

APPENDIX A
SYLLABUS FOR G.I. TRAINING PROGRAMME

Prepared By:

Malaysian Gastroenterology & Hepatology Training Committee

A. Common GI presentations

SUBJECT	LEARNING OBJECTIVES	KNOWLEDGE	SKILLS
Abdominal pain	1. To understand the causes of acute and chronic abdominal pain and how patients with these symptoms are managed	<ol style="list-style-type: none"> 1. Knows the causes of acute and chronic abdominal pain. 2. Understands the mechanisms by which pain is produced, the relevant anatomy and physiology of abdominal pain and the underlying pathophysiological basis of pain perception. 3. Understands the methods of clinical assessment and investigation. 4. Understands the range of treatment options for managing acute and chronic pain including the need for a multidisciplinary approach. 5. Understands the indications for surgical referral in abdominal pain. 6. Understands how psychological factors can modify a patient's response to pain 	<ol style="list-style-type: none"> 1. Able to elicit a thorough history and elicit physical signs in a patient with abdominal pain. 2. Able to plan appropriate investigations, formulate a diagnosis and management plan in a patient with acute and chronic abdominal pain. 3. Able to manage an acute abdomen in consultation with a surgical team.
Dyspepsia	1. Be able to diagnose and manage dyspepsia	<ol style="list-style-type: none"> 1. Recognises the symptoms and pathophysiology of dyspepsia and lists the differential diagnoses. Knows the significance of alarm symptoms. 2. Differentiates between functional and organic causes of dyspepsia. 3. Describes the role and relevance of investigations in dyspepsia. 4. Describes the principles of management of dyspepsia. 	1. Able to assess, discuss the aetiology and manage both organic and functional dyspepsia.
Nausea and Vomiting	1. To Assess and manage nausea and vomiting	<ol style="list-style-type: none"> 1. Describes the pathophysiology of nausea and vomiting and differentiation between vomiting and regurgitation. 2. Describes the common causes of nausea and vomiting. 3. Describes the metabolic and structural consequences of vomiting. 	1. Be able to assess and manage nausea and vomiting and its complications.
Dysphagia	1. To understand the causes, investigation and management of dysphagia	<ol style="list-style-type: none"> 1. Describes the various causes and types of dysphagia and their clinical presentations. 2. Explains the role of investigations in dysphagia including upper GI endoscopy, manometry and radiology. 3. Understands the role of a speech pathologist in swallowing disorders. 	<ol style="list-style-type: none"> 1. Be able to interpret a barium swallow 2. Be able to interpret an oesophageal manometry report. 3. Be able to manage the different forms of dysphagia.

Heartburn and Non – cardiac chest pain	1. To understand the pathophysiology, clinical presentation and management of heartburn and non-cardiac chest pain (NCCP)	<ol style="list-style-type: none"> 1. Understands the normal anatomy and physiology of the oesophagus and GE junction. 2. Recognises heartburn clinically. 3. Understands the potential role of the oesophagus in a patient presenting with chest pain in whom a cardiac cause has been excluded and its role in functional symptoms. 4. Understands the appropriate investigations and management of heartburn and NCCP. 	1. Be able to clinically assess, investigate and appropriately manage heartburn and noncardiac chest pain
Diarrhoea	1. To Understand the causes of acute and chronic diarrhoea and their management	<ol style="list-style-type: none"> 1. Understands the physiology of intestinal absorption, secretion and motility. 2. Understands the pathophysiology and mechanisms of secretory and osmotic diarrhoea. 3. Understands the causes of acute and chronic diarrhoea. 4. Able to make a detailed clinical assessment and recognise the potential need for urgent fluid replacement. 5. Describes the role and nature of investigations in acute and chronic diarrhoea. 6. Shows ability to interpret results, reach a diagnosis and formulate a management plan. 	<ol style="list-style-type: none"> 1. Be able to diagnose, investigate and manage acute and chronic diarrhoea 2. Be able to react appropriately to the urgency of the clinical situation.
Constipation	1. To be able to assess and manage constipation	<ol style="list-style-type: none"> 1. Knows the normal functional anatomy and physiology of the colon, rectum and anus. 2. Describes the causes and pathophysiology of constipation, including the roles of diet, activity, medication and pelvic floor dysfunction. 3. Knows the mechanisms of continence and how these may be affected by disease. 4. Indicates the role of appropriate investigations including endoscopy, radiology, and anorectal manometry. 5. Knows the range of treatment options including drugs, biofeedback and surgery. 	1. Shows the ability to clinically assess, investigate and appropriately manage constipation.

