplication
- g. Discuss the common treatment options for para-esophageal hernia, with particular attention

- to laparoscopic approaches
- h. Recite the intra-operative risks of both open and laparoscopic hiatal hernia repair and/or fundoplication
- i. Demonstrate safe and effective post-operative management of hiatal hernia repairs, including provision of dietary counseling
- j. List the common post-operative complications, both short and long term for hiatal hernia repair and fundoplication
- k. Identify post-operative complications and demonstrate safe and effective management in conjunction with senior residents and faculty, including esophageal perforation, bleeding, dysphagia, recurrence, and "red flags" that may indicate a need for reoperation

5. Diseases of the Spleen

- a. Describe the splenic and surrounding anatomy including anatomic vascular variants
- b. Recall the most common diseases presenting for possible splenectomy, especially the most common diseases treated laparoscopically (e.g., ITP)
- c. Explain the basic technical aspects of open and laparoscopic splenectomy
- d. Recite the intra-operative risks of both open and laparoscopic splenectomy
- e. Demonstrate safe and effective post-operative management of splenectomy, especially the recognition of post-operative "red flags" that indicate bleeding and the need for reoperation

Systems-Based Practice:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Apply knowledge of systems in delivering optimal health care, including inferring how "system problems" contribute to quality problems
2. Explain how his or her patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
3. Describe how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
4. Define cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care
5. Advocate for quality patient care and assist patients in dealing with system complexities
6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

Practice-Based Learning and Improvement:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to his or her patients' health problems
3. When given online resources, conduct an effective literature search about a given minimally invasive surgery topic
4. Obtain and use information about his or her own population of patients and the larger population from which patients are drawn, including knowledge of the Michigan Bariatric Surgery Collaborative (MBSC) database and reporting platform
5. Describe/design a systematic approach to evaluate the results of one's own practice
6. Outline the basic tenets of the Scientific Method as applied to clinical research and outline the steps in the generation or statement of a research hypothesis from clinical questions or observations
7. Evaluate experimental design and interpret results in published literature (or planned research), including true randomization, sampling error, blinded studies, prospective versus retrospective evaluations, and the advantages and weaknesses of each; knows the distinction between dependent

and independent variables under evaluation and knows the meaning of confidence intervals or “P” value in suggesting statistical significance

8. Explain how information technology is used to manage information, access on-line medical information; and support self-directed education

Professionalism:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supercedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients’ culture, age, gender, and disabilities

Interpersonal and Communication Skills:

By the end of the Minimally-Invasive Surgery rotation, the HO II resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Collaborate effectively with others as a member or leader of a health care team or other professional group
4. Interview and evaluate the patient, especially the obese bariatric surgery candidate

Minimally-Invasive Surgery Service (Blue Service)

House Officer III

Goal: The goal of the HO III Minimally Invasive Surgery rotation is to solidify residents' overall general surgical knowledge and operative experience and provide more concentrated exposure in those clinical conditions treated with advanced laparoscopic techniques, including hernias, morbid obesity, gastroesophageal reflux, diseases of the spleen, among others. Residents at the HO III level should be independent at obtaining peritoneal access and placing laparoscopic ports; they should develop proficiency with basic laparoscopic surgery techniques (e.g., laparoscopic cholecystectomy and laparoscopic umbilical/ventral hernia repair). The HO III rotation will also be when residents begin developing proficiency in advanced laparoscopic procedures (e.g., laparoscopic inguinal hernia repair, laparoscopic sleeve gastrectomy, laparoscopic splenectomy).

