# Gastroenterology Objectives

## Introduction to Gastroenterology

1. Describe the structure and function of the G.I. system.
2. Describe the role of each organ in the overall function of the G.I. system.
3. Identify indications for the use of specific laboratory studies used in the assessment of G.I. disease and discuss their sensitivity and specificity.
4. Interpret laboratory data as it relates to clinical presentation of GI disorders.
5. List common signs and symptoms which alert the health care provider there may be dysfunction of the GI system.
6. Discuss the approach to the patient with G.I. disease.

## Overview of Nutrition and Nutrition Support

1. Describe the components of nutrition assessment.
2. Recognize the use of the diet history and other components of nutritional assessment in the diagnosis of G.I. disease.
3. Describe the role of the major nutrients (protein, carbohydrate, and fat) and potential concerns regarding deficiency in patients with G.I. disease which impact digestion and absorption of these nutrients.
4. Discuss nutritional requirements and common nutritional deficiencies seen in the general population, risk factors for deficiency, and those exacerbated in the G.I. patient (e.g. fat soluble vitamins; thiamin, vitamin C, folic acid, cobalamin; and calcium, iron, and zinc).
5. Describe the composition, indications and use of modified diets (clear liquid, full liquid, soft, mechanical soft, and pureed).
6. Describe the basic principles of nutrition support, including tube feeding, peripheral parenteral nutrition (PPN), and total parenteral nutrition (TPN); risks and benefits; indications for use, and common complications.
   (TPN will be covered as a separate topic in Pharmacotherapy I.)

## GI Radiography

1. Describe the indications for abdominal radiology and bowel preparation required for each study.
2. Discuss the differences between and procedures for plain radiograph, ultra sound, CT (with and without contrast), and MRI and indicate when each is appropriate for GI evaluation.
3. Outline the steps for evaluation of GI films.
4. List GI x-ray views and their usefulness.
5. Describe the diagnostic uses of barium studies.
6. Discuss the relevance of radiographic studies for diagnostic evaluation of common gastrointestinal disorders.
7. Discuss the cost of common radiographic procedures and other tests; risks/discomfort to the patient; examples of appropriate initial assessments and follow-up radiographic and diagnostic imaging; and how each of these is involved in the diagnostic decision making process.

**Endoscopy**

1. Describe bowel preparation and patient education for specific endoscopic examinations.
2. Describe the procedures for upper endoscopy, colonoscopy, flexible sigmoidoscopy, and endoscopic retrograde cholangiopancreatography (ERCP).
3. Identify the diagnostic and therapeutic uses and limitations of each of the above procedures.
4. Discuss the cost of common endoscopic examinations and other tests; risks/discomfort to the patient; examples of appropriate initial assessments and follow-up diagnostic imaging; and how each of these is involved in the diagnostic decision making process.
5. Select the appropriate procedure based on specific clinical presentation.

**Esophageal Disorders**

1. Discuss the etiology and pathophysiology of esophagitis.
2. Discuss the etiology, pathophysiology, and risk factors that contribute to the development of gastroesophageal reflux disease (GERD).
3. Discuss the differential diagnosis and typical and atypical symptoms of GERD.
4. Recognize common and serious complications of GERD.
5. Discuss the etiology and clinical manifestations of Barrett's Esophagus and potential progression to adenocarcinoma or the esophagus.
6. Describe the etiology, pathophysiology, clinical presentation, differential diagnosis, evaluation and management of esophageal disorders including: GERD,.esophagitis dysphagia, esophageal motor disorders, achalasia, esophageal spasm, Mallory Weiss tear, Zollinger-Ellison Syndrome, neoplasms, strictures, and varices.
   *(Pharmacological management of GERD and ZE covered in Pharm I.)*
7. Describe the etiology, pathophysiology, risk factors, clinical presentation, diagnosis, and management of hiatal hernia.