Obscure GI Bleeding	<ol style="list-style-type: none"> 1. To be able to recognise, assess and manage Obscure GI bleeding 	<ol style="list-style-type: none"> 1. Understands the definition and classification of obscure GI bleeding 2. Understands the approach to investigation including the role of endoscopy, capsule endoscopy and radiology. 3. Understands the management of the underlying cause for obscure GI bleeding. 	<ol style="list-style-type: none"> 1. Be able to assess and manage Obscure GI bleeding. 2. Develop skills in deep (small bowel) enteroscopy and interpretation of capsule endoscopy
Weight Loss and Anorexia	<ol style="list-style-type: none"> 1. To be able to manage patients with significant weight loss and/or anorexia. 	<ol style="list-style-type: none"> 1. Describes the causes of weight loss (both GI and non-GI) and clinical consequences of undernutrition. 2. Explains the role of appropriate investigations in defining the cause. 3. Describes the principles of nutritional therapy 4. Understands the risks of refeeding in significant weight loss. 	<ol style="list-style-type: none"> 1. Be able to take a relevant history, perform a relevant examination and identify the likely cause for anorexia and weight loss (including psychiatric conditions). 2. Be able to investigate and formulate a management plan for patients with weight loss and anorexia.
Jaundice and abnormal Liver Function Tests	<ol style="list-style-type: none"> 1. To understand the range of symptoms and risk factors for liver disease and its investigation. 2. To understand the classification, assessment and investigation of jaundice. 	<ol style="list-style-type: none"> 1. Understands biliary metabolism, the pathophysiology, classification and causes of jaundice. 2. Describes the common patterns of abnormal LFTs and their causes 3. Lists the tests required for the investigation of acute and chronic liver disease 4. Describe the abnormalities found in acute and chronic biliary obstruction and cholangitis. 5. Describe the role of imaging and endoscopy in biliary obstruction 6. Discusses the role of liver biopsy in liver disease 	<ol style="list-style-type: none"> 1. Able to assess and manage Jaundice and abnormal liver function tests. 2. Demonstrates a prompt and stepwise approach to the management of jaundice and liver disease.
Ascites	<ol style="list-style-type: none"> 1. To be able to assess and manage ascites and its complications. 	<ol style="list-style-type: none"> 1. Describe the causes (hepatic and non-hepatic) and pathophysiology of ascites. 2. Understands the definition of diuretic-resistant and diuretic refractory ascites. 3. Understands the management of ascites including the role of paracentesis and TIPS. 4. Understands the role of investigations in ascites and spontaneous bacterial peritonitis (SBP). 5. Understands the role of alternative interventions e.g. TIPS, Shunts and 	<ol style="list-style-type: none"> 1. Able to safely perform diagnostic and large volume paracentesis. 2. Able to assess, investigate and manage ascites and its complications including spontaneous bacterial peritonitis and the hepatorenal syndrome.

		<p>Transplantation and indications for referral.</p> <ol style="list-style-type: none">6. Understands the diagnosis and management of associated conditions including hyponatraemia, spontaneous bacterial peritonitis and the hepatorenal syndrome.7. Understands the proper management with salt restriction diet and diuretics in order to avoid iatrogenic acute kidney injury.	
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B. Gastrointestinal Emergencies