Learning Objectives:

Patient Care:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather, summarize, and examine essential and accurate information about their patients, especially regarding hernias, morbid obesity, gastroesophageal reflux, and splenic diseases
3. Develop treatment plans based on analysis of diagnostic information and integrate patient preferences, up-to-date scientific evidence, and clinical judgment into those treatment plans
4. Counsel and educate patients and their families, under the guidance and direction of senior residents and faculty
5. Use information technology to support patient care decisions and patient education
6. With appropriate indirect supervision and intraoperative assistance, perform surgical procedures considered essential for the area of practice, with particular attention to the following:
 - a. Independently gain intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches)
 - b. Independently place ports for all basic laparoscopic (e.g., cholecystectomy) and advanced procedures (e.g., sleeve gastrectomy).
 - c. Perform the entire dissection in a straightforward laparoscopic cholecystectomy.
 - d. Perform the entire lysis of adhesions and mesh placement in a laparoscopic ventral or umbilical hernia repair.
 - e. Perform the early dissection in a laparoscopic inguinal hernia repair (defining medial and lateral spaces) and begin dissecting indirect hernia sacs from the cord structures.
 - f. Perform the majority of the short gastric mobilization and stomach division during a laparoscopic sleeve gastrectomy.
 - g. Establish the set up and perform the stapling of a jejunum-jejunostomy in a laparoscopic gastric bypass.
 - h. Complete the mobilization but not the hilar dissection in a laparoscopic splenectomy.
 - i. Complete the majority of a laparotomy, lysis of adhesions, and mesh suture placement for open ventral hernia repair.
7. Collaborate with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the obese patient which includes interactions with medical endocrinology, psychology, dietitians, and mid-level providers from

Medical Knowledge:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

1. Inguinal and Femoral Hernia

- a. Apply knowledge of anatomy and physiology of primary and recurrent inguinal and femoral hernias to guide treatment planning
- b. Identify the anatomy for laparoscopic approaches to groin hernia repair, including locations of the "triangle of doom" and "triangle of pain"
- c. Develop treatment plans for groin hernias, including patients in need of both open and laparoscopic approaches
- d. Summarize the intra-operative risks of both open and laparoscopic groin hernia repair
- e. Use knowledge of post-operative management of uncomplicated groin hernia repairs, including provision of adequate pain control and wound management
- f. Analyze patient symptoms and other available data to correctly identify post-operative groin hernia complications, both short and long term
- g. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

2. Ventral and Incisional Hernia

- a. Develop appropriate patient treatment plans based on knowledge of the anatomy of the abdominal wall and the physiology of primary and recurrent ventral hernias, including umbilical, epigastric, incisional and Spigelian hernias
- b. Explain and contrast the common treatment options for ventral hernia including both open and laparoscopic approaches
- c. Describe and discuss the anatomy and technique relevant to component separation abdominal wall reconstruction procedures
- d. Recite and discuss the intra-operative risks of both open and laparoscopic ventral hernia repair
- e. Demonstrate safe and effective post-operative management of ventral hernia repairs, including provision of adequate pain control and wound management
- f. Analyze patient symptoms and other data to correctly diagnose post-operative complications, both short and long term for ventral hernia repair
- g. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

3. Morbid Obesity and Bariatric Surgery

- a. Apply the indications for surgical management of obesity to make decisions about which patients are good candidates
- b. Compare and contrast the different surgical procedures currently used for treatment of obesity, with particular attention to laparoscopic gastric bypass, sleeve gastrectomy, and common revision procedures
- c. Develop a sound rationale for selecting one procedure over another
- d. Evaluate a patient's history to identify the most common contraindications to gastric bypass or sleeve gastrectomy
- e. Summarize the key steps of the technique for each commonly used bariatric surgery procedure
- f. Describe and discuss the roles of the relevant clinical specialties who have input in the multidisciplinary management of obese patients
- g. Summarize the intra-operative risks of bariatric surgery procedures
- h. Demonstrate safe and effective post-operative management of bariatric surgery, including provision of dietary counseling, type 2 diabetes management (e.g., insulin dosing)
- i. Analyze patient history, exam, and other data to correctly identify and treat post-operative

complications of bariatric surgery

- j. Identify post-operative complications and provide safe and effective management in conjunction with senior residents and faculty, including leaks, bleeding, venous thromboembolism
- k. Apply knowledge of the "red flags" that may indicate a need for reoperation in bariatric surgery patients