**Gastritis and Peptic Ulcer Disease (PUD)**

1. List the differential diagnosis of dyspepsia syndromes and formulate a plan for evaluation.
2. Describe the etiology, clinical features, evaluation, and management of acute and chronic gastritis.
3. Discuss normal gastric physiology as it relates to the pathology and development of peptic ulcer disease.
4. List the currently recognized provocative factors that put a patient at risk of developing PUD; identify protective factors; and describe strategies to prevent the development of PUD in at risk patients.
5. Discuss the role of H. pylori in the development of PUD.
6. Outline the clinical features, evaluation, diagnosis, management, and follow-up of gastric and duodenal ulcer.
7. Describe specific diagnostic tests and indications for use in patients with gastritis and PUD.
8. Describe the potential complications of PUD (bleeding, perforation, gastric outlet obstruction).
9. Describe the etiology, pathophysiology, and prophylaxis for prevention of stress ulcers in hospitalized patients.
   *(Pharmacological management of dyspepsia, gastritis, and PUD disease will be covered in Pharmacotherapy I)*
10. Describe the basic surgical procedures to gastrectomy and recognize common complications (e.g. digestive and malsbsorptive problems, bacterial overgrowth of the small intestine, and post gastrectomy dumping syndrome).

**Inflammatory Bowel Disease (IBD)**

1. Discuss the epidemiology, etiology, and pathophysiology of Crohn's disease and ulcerative colitis.
2. Discuss the natural history and clinical course of Crohn's disease and ulcerative colitis.
3. Differentiate between Chrohn's disease and ulcerative colitis with respect to clinical, endoscopic, and radiographic findings.
4. Recognize systemic/extraintestinal manifestations of both ulcerative colitis and Crohn's disease.
5. Describe the laboratory evaluation of IBD and recognize the use and limitations of serologic markers in the differential diagnosis of IBD.
6. Formulate a diagnostic plan for differential diagnosis and evaluation of IBD.
7. Outline treatment options for the management of Crohn's disease and ulcerative colitis including pharmacological intervention.
8. Recognize potential complications of disease.

**Irritable Bowel Syndrome (IBS)**

1. Discuss the epidemiology of IBS.
2. Describe the clinical presentation of IBS.
3. Discuss the differential diagnosis of IBS.
4. Formulate a diagnostic plan for IBS.
5. Develop a treatment plan for IBS which includes appropriate patient education. (Pharmacological management will be covered in Pharmacotherapy I.)

**Appendicitis**

1. Discuss the epidemiology, etiology, and pathophysiology of appendicitis.
2. Describe the clinical presentation, differential diagnosis, and evaluation of appendicitis.
3. Identify emergent situations requiring admission and surgical referral.
4. Describe potential complications of delayed treatment of appendicitis

**Disorders of the Colon and Rectum**

**Diverticular Disease**

1. Differentiate between diverticulosis and diverticulitis.
2. Describe the etiology, epidemiology, and underlying pathophysiologic mechanism of the development of diverticular disease.
3. List the differential diagnosis for diverticular disease.
4. Describe the clinical presentation of diverticulosis and diverticulitis.
5. Formulate a diagnostic plan for the evaluation of diverticular disease including physical exam, laboratory, and appropriate use and limitations of radiagraphic and endoscopic evaluation.
6. Discuss appropriate patient education for the patient with diverticular disease.
7. Outline a treatment plan for a patient with diverticulosis.
8. Discuss the treatment of diverticulitis.

**Anorectal Disorders**

1. Define the following conditions: hemorrhoids, anal fissures, fistulas, perirectal abscesses, and rectal prolapse.
2. Discuss the epidemiology, etiology, pathophysiology, diagnosis, and management of hemorrhoids.
3. Discuss the etiology, clinical presentation, diagnosis, and management of anal fissure, fistulas, rectal prolapse, and perirectal abcess.