SUBJECT	LEARNING OBJECTIVES	KNOWLEDGE	SKILLS
Acute upper and lower GI bleeding	1. To assess and manage acute upper and lower GI bleeding	<ol style="list-style-type: none"> 1. Describe the clinical features of upper and lower GI bleeding 2. Describe the management of acute variceal and non-variceal upper GI bleeding. 3. Describe risk stratification in upper GI bleeding. 4. Understand the role of endoscopic haemostasis and its modalities in both variceal and non-variceal bleeding. 5. Describe the classification of bleeding ulcers and oesophageal varices. 6. Describe the role of pharmacotherapy in nonvariceal and variceal bleeding. 7. Describe the management of lower GI bleeding. 8. Understand the indications for a surgical/radiological referral in GI bleeding. 9. Describes the long-term management of patients with variceal and non-variceal bleeding post- endoscopic haemostasis. 	<ol style="list-style-type: none"> 1. Able to assess and resuscitate a patient with GI bleeding. 2. Able to perform endoscopic haemostasis in upper and lower GI bleeding. This includes injection therapy, thermal therapy, and mechanical therapy and Band ligation.
Ingested Foreign Bodies, Food bolus obstruction and Caustic ingestion	1.To assess and manage ingested foreign bodies, food bolus obstruction and caustic injuries to the GI tract.	<ol style="list-style-type: none"> 1. Define the presenting features of a patient presenting with an ingested foreign body, food impaction or caustic ingestion. 2. Define indications for and contraindications to endoscopic management of ingested foreign bodies, food impaction and caustic injury. 3. Describe the endoscopic management of impacted food bolus and ingested foreign bodies (including endoscopic techniques for removal of blunt and sharp objects). 4. Describe the assessment and management of caustic injury including the role of endoscopic therapy. 	<ol style="list-style-type: none"> 1. Able to perform the endoscopic removal of a foreign body safely and effectively. 2. Able to perform endoscopy and therapy where and when appropriate in caustic injury.

Acute Abdomen	1.To assess and manage acute abdomen	<ol style="list-style-type: none"> 1. Understands the causes of acute abdomen 2. Understands the role of a proper history and physical examination in elucidating the aetiology. 3. Understands the assessment, resuscitation and indications for urgent investigation in acute abdomen 4. Defines the criteria for surgical referral. 	1. Able to promptly assess, resuscitate, investigate and perform a surgical referral, where indicated, in a case of acute abdomen.
Acute Liver Failure	1.To assess and manage Acute Liver failure (ALF) or Acute on Chronic Liver Failure (ACLF)	<ol style="list-style-type: none"> 1. Describe the common aetiologies and natural history of ALF. 2. Describe the classification of ALF. 3. Describe the investigation and management of ALF. 4. Define the criteria for referral for Liver Transplantation. 5. Understands the common aetiologies in Acute on Chronic Liver Failure. 	<ol style="list-style-type: none"> 1. Able to recognise and manage ALF. 2. Able to refer a case of ALF for liver transplantation where indicated. 3. Able to control and reverse Acute on Chronic Liver Failure in patients with pre-existing cirrhosis.
Fulminant Colitis	1.To assess and manage fulminant colitis and toxic megacolon.	<ol style="list-style-type: none"> 1. List the aetiologies of fulminant colitis and toxic megacolon. 2. Define the role of investigation including imaging and endoscopy in the diagnosis and management of fulminant colitis and toxic megacolon. 4. Define the medical management of fulminant colitis and toxic megacolon. 5. Define the criteria for surgical referral 	1. Able to recognise and manage fulminant colitis and toxic megacolon.
Cholangitis	1.To assess and manage cholangitis	<ol style="list-style-type: none"> 1. Describe the aetiology, presentation and microbiology of Acute Cholangitis. 2. Understand the clinical assessment of cholangitis, including the role of imaging. 3. Understand the management of cholangitis including the role of antibiotics and endoscopic, radiological or surgical biliary drainage. 4. Define subsequent management of the patient with relevance to the aetiology of cholangitis. 	<ol style="list-style-type: none"> 1. Able to diagnose, investigate and manage acute cholangitis. 2. Able to perform biliary drainage by ERCP (Optional)