4. Gastro-esophageal Reflux and Para-esophageal Hernia

- a. Apply knowledge of esophageal and gastric and physiology, including the location and function of the gastro-esophageal junction, to generate appropriate treatment plans
- b. Integrate their knowledge of the pathophysiology with the clinical presentation of gastro-esophageal reflux disease (GERD)
- c. Compare and contrast the classic and atypical symptoms of GERD
- d. Integrate their knowledge of the anatomy and pathophysiology to guide evaluation of patients with para-esophageal hernia (including Types I-IV)
- e. Compare and contrast the most common urgent and chronic symptoms of paraesophageal hernia
- f. Develop a treatment plan for management of acute gastric volvulus in the context of a para-esophageal hernia
- g. Compare and contrast the common treatment options for GERD, with particular attention to laparoscopic approaches
- h. Compare and contrast complete and partial fundoplication, both in terms of technique and rationale
- i. Summarize the common treatment options for para-esophageal hernia, with particular attention to laparoscopic approaches
- j. Summarize the intra-operative risks of both open and laparoscopic hiatal hernia repair and/or fundoplication
- k. Apply knowledge post-operative management of hiatal hernia repairs to develop appropriate treatment plans, including dietary counseling in the first 6 weeks after surgery
- l. Apply knowledge of post-operative complications to develop treatment plans, both short and long term for hiatal hernia repair and fundoplication
- m. Identify post-operative complications and demonstrate safe and effective management (in conjunction with senior residents and faculty) for conditions including esophageal perforation, bleeding, dysphagia, recurrence, and "red flags" that may indicate a need for reoperation

5. Diseases of the Spleen

- a. Demonstrate the splenic and surrounding anatomy including anatomic vascular variants
- b. Summarize the most common diseases presenting for possible splenectomy, especially the most common diseases treated laparoscopically (e.g., ITP)
- c. Compare and contrast basic technical aspects of open and laparoscopic splenectomy
- d. Compare and contrast the intra-operative risks of open and laparoscopic splenectomy
- e. Provide safe and effective post-operative management of splenectomy, especially the recognition of post-operative "red flags" that indicate bleeding and the need for reoperation

Systems-Based Practice:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

1. Apply knowledge of systems in delivering optimal health care, including inferring how "system problems" contribute to quality problems
2. Apply systems knowledge to demonstrate how patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect his or her own practice
3. Compare and contrast different medical practice and delivery systems, including differing methods of controlling health care costs and allocating resources
4. Demonstrate responsible, cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care

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| 5. Advocate for quality patient care and assist patients in dealing with system complexities |
| 6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and recognize how these activities can affect system performance |

Practice-Based Learning and Improvement:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

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| 1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology |
| 2. Locate, appraise, and assimilate evidence from scientific studies related to his or her patients' health problems |
| 3. When given online resources, conduct an effective literature search about a given minimally invasive surgery topic |
| 4. Obtain and use information about his or her own population of patients and the larger population from which patients are drawn, including knowledge of the Michigan Bariatric Surgery Collaborative (MBSC) database and reporting platform |
| 5. Design a systematic approach to evaluate the results of one's own practice |
| 6. Summarize the basic tenets of the Scientific Method as applied to clinical research and outline the steps in the generation or statement of a research hypothesis from clinical questions or observations |
| 7. Evaluate experimental design and interpret results in published literature (or planned research), including true randomization, sampling error, blinded studies, prospective versus retrospective evaluations, and the advantages and weaknesses of each; knows the distinction between dependent and independent variables under evaluation and knows the meaning of confidence intervals or "P" value in suggesting statistical significance |
| 8. Apply knowledge about information technology to manage information, access on-line medical information; and support self-directed education |

Professionalism:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

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| 1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development |
| 2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients |
| 3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care |
| 4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices |
| 5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities |

Interpersonal and Communication Skills:

By the end of the Minimally-Invasive Surgery rotation, the HO III resident will be able to:

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| 1. Create and sustain a therapeutic and ethically sound relationship with patients |
| 2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills |
| 3. Collaborate effectively with others as a member or leader of a health care team or other professional group |
| 4. Interview and evaluate the patient, especially the obese bariatric surgery candidate |

Minimally-Invasive Surgery Service (Blue Service)