**Hernias**

1. Describe the epidemiology, etiology, and pathpophysiology of each of the following hernias: femoral, inguinal, ventral, umbilical, incisional, and incarcerated.
2. Describe the clinical presentation of each.
3. Outline treatment options for each condition.
   *(Hiatal hernia covered under esophageal disorders.)*

**Colorectal Cancer**

1. Describe the epidemiology of colorectal cancer.
2. Identify recognized risk factors for the development of colorectal cancer.
3. Describe the pathophysiology of polyps of the colon/adenomas and the progression to cancer.
4. Discuss the role of genetics and genetic counseling in the diagnosis and management of colorectal cancer.
5. Discuss the clinical presentation of intestinal polyps and colorectal cancers.
6. Formulate a diagnostic plan for the evaluation of colon cancer.
7. Discuss the use and limitations of guaiac testing, flexible sigmoidoscopy, colonoscopy, and virtual colonoscopy in the screening and diagnosis of colorectal cancer.
8. Explain the staging (Duke's Classification) of colon cancer.
9. Discuss prognosis related to type and stage of colon cancer.
10. Discuss treatment strategies for intestinal polyps and colorectal cancers.
11. Discuss patient education regarding prevention strategies and screening for early diagnosis of colon cancer.
12. Outline current screening recommendations.
13. Discuss potential complications of colorectal cancers and their treatment.

**Diseases of the Gallbladder and Pancreas**

**Biliary Tract Diseases**

1. Differentiate cholelithiasis, cholecystitis (chronic and acaluculous), choledocholithiasis (bile duct stones), and cholangitis.
2. Explain the pathophysiologic process of each of the conditions listed above.
3. Discuss the epidemiology and list the predisposing risk factors for each of the above conditions.
4. Describe the clinical presentation of each of the above biliary tract diseases.
5. Formulate a diagnostic plan for the evaluation of biliary tract disorders.
6. Discuss the laboratory tests and use and limitations of the various diagnostic/imaging tests used for the evaluation of biliary track disease.
7. Discuss treatment options for each of the above conditions and include patient education component.
8. List the potential complications of cholecystitis.

**Pancreatic Disease**

1. Explain the epidemiology, etiology, risk factors, and pathophysiology of acute and chronic pancreatitis.
2. Discuss the clinical presentation, signs/simptoms of acute and chronic pancreatitis.
3. Formulate and diagnostic plan and discuss the use and limitations of specific laboratory tests used in the diagnostic evaluation of pancreatitis and the selection and indications for diagnostic imaging tests.
4. Differentiate between acute and chronic pancreatitis.
5. Discuss the goals of treatment and treatment options for acute and chronic pancreatitis.
6. Recognize the prognosis and complications of acute pancreatitis.

**Liver Disease: Hepatitis and Cirrhosis**

1. Review the functions of the healthy liver.
2. Describe common signs/symptoms of liver disease and relate these to the pathophysiology of liver disease.
3. Discuss the impact of alcohol in the pathogenesis of liver disease.
4. Discuss specific laboratory tests for liver function and their use and limitations in the diagnosis and evaluation of liver disease.

**Cirrhosis**

1. Explain the etiology, risk factors, and pathophysiology of cirrhosis.
2. Define portal hypertension and discuss the pathophysiology and ramifications of this condition.
3. Discuss the approach to the patient with esophageal varices.
4. Describe the changes that occur in the liver from early to late cirrhosis.
5. Describe the clinical presentation of cirrhosis, diagnostic evaluation, and management of cirrhosis.
6. Outline the approach to the patient with hepatic encephalopathy.
7. Discuss the complications of advanced liver disease, clinical course, and prognosis.

**Hepatitis**

1. Describe the etiology and pathophysiology of acute and chronic hepatitis.
2. Describe the epidemiology the various types of viral hepatitis including the route of transmission, incubation period, risk factors, and carrier states.
3. Discuss the clinical features, signs/symptoms, diagnostic evaluation (including serological markers) and management of acute/chronic viral hepatitis.
4. Differentiate between acute and chronic hepatitis.
5. Describe appropriate prophylaxis for primary prevention of each type of hepatitis, including current recommendations for immunization in the U.S. and with travel to endemic regions. Include recommendations for post-exposure intervention where appropriate.
6. Discuss the natural history of acute and chronic hepatitis, the clinical course of treated and untreated disease, prognosis, and potential complications.
7. Discuss appropriate patient education for each type of hepatitis.
8. Discuss the etiology, pathophysiology, clinical features, laboratory findings, diagnosis, and management of alcoholic hepatitis.
9. Discuss the characteristics of fulminant hepatic failure.