C. Gastrointestinal Disease

Upper Gastrointestinal and Small Bowel Disease

Subject	Learning Objectives	Knowledge	Skills
Gastroesophageal reflux disease (GERD)	1.To assess and manage GERD	<ol style="list-style-type: none"> 1. Describe the pathophysiology, clinical features, diagnosis and investigation of GERD including endoscopy, pH monitoring and impedance testing. 2. Describe the management of GERD and its complications including Barret's oesophagus. 	<ol style="list-style-type: none"> 1. Able to clinically diagnose GERD and extra-oesophageal reflux disease and interpret the relevant investigations. 2. Able to grade the severity of reflux esophagitis endoscopically. 3. Able to recognise Barret's oesophagus endoscopically 4. Able to manage GERD, Refractory GERD and Barret's oesophagus
Oesophageal Cancer	1.To diagnose and manage oesophageal cancer	<ol style="list-style-type: none"> 1. Describe the epidemiology and risk factors for Oesophageal cancer 2. Discuss the management of high-grade dysplasia and early cancer 3. Discuss the management of Oesophageal cancer 	<ol style="list-style-type: none"> 1. Participate in a multidisciplinary team (MDT) to discuss the management of patients with oesophageal cancer. 2. Diagnose, stage and manage oesophageal cancer.

Peptic Ulcer Disease	1.To assess and manage peptic ulcer disease (PUD)	<ol style="list-style-type: none"> 1. Explain the pathogenesis and aetiology of PUD including NSAIDs and <i>Helicobacter pylori</i>. 2. Describe the diagnosis and management of PUD and <i>H. pylori</i> infection 3. Describe the complications of peptic ulcer and their management. 	<ol style="list-style-type: none"> 1. Able to diagnose PUD on endoscopy and perform endoscopic haemostasis for bleeding peptic ulcer. 2. Able to manage PUD complications including perforation, obstruction and bleeding. 3. Able to manage <i>H pylori</i> infection including eradication failures. 4. Able to formulate a management plan to reduce GI risk in a patient on NSAIDs/Antiplatelets
Gastric Cancer	1. To diagnose and manage gastric cancer	<ol style="list-style-type: none"> 1. Describe the presentation, diagnosis, staging and management of gastric cancer. 2. Discuss the diagnosis and management of GI Stromal Tumours (GIST) 	<ol style="list-style-type: none"> 1. Participate in a multidisciplinary team (MDT) to discuss the management of patients with gastric cancer and GIST. 2. Diagnose, stage and manage gastric cancer and GIST 3. Perform enteral stenting as palliation for gastric outlet obstruction.
Small bowel disease	1.To assess and manage small bowel disease	<ol style="list-style-type: none"> 1. Describe the aetiology, clinical features, investigation, diagnosis and management of malabsorption and protein losing enteropathy 2. Describe infectious small bowel pathologies 	<ol style="list-style-type: none"> 1. Able to formulate a comprehensive plan for the management of malabsorption.
Small bowel tumours	1. To diagnose and manage small bowel tumours including neuroendocrine tumours of the GIT	<ol style="list-style-type: none"> 1. Describe the presentation, investigation, diagnosis, treatment and prognosis of small bowel tumours and neuroendocrine tumours. 	<ol style="list-style-type: none"> 1. Able to diagnose, prognosticate and manage small bowel tumours and neuroendocrine tumours.

Lower Gastrointestinal Disease

Subject	Learning Objectives	Knowledge	Skills
Colonic polyps	1. To detect, characterise and manage colonic polyps.	<ol style="list-style-type: none"> 1. Describe the current classification for colonic polyps 2. Describe the current enhanced endoscopic imaging modalities for the detection and characterisation of colonic polyps. 3. Recognise current screening and surveillance guidelines 4. Describe the management of colonic polyps and polyposis syndromes 	<ol style="list-style-type: none"> 1. Able to detect and characterise hyperplastic and adenomatous colonic polyps as well as sessile serrated adenomas. 2. Able to perform polypectomy safely and effectively. 3. Conversant with current screening and surveillance guidelines.
Colorectal Cancer	1. To diagnose and manage colorectal cancer (CRC)	<ol style="list-style-type: none"> 1. Describe the epidemiology, risk factors, pathogenesis, presentation and diagnosis of CRC. 2. Describe the staging, prognosis, treatment and palliation of CRC. 	<ol style="list-style-type: none"> 1. Able to discuss the various modalities and risk groups for CRC screening. 2. Participate in a multi-disciplinary team to discuss the management of patients with CRC. 3. Able to perform palliative stenting for malignant colonic obstruction.
Diverticular disease	1. To diagnose and manage diverticular disease.	<ol style="list-style-type: none"> 1. Describe the pathogenesis, presentation, complications and management of diverticular disease. 2. Identify indications for surgical referral 	1. Diagnose and manage diverticulitis, diverticular bleed and uncomplicated diverticular disease.
Anorectal disease	1. To diagnose and manage anorectal disease	<ol style="list-style-type: none"> 1. Describe the clinical anatomy of the pelvis and anorectum and methods of assessment of anorectal and pelvic floor function. 2. Describe the classification of anal fistulae and their management. 3. Describe the range of anorectal conditions (including abscesses, haemorrhoids, fissure, anal cancer), their investigation and management. 4. Describe the indications for surgical referral for anorectal disease. 	<ol style="list-style-type: none"> 1. Able to take a history and appropriately examine the anus and rectum. 2. Refers the patient for appropriate endoscopic and radiological investigations.