House Officer IV

Goal: The goal of HO IV Minimally Invasive Surgery rotation is to solidify the residents' general surgical knowledge and operative experience and provide concentrated exposure to clinical conditions treated with advanced laparoscopic techniques, including hernias, morbid obesity, gastroesophageal reflux, diseases of the spleen, among others. Resident's at the HO IV level should be independent at obtaining peritoneal access and placing laparoscopic ports; they should also have proficiency with basic laparoscopic surgery techniques (e.g., laparoscopic cholecystectomy and laparoscopic umbilical/ventral hernia repair). The HO IV rotation will also be when residents continue to develop proficiency with advanced laparoscopic procedures (e.g., laparoscopic inguinal hernia repair, laparoscopic sleeve gastrectomy, laparoscopic anti-reflux surgery/paraesophageal hernia, laparoscopic splenectomy).

Learning Objectives:

Patient Care:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

1. Establish a caring rapport and communicate treatment plans effectively when interacting with patients and their families
2. Gather, organize, analyze, and integrate essential and accurate information about their patients, especially regarding hernias, morbid obesity, gastroesophageal reflux, and splenic diseases
3. Construct treatment plans based on analysis of diagnostic information and integrate patient preferences, up-to-date scientific evidence, and clinical judgment into those treatment plans
4. Counsel and educate patients and their families on the risks and benefits of conditions treated on this service, especially regarding hernias, morbid obesity, gastroesophageal reflux, and splenic diseases
5. Use information technology to support patient care decisions and patient education
6. With appropriate indirect supervision and intraoperative assistance, perform surgical procedures considered essential for the area of practice, with particular attention to the following:
 - a. Independently gain intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches)
 - b. Independently place ports for all basic laparoscopic (e.g., cholecystectomy) and advanced procedures (e.g., sleeve gastrectomy).
 - c. Perform the entire dissection in a straightforward laparoscopic cholecystectomy with minimal guidance.
 - d. Perform the entire necessary lysis of adhesions and mesh placement in a laparoscopic ventral or umbilical hernia repair with minimal.
 - e. Perform the majority of the dissection in a laparoscopic inguinal hernia repair: defining medial and lateral spaces; reducing direct hernias; and/or partially dissect indirect hernia sacs from the cord structures with minimal guidance.
 - f. Perform the majority of the short gastric mobilization and stomach division during a laparoscopic sleeve gastrectomy with minimal guidance.
 - g. Establish the set up and perform the stapling of a jejunum-jejunostomy in a laparoscopic gastric bypass. Complete the gastro-jejunostomy with assistance.
 - h. Complete the mobilization and begin the hilar dissection and/or complete the vessel division in a laparoscopic splenectomy with minimal guidance.
 - i. Complete the majority of a laparotomy, lysis of adhesions, and mesh suture placement for open ventral hernia repair with minimal guidance.

7. Collaborate with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the obese patient which includes interactions with medical endocrinology, psychology, dietitians, and mid-level providers from the clinic and inpatient service

Medical Knowledge:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

1. Inguinal and Femoral Hernia

- a. Create a treatment plan based on their knowledge of anatomy and physiology of primary and recurrent inguinal and femoral hernias
- b. Develop an intra-operative dissection plan based on their knowledge of the anatomy for laparoscopic approaches to groin hernia repair, including locations of the "triangle of doom" and "triangle of pain"
- c. Construct a treatment plan for addressing the intra-operative risks of both open and laparoscopic groin hernia repair
- d. Establish a treatment plan for post-operative management of uncomplicated groin hernia repairs, including provision of adequate pain control and wound management
- e. Develop a treatment plan based on patient symptoms and other available data to correctly identify post-operative groin hernia complications, both short and long term
- f. Demonstrate safe and effective management of post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