**Constipation and Diarrhea**

1. Define constipation.
2. Discuss the common causes of constipation.
3. Formulate a diagnostic plan based on specific clinical presentation of constipation.
4. Describe the first line treatment and prevention of common constipation. *(Pharmacological management of constipation covered in Pharm I.)*
5. Identify mechanical and other causes of bowel obstruction and abdominal distention syndromes (e.g. toxic mega colon, intussusception).
6. Identify emergent cases of constipation (e.g. bowel obstruction, toxic mega colon, intussusception).
7. Describe clinical presentation of bowel obstruction.
8. Discuss the common etiologies of diarrhea.
9. Discuss the pathophysiology of the following: secretory diarrhea ,osmotic diarrhea, altered transit, and exudative diarrhea.
10. List the differential diagnosis for diarrhea and describe the importance of the differential in formulating a diagnosis and treatment plan.
11. Describe the process for assessment of diarrhea including laboratory and endoscopic evaluation.
12. Discuss the epidemiology, pathophysiology, risk factors, and modes of transmission of specific agents and toxins associated with infectious diarrheas.
13. Describe the clinical presentation, diagnosis, and management of selected infectious diarrheas.

**Medical Nutrition Therapy (MNT) in Gastrointestinal Disease**

1. Identify nutrition-related presenting characteristics of specific G.I. diseases.
2. Discuss specific screening tests used for the diagnosis of malabsorptive disorders.
3. Describe the appropriate medical nutrition therapy for symptomatic management of diseases of the esophagus, stomach, gallbladder, pancreas, liver, and small and large intestine.
4. Describe the etiology, pathophysiology, signs and symptoms, diagnosis, and management of lactose intolerance.
5. Identify indications for enteral and parenteral nutrition support.
6. Discuss strategies to educate patients and encourage intake of specific foods to meet nutritional needs.
7. Identify conditions requiring referral to a Registered Dietitian.

**Assessment and Management of GI Bleed**

1. Discuss the etiology and risk factors for upper and lower GI bleeds.
2. List the common sources of bleeding that are associated with upper or lower GI bleeding.
3. Discuss the importance of historical information, signs/symptoms, and physical exam findings in relation to evaluation of GI bleed.
4. Describe the clinical presentation of G.I. bleed from varying etiologies and sources.
5. Identify signs and symptoms that signify a life-threatening or emergent condition.
6. Formulate a diagnostic plan based on specific clinical presentation including laboratory and radiographic studies.
7. Discuss the management of acute GI bleed.
8. Discuss secondary management and endoscopic evaluation to locate the site(s) of bleeding.

**Assessment and Management of Acute Abdomen**

1. Describe the principal factors that produce pain in the GI tract.
2. Identify other potential conditions (non-G.I.) that may present as an acute abdomen.
3. Identify specific physical findings of a patient presenting with acute abdomen that are helpful in making the diagnosis.
4. Correlate location and radiation pattern of pain to specific GI conditions.
5. Identify signs and symptoms that signify a serious or emergent condition.
6. Formulate a diagnostic plan based on specific clinical presentation that includes appropriate laboratory tests and diagnostic imaging.

7. Describe the clinical presentation of each of the following GI conditions that may present as an acute abdomen:
   - Acute appendicitis
   - Peritonitis
   - Cholelithiasis/cholecystitis
   - Perforated ulcer
   - Acute pancreatitis
   - Bowel obstruction
   - Hernia
   - Diverticulitis
   - Ischemic bowel
   - Ruptured AAA

8. Discuss treatment options based on specific clinical presentation and diagnosis.

**Cancer of the Gastrointestinal Track**

1. Describe the etiology, epidemiology, and pathogenesis for cancers affecting various regions of the G.I. track including:
   - Esophageal cancer
   - Gastric cancer
   - Cancers impacting the biliary system
   - Pancreatic cancer
   - Liver cancer
     *(Colon CA will be covered as a separate topic.)*

2. Discuss the clinical presentation and initial diagnostic evaluation for each of the above cancers.
3. Identify treatment options and discuss prognosis.