<p>Inflammatory Bowel Disease (IBD)</p>	<p>1. Diagnose and manage IBD</p>	<ol style="list-style-type: none"> 1. Describe the epidemiology and pathogenesis of IBD and its differential diagnoses. 2. Describe the clinicopathological differences between Ulcerative Colitis (UC) and Crohn's Disease (CD). 3. Describe the role of serology, endoscopy, capsule endoscopy and imaging in the investigation of IBD. 4. Describe the range of available medical therapeutic options. 5. Describe the role of surgery in IBD. 6. Describe the role of surveillance for dysplasia/colorectal cancer in IBD. 7. Understands the management of the complications of IBD and special situations such as pregnancy. 	<ol style="list-style-type: none"> 1. Uses appropriate investigations for IBD. 2. Selects appropriate treatment for extent and severity of disease including immunomodulator therapy. 3. Able to recognise, manage and make a surgical referral, where appropriate, for complications of IBD.
<p>Functional Gastrointestinal Disorders</p>	<p>1. Understands functional gut disorders and the approach to treatment</p>	<ol style="list-style-type: none"> 1. Describes the functional anatomy of the enteric nervous system, the brain-gut axis and the physiology of gastrointestinal motility. 2. Describes the clinical presentation, investigation and management of irritable bowel syndrome, functional dyspepsia, non-cardiac chest pain, functional heartburn and pelvic floor dysfunction. 3. Understands the importance of a holistic and individualised approach to patient management. 	<ol style="list-style-type: none"> 1. Able to make an appropriate clinical assessment of Functional GI disorders. 2. Uses investigations selectively. 3. Communicates the diagnosis clearly. 4. Able to prescribe pharmacological and psychological therapies where appropriate.

Nutrition

Subject	Learning Objectives	Knowledge	Skills
Gut Failure	1. Describe the consequences of gut failure and methods of nutritional support.	<ol style="list-style-type: none"> 1. Describes the pathophysiology, clinical manifestations and management of short bowel syndrome and intestinal failure. 2. Describes the various nutritional therapies available, methods of delivery and their indications. 3. Understands the role of enteral feeding including nasogastric, PEG, nasoenteric, PEG/J and PEJ feeding including placement techniques. 4. Understands the refeeding syndrome and adverse effects of nutritional therapies including parenteral nutrition. 	<ol style="list-style-type: none"> 1. Able to prescribe enteral feeding and parenteral nutrition as appropriate in gut failure. 2. Able to insert and change PEG tubes and manage their complications.
Obesity	1. Manage obesity and its complications	<ol style="list-style-type: none"> 1. Define overweight and obese. 2. Describe the pathophysiology and health consequences of obesity. 3. Describe the management options including dietary and lifestyle measures and indications for bariatric surgery. 4. Describe the benefits and complications of bariatric surgery. 	1. Able to prescribe the appropriate management regimen for the treatment of obesity including diet, exercise and a referral for bariatric surgery where appropriate.
Cirrhosis	1. Manage malnutrition in Chronic Liver Disease	1. Understands the nutritional deficiency and need in cirrhotic patients.	1. Able to give appropriate nutritional advice to the cirrhotic patients in collaboration with the nutritionist.