2. Ventral and Incisional Hernia

- a. Develop appropriate patient treatment plans based on their knowledge of the anatomy of the abdominal wall and the physiology of primary and recurrent ventral hernias, including umbilical, epigastric, incisional and spigelian hernias
- b. Evaluate the potential appropriateness of the common treatment options for ventral hernia for a given patient presentation, including both open and laparoscopic approaches
- c. Integrate principles of the anatomy and technique relevant to component separation abdominal wall reconstruction procedures into decision making and patient care
- d. Construct treatment plans to address the intra-operative risks of both open and laparoscopic ventral hernia repair
- e. Demonstrate safe and effective post-operative management of ventral hernia repairs, including provision of adequate pain control and wound management
- f. Construct a treatment plan based on symptoms and other data to correctly diagnose post-operative complications, both short and long term for ventral hernia repair
- g. Demonstrate safe and effective post-operative complications, including hematoma, urinary retention, surgical site infection, including "red flags" for notifying senior residents or faculty regarding potential need for reoperation

3. Morbid Obesity and Bariatric Surgery

- a. Construct a treatment plan for morbidly obese patients based on current indications for surgical management of obesity to make mature decisions about which patients are good candidates
- b. Compare and contrast the different surgical procedures currently used for treatment of obesity, with particular attention to laparoscopic gastric bypass, sleeve gastrectomy, and common revision procedures
- c. Develop a sound rationale for selecting one procedure over another
- d. Evaluate a patient's history to identify the most common contraindications to gastric bypass or sleeve gastrectomy
- e. Construct an intra-operative strategy to perform the key steps of the technique for each commonly used bariatric surgery procedure
- f. Integrate relevant clinical specialties who have input in the multidisciplinary management of obese patients to provide optimal care
- g. Construct a strategy to deal with the intra-operative complications of bariatric surgery

procedures

- h. Demonstrate safe and effective post-operative management of bariatric surgery, including provision of dietary counseling, type 2 diabetes management (e.g., insulin dosing)
- i. Integrate patient history, exam, and other data to correctly identify and treat post-operative complications of bariatric surgery
- j. Identify post-operative complications and demonstrate safe and effective management in conjunction with senior residents and faculty, including leaks, bleeding, venous thromboembolism
- k. Apply their knowledge of the "red flags" that may indicate a need for reoperation in bariatric surgery patients

4. Gastro-esophageal Reflux and Para-esophageal Hernia

- a. Construct a treatment plan for patients with GERD based on their knowledge of esophageal and gastric and physiology, including the location and function of the gastro-esophageal junction
- b. Integrate their knowledge of the pathophysiology with the clinical presentation of gastro-esophageal reflux disease (GERD)
- c. Compare and contrast the classic and atypical symptoms of GERD
- d. Integrate their knowledge of the anatomy and pathophysiology to guide evaluation of patients with para-esophageal hernia (including Types I-IV)
- e. Compare and contrast the most common urgent and chronic symptoms of para-esophageal hernia
- f. Develop a treatment plan for management of acute gastric volvulus in the context of a para-esophageal hernia
- g. Compare and contrast the common treatment options for GERD, with particular attention to laparoscopic approaches
- h. Compare and contrast complete and partial fundoplication, both in terms of technique and rationale
- i. Construct a treatment plan based on their knowledge of the common treatment options for para-esophageal hernia, with particular attention to correct application of laparoscopic approaches
- j. Construct an intra-operative strategy to address the intra-operative complications of both open and laparoscopic hiatal hernia repair and/or fundoplication
- k. Construct a plan to manage post-operative management of hiatal hernia repairs, including dietary counseling in the first 6 weeks after surgery
- l. Construct a plan to manage post-operative complications, both short and long term for hiatal hernia repair and fundoplication
- m. Identify post-operative complications and demonstrate safe and effective management in conjunction with senior residents and faculty, including esophageal perforation, bleeding, dysphagia, recurrence, and "red flags" that may indicate a need for reoperation

5. Diseases of the Spleen

- a. Illustrate the patient-specific splenic anatomy to create a patient treatment plan
- b. Integrate their knowledge of the most common diseases presenting for possible splenectomy, especially the most common diseases treated laparoscopically (e.g., ITP) into decision making
- c. Construct a strategy for addressing the common intra-operative complications of open and laparoscopic splenectomy
- d. Demonstrate safe and effective post-operative management of splenectomy, especially the recognition of post-operative "red flags" that indicate bleeding and the need for reoperation

Systems-Based Practice:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

- 1. Apply their knowledge of systems in delivering optimal health care, including inferring how "system problems" contribute to quality problems
- 2. Integrate systems knowledge to understand how aspects of the health care context, i.e., the health care organization, the larger society, affect their own practice

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| 3. Evaluate how different medical practice and delivery systems play a role in health care systems, including differing methods of controlling health care costs and allocating resources |
| 4. Demonstrate responsible, cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care |
| 5. Advocate for quality patient care and assist patients in dealing with system complexities |
| 6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance |

Practice-Based Learning and Improvement:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

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| 1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology |
| 2. Locate, appraise, and assimilate evidence from scientific studies related to his or her patients' health problems |
| 3. When given online resources, conduct an effective literature search about a given minimally invasive surgery topic |
| 4. Obtain and use information about his or her own population of patients and the larger population from which patients are drawn, including knowledge of the Michigan Bariatric Surgery Collaborative (MBSC) database and reporting platform |
| 5. Design a systematic approach to evaluate the results of one's own practice |
| 6. Summarize the basic tenets of the Scientific Method as applied to clinical research and outline the steps in the generation or statement of a research hypothesis from clinical questions or observations |
| 7. Evaluate experimental design and interpret results in published literature (or planned research), including true randomization, sampling error, blinded studies, prospective versus retrospective evaluations, and the advantages and weaknesses of each; knows the distinction between dependent and independent variables under evaluation and knows the meaning of confidence intervals or "P" value in suggesting statistical significance. |
| 8. Apply knowledge about information technology to manage information, access on-line medical information; and support self-directed education |

Professionalism:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

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| 1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development |
| 2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients |
| 3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care |
| 4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices |
| 5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities |

Interpersonal and Communication Skills:

By the end of the Minimally-Invasive Surgery rotation, the HO IV resident will be able to:

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| 1. Create and sustain a therapeutic and ethically sound relationship with patients |
| 2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills |
| 3. Work effectively with others as a member or leader of a health care team or other professional group |
| 4. Interview and evaluate the patient, especially the obese bariatric surgery candidate |

Minimally-Invasive Surgery Service (Blue Service)

House Officer V

Goal: The goal of HO V Minimally Invasive Surgery rotation is to refine and master general surgical knowledge and operative experience and provide concentrated exposure to clinical conditions treated with advanced laparoscopic techniques, including hernias, morbid obesity, gastro-esophageal reflux, diseases of the spleen, among others. Residents at the HO V level should be proficient at safe entry into the abdominal cavity and placing laparoscopic ports appropriate for basic and advanced procedures; they will achieve proficiency with basic laparoscopic surgery techniques (e.g., laparoscopic cholecystectomy and laparoscopic umbilical/ventral hernia repair) and be able to perform advanced techniques independently (e.g. laparoscopic suturing, intraoperative cholangiography, stapling and creation of a gastrointestinal anastomosis). The HO V rotation will require residents to lead and interact with a service that includes junior and senior level residents, physician assistants, nurses, dietitians and consulting services in the clinic, inpatient and operating room settings.

Learning Objectives:

Patient Care:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Establish a caring rapport and communicate treatment plans effectively when interacting with patients and their families
2. Gather, organize, analyze, and integrate essential and accurate information about their patients, especially regarding hernias, morbid obesity, gastro-esophageal reflux, and splenic diseases.
3. Construct treatment plans based on analysis of diagnostic information and integrate patient preferences, up-to-date scientific evidence, and clinical judgment into those treatment plans
4. Counsel and educate patients and their families on the risks and benefits of conditions treated on this service, especially regarding hernias, morbid obesity, gastro-esophageal reflux, and splenic diseases.
5. Use information technology to support patient care decisions and patient education
6. With appropriate indirect supervision and intraoperative assistance, perform competently medical and invasive procedures considered essential for the area of practice, with particular attention to the following:
 - a. Demonstrate safe and effective intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches)
 - b. Demonstrate safe and effective port placement for all basic laparoscopic (e.g., cholecystectomy) and advanced procedures (e.g., sleeve gastrectomy).
 - c. Perform the entire dissection to achieve the "critical view of safety" and intraoperative cholangiogram during laparoscopic cholecystectomy.
 - d. Perform independently the entire lysis of adhesions and mesh placement in a laparoscopic ventral or umbilical hernia repair.
 - e. Perform independently the entire dissection in a laparoscopic inguinal hernia repair: defining medial and lateral spaces; reducing direct hernias; and/or partially dissect indirect hernia sacs from the cord structures.
 - f. Perform independently the complete mobilization of the gastric fundus with division of the short gastric vasculature and division of the stomach during a laparoscopic sleeve gastrectomy.
 - g. Perform independently a stapled jejunum-jejunostomy during a laparoscopic gastric bypass.
 - h. Complete a stapled gastro-jejunostomy with minimal assistance.