Liver Disease

Subject	Learning Objectives	Knowledge	Skills
Viral Hepatitis	1. Diagnose and manage viral hepatitis	<ol style="list-style-type: none"> 1. Describe the epidemiology, risk factors, clinical presentation and natural history of Viral Hepatitis in particular Hepatitis A, B, C, D and E. 2. Describe the definitive management strategies for Viral hepatitis in particular Hepatitis B and C including the need for surveillance. 3. Describe the prophylaxis for Hepatitis B reactivation in the context of chemotherapy 	<ol style="list-style-type: none"> 1. Interpret Viral Hepatitis serology and molecular virology. 2. Assess disease activity and severity in Hepatitis B and C including the interpretation of liver biopsies. 3. Be cognizant of the latest guidelines on the management of Hepatitis B and C. 4. Be conversant with the interferon and other antiviral therapies for Hepatitis B and C.
Alcoholic Liver Disease	1. Manage patients with alcoholic liver disease.	<ol style="list-style-type: none"> 1. Identify the various clinical presentations and natural history of Alcoholic Liver Disease. 2. Recognise alcohol dependence. 	<ol style="list-style-type: none"> 1. Counsel a patient on the importance of abstinence. 2. Manage acute alcoholic hepatitis. 3. Describe the principals of long term management of Alcoholic Liver Disease.
Autoimmune Liver Disease	1. Diagnose and manage Autoimmune Liver Diseases	<ol style="list-style-type: none"> 1. Recognise and appropriately investigate Autoimmune Liver Diseases including Autoimmune Hepatitis, PBC, PSC and Overlap Syndromes 2. Understands the management of the spectrum of Autoimmune Liver Disease and their complications. 	<ol style="list-style-type: none"> 1. Describe the management strategies for autoimmune hepatitis, PBC and PSC. 2. Discuss liver biopsies of patients with Autoimmune Liver Disease.
Fatty Liver Disease	1. Diagnose and manage Fatty Liver Disease	<ol style="list-style-type: none"> 1. Describe the epidemiology, pathogenesis, natural history, clinical features, prognosis, investigation and management of NAFLD and NASH. 2. Recognises the associated Metabolic Syndrome and its management. 	1. Describe current treatment strategies for NAFLD and NASH.

Inherited and Metabolic Liver Disease	1. Manage inherited and metabolic liver disease	1. Describe the pathogenesis of inherited and metabolic liver diseases including Gilbert's syndrome, haemochromatosis, Wilson's disease and alpha 1 antitrypsin deficiency.	1. Able to diagnose and manage inherited and metabolic liver diseases.
Drug-induced Liver Injury (DILI)	1. Assess and manage DILI	1. Describe the basic mechanisms, clinical spectrum and natural history of DILI. 2. Describe the investigation (including liver biopsy) and management of DILI.	1. Able to list the common offending drugs in DILI. 2. Discuss the role of liver biopsy in DILI 3. Able to manage DILI
Cirrhosis, Portal Hypertension and Ascites	1. Diagnose, investigate and manage cirrhosis, portal hypertension and ascites.	1. Describe the clinical and biochemical assessment of cirrhosis. 2. Describe the role of ultrasound, CT and MRI imaging in cirrhosis. 3. Describe the methods of non-invasive assessment of liver fibrosis. 4. Describe the ambulatory care of cirrhosis including screening for hepatocellular carcinoma and prevention of variceal haemorrhage. 5. Describe the pathophysiology of portal hypertension and management of its complications ie ascites, hepatorenal syndrome, hepatic encephalopathy and variceal bleeding. 6. List the common indications for liver transplantation	1. Apply the Child-Pugh score in practice. 2. Assess and grade hepatic encephalopathy. 3. Investigate the cause and ascertain severity of cirrhosis. 4. Perform abdominal paracentesis including large-volume paracentesis. 5. Manage variceal bleeding. 6. Manage ascites including diuretic resistant and diuretic refractory ascites. 7. Manage spontaneous bacterial peritonitis 8. Manage hepato-renal syndrome. 9. Manage hepatic encephalopathy
Hepatocellular Carcinoma (HCC)	1. Assess and manage patients with HCC	1. Describe the epidemiology and risk factors for HCC. 2. Describe the clinical presentation and natural history of HCC. 3. Describe the characteristics of HCC on imaging. 4. Describe the modalities of curative and palliative treatment of HCC.	1. Able to diagnose, assess and manage HCC. 2. Able to refer for surgery or palliation where appropriate.
Liver disease in pregnancy	1. Describe the presentation, investigation and management of	1. Describe the effects of liver disease on pregnancy 2. Describe the effects of pregnancy on liver disease.	1. Recognise, Diagnose and manage the various liver disorders in pregnancy.

	pregnancy-related liver disease	3. Describe the clinical features and management of liver disease in pregnancy.	
Vascular disorders of the liver	1. Investigate and manage vascular disorders of the liver	<ol style="list-style-type: none"> 1. Describe the clinical anatomy and vascular anatomy of the liver. 2. Outline the various forms of arterial and venous disorders of the liver. 3. Understand the importance of imaging in vascular disorders. 4. Describe the clinical features, imaging and management of portal vein thrombosis, Budd-Chiari syndrome and veno-occlusive disease. 	1. Recognise, diagnose and manage vascular disorders of the liver.

Pancreatic Disease

Subject	Learning Objectives	Knowledge	Skills
Acute and Chronic Pancreatitis	<ol style="list-style-type: none"> 1. Describe the clinical anatomy and physiology of the pancreas. 2. Describe the pathophysiology of acute and chronic pancreatitis. 3. Describe the clinical presentation, investigation, complications and prognosis of acute and chronic pancreatitis. 4. Describe the treatment of acute and chronic pancreatitis including medical, endoscopic, radiological and surgical modalities. 		<ol style="list-style-type: none"> 1. Able to assess the severity of acute pancreatitis. 2. Able to manage acute pancreatitis including fluid resuscitation. 3. Understands the various management strategies in chronic pancreatitis.
Pancreatic mass/cystic lesion	<ol style="list-style-type: none"> 1. Describe the investigation and management of a pancreatic mass/cystic lesion 	<ol style="list-style-type: none"> 1. Discuss the role of imaging and endoscopic ultrasound in a pancreatic mass or cystic lesion. 2. Describe the differential diagnosis and management of a patient with a pancreatic cyst. 	<ol style="list-style-type: none"> 1. Describe the treatment options for the various types of pancreatic cystic lesions. 2. Describe the clinical approach and management of pancreatic masses.
Pancreatic cancer	<ol style="list-style-type: none"> 1. Diagnose and manage pancreatic cancer 	<ol style="list-style-type: none"> 1. Describe the clinical presentation, diagnosis, investigation, staging and management of pancreatic cancer. 	<ol style="list-style-type: none"> 1. Describe the curative and palliative treatment for pancreatic adenocarcinoma. 2. Participate in a multidisciplinary team discussion on the management of patients with pancreatic cancer. 3. Able to perform ERCP and palliative stenting of pancreatic cancer (optional).

Biliary Disease

Subject	Learning Objectives	Knowledge	Skills
Gallstone Disease	1. Diagnose and manage gallstone disease	<ol style="list-style-type: none"> 1. Describe the pathogenesis, natural history and clinical presentation of gallstone disease. 2. Discuss the management of asymptomatic and symptomatic gallstones 3. Describe the medical and endoscopic management of cholangitis 4. Describe the diagnosis and management of acute and chronic cholecystitis. 	1. Able to manage gallstone disease including medical, endoscopic, radiological and surgical options
Malignant biliary obstruction	1. Diagnose and manage malignant biliary obstruction	<ol style="list-style-type: none"> 1. Describe the clinical presentation and diagnostic approach to malignant biliary obstruction 2. Discuss modalities for palliation including endoscopic and percutaneous stenting for biliary as well as duodenal obstruction. 3. Discuss other palliative options including surgery, chemotherapy and radiotherapy. 	<ol style="list-style-type: none"> 1. Able to diagnose and manage malignant biliary obstruction using imaging, endoscopic ultrasonography, ERCP 2. Able to perform palliative biliary stenting for biliary obstruction and enteral stenting for duodenal obstruction (optional).