- i. Perform independently the mobilization and dissection of hilar vessel division in a laparoscopic splenectomy and perform division of splenic vessels with assistance.
 - j. Perform independently the laparotomy, lysis of adhesions, and mesh suture placement for open ventral hernia repair.
 - k. Demonstrate appropriate steps including patient positioning for a laparoscopic procedure in a pregnant patient.
7. Create a productive and positive team environment with health care professionals, including those from other disciplines, to provide patient-focused care, with a particular attention to the multidisciplinary care of the obese patient which includes interactions with medical endocrinology, psychology, dietitians, and mid-level providers from the clinic and inpatient service

Medical Knowledge:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Inguinal and Femoral Hernia

- a. Create a treatment plan based on their knowledge of anatomy and physiology of primary and recurrent inguinal and femoral hernias
- b. Recite safe laparoscopic approaches to groin hernia repair, including locations of the "triangle of doom" and "triangle of pain"
- c. Construct a treatment plan for addressing the intra-operative risks of both open and laparoscopic groin hernia repair
- d. Establish a treatment plan for post-operative management of complicated and uncomplicated groin hernia repairs, including provision of adequate pain control and wound management
- e. Identify post-operative complications including early recurrence, wound infection, seroma, hematoma and urinary retention and provide safe and effective initial management

2. Ventral and Incisional Hernia

- a. Generate treatment plans based on their knowledge of the anatomy of the abdominal wall and the physiology of primary and recurrent ventral hernias, including umbilical, epigastric, incisional and spigelian hernias
- b. Evaluate the risks and benefits of both open and laparoscopic approaches and generate a decision plan based on patient characteristics
- c. Integrate principles of the anatomy and technique relevant to component separation abdominal wall reconstruction procedures into decision making and patient care
- d. Construct treatment plans to address the intra-operative risks of both open and laparoscopic ventral hernia repair
- e. Demonstrate safe and effective post-operative management of ventral hernia repairs, including provision of adequate pain control and wound management
- f. Construct a treatment plan based on symptoms and other data to correctly diagnose post-operative complications, both short and long term for ventral hernia repair
- g. Demonstrate safe and effective management of post-operative complications and correctly identifies the need for reapportion in a timely fashion

3. Morbid Obesity and Bariatric Surgery

- a. Construct a treatment plan for morbidly obese patients based on current indications for surgical management of obesity and outcomes based on patient comorbidities
- b. Compare and contrast the different surgical procedures currently used for treatment of obesity, with particular attention to laparoscopic gastric bypass, sleeve gastrectomy, and common revision procedures
- c. Identify the appropriate indications for revision bariatric surgery for postoperative complications and weight regain
- d. Recite common contraindications to gastric bypass or sleeve gastrectomy
- e. Recite the key steps of the technique for each commonly used bariatric surgery procedure
- f. Integrate relevant clinical specialties who have input in the multidisciplinary management of obese patients to provide optimal care
- g. Construct a strategy to deal with the intra-operative complications of bariatric surgery

- procedures and appropriate utilization of intraoperative endoscopy
- h. Demonstrate safe and effective post-operative management of bariatric surgery, including provision of dietary counseling, type 2 diabetes management (e.g., insulin dosing), pain control, management of nausea and need for early ambulation.
 - i. Integrate patient history, exam, and other data to correctly identify and treat post-operative complications of bariatric surgery
 - j. Identify post-operative complications in a timely fashion, including leaks, bleeding, venous thromboembolism and demonstrate safe and effective initial management

4. Gastro-esophageal Reflux and Para-esophageal Hernia

- a. Construct a diagnostic and treatment plan for patients with GERD symptoms based on their knowledge of esophageal and gastric and physiology
- b. Compare and contrast the classic and atypical symptoms of GERD
- c. Integrate their knowledge of the anatomy and pathophysiology to guide evaluation of patients with para-esophageal hernia (including Types I-IV)
- d. Interpret correctly upper GI, endoscopy and manometry findings
- e. Compare and contrast the most common urgent and chronic symptoms of para-esophageal hernia
- f. Develop a treatment plan for management of acute gastric volvulus in the context of a para-esophageal hernia
- g. Compare and contrast the common treatment options for GERD, with particular attention to laparoscopic approaches
- h. Compare and contrast complete and partial fundoplication, both in terms of technique and rationale
- i. Construct a treatment plan based on their knowledge of the common treatment options for para-esophageal hernia, with particular attention to correct application of laparoscopic approaches
- j. Construct an intra-operative strategy to address the intra-operative complications of both open and laparoscopic hiatal hernia repair and/or fundoplication
- k. Provide rationale and recite steps of performing an esophageal lengthening procedure (ie. Collis gastroplasty) and use of mesh
- l. Construct a plan to manage post-operative management of hiatal hernia repairs, including dietary counseling in the first 6 weeks after surgery
- m. Construct a plan to manage post-operative complications, both short and long term for hiatal hernia repair and fundoplication
- n. Identify post-operative complications in a timely fashion and demonstrate safe and effective initial management, including operative intervention

5. Diseases of the Spleen

- a. Create a diagnostic and treatment plan for patients who require surgical management for splenic disease (eg. ITP, splenic cysts)
- b. Recite common steps for laparoscopic splenectomy as well as rationale for conversion to open surgery
- c. Construct a strategy for addressing the common intra-operative complications of open and laparoscopic splenectomy
- d. Demonstrate safe and effective post-operative management of splenectomy patients, especially the recognition of post-operative complications that require reoperation, such as bleeding

Systems-Based Practice:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Appraise the system and its role in delivering optimal health care, including inferring whether "system problems" contribute to quality deficits
2. Integrate systems knowledge to understand how aspects of the health care context, i.e., the health care organization, the larger society, affect his or her own practice

3. Evaluate how different medical practice and delivery systems play a role in health care systems, including differing methods of controlling health care costs and allocating resources
4. Demonstrate responsible, cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care
5. Advocate for quality patient care and assist patients in dealing with system complexities
6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance; in particular the multidisciplinary approach to morbid obesity, issues affecting access to care and long-term follow up

Practice-Based Learning and Improvement:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to patients' health problems
3. When given online resources, conduct an effective literature search about a given minimally invasive surgery topic
4. Obtain and use information about his or her own population of patients and the larger population from which their patients are drawn, including knowledge of the Michigan Bariatric Surgery Collaborative (MBSC) database and reporting platform
5. Design a systematic approach to evaluate the results of one's own practice
6. Summarize the basic tenets of the Scientific Method as applied to clinical research and outline the steps in the generation or statement of a research hypothesis from clinical questions or observations
7. Critically evaluate experimental design and interpret results in published literature (or planned research), including true randomization, sampling error, blinded studies, prospective versus retrospective evaluations, and the advantages and weaknesses of each; knows the distinction between dependent and independent variables under evaluation and knows the meaning of confidence intervals or "P" value in suggesting statistical significance
8. Apply knowledge about information technology to manage information, access on-line medical information; and support self-directed education

Professionalism:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of general surgical care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities, in particular among morbidly obese patients

Interpersonal and Communication Skills:

By the end of the Minimally-Invasive Surgery rotation, the HO V resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of a health care team or other professional group

in multiple settings including the clinic, emergency room, hospital wards and operating room.

4. Interview and evaluate the patient, especially the obese bariatric surgery candidate