Principles of Gastrointestinal Surgery

Subject	Learning Objectives	Knowledge	Skills
Gastrointestinal Surgery	1. Describe the principles of upper gastrointestinal, lower gastrointestinal, hepatobiliary and endoscopic gastrointestinal surgery	<ol style="list-style-type: none"> 1. Describe postoperative anatomy following common upper and lower GI surgical operations, including bariatric surgery, and the endoscopic appearances associated with these operations. 2. Understand the basic principles of common GI surgical operations including laparoscopic surgery. 3. Understand the basic principles of stoma care. 	<ol style="list-style-type: none"> 1. Understands the indications for GI surgical procedures and the relevant postoperative anatomy. 2. Understands the postoperative complications following GI surgery.

Gastrointestinal Endoscopy

Subject	Learning Objectives	Knowledge	Skills
Informed Consent	1. Describe principles and methods of obtaining informed consent	<ol style="list-style-type: none"> 1. Describe the medico-legal and ethical principles of informed consent 2. Outline the process of obtaining informed consent 3. Be able to discuss the special issues which concern paediatric patients, unconscious patients and patients with dementia 4. Understands the role of advanced directives and refusal of treatment. 	<ol style="list-style-type: none"> 1. Able to clearly explain the risks and benefits of endoscopic procedures to patients and their families. 2. Documents consent or refusal of treatment in the medical records.
Principles of GI Endoscopy	<ol style="list-style-type: none"> 1. Describes the general principles of GI endoscopy and safe endoscopy practice. 2. Demonstrates knowledge of the design and function of endoscopes and accessories. 3. Demonstrates awareness of the appropriateness of endoscopy and risk management. 	<ol style="list-style-type: none"> 1. Outline the structure and functions of the various parts of an endoscope 2. Describe the principles and process of endoscope reprocessing. 3. Describe the principles of monitoring for endoscopic procedures as well as modalities available. 4. Describe the principles of sedation in endoscopy and be familiar with the pharmacology and use of the various drugs available. 5. Describe the current guidelines for the management of patients with medical comorbidities including patients on anticoagulants and antiplatelet agents and those requiring antibiotic prophylaxis. 6. Understand the role of clinical audit and quality assurance in endoscopy. 7. Understand the importance of biopsy, tissue handling and histopathology in endoscopy. 8. Understand risk assessment and risk management in endoscopy. 9. Describe the indications for 	<ol style="list-style-type: none"> 1. Able to set up and troubleshoot endoscopic equipment. 2. Demonstrates practical handling skills with understanding of endoscope function. 3. Able to clean and disinfect endoscopes as part of reprocessing. 4. Able to monitor a sedated patient during endoscopy. 5. Able to perform sedation reversal when required. 6. Demonstrates safe endoscopic practice. 7. Adheres to guidelines on indications for endoscopy. 8. Be familiar with the QA indicators in Endoscopy

		<p>the various endoscopic procedures.</p> <p>10. Understands the principles and applications of diathermy in endoscopy.</p> <p>11. Lists the procedure-related risks of endoscopy, their incidence and management of complications.</p>	
Upper GI Endoscopy	<p>1. Demonstrate an understanding of the appropriate indications for diagnostic and therapeutic upper GI endoscopy.</p> <p>2. Demonstrate the ability to perform diagnostic and therapeutic upper GI endoscopy</p>	<p>1. Outlines the anatomy and pathology of the upper GIT and its relevance to endoscopy.</p> <p>2. Recognise common anatomical variants, abnormal lesions and postsurgical anatomy on endoscopy.</p> <p>3. Describes the indications, contraindications, risks, complications and alternatives to upper GI endoscopy and implications for consent.</p> <p>4. Describes the principles of case selection and timing of endoscopy.</p> <p>5. Describes the endoscopic lesions in upper GI bleeding and the various modalities of endoscopic haemostasis.</p> <p>6. Describes the indications, risks and procedure of oesophageal dilatation.</p> <p>7. Discuss the endoscopic management of upper GIT obstruction.</p> <p>8. Describe the techniques for enteral feeding including PEG, PEG/J, nasojejunal tube and PEJ.</p> <p>9. Describe the endoscopic approach to foreign bodies in the upper GIT.</p>	<p>1. Performs appropriate pre-procedural assessment and obtains informed consent.</p> <p>2. Able to administer appropriate sedation and monitor such patients.</p> <p>3. Able to handle and manipulate an endoscope during endoscopy.</p> <p>4. Recognises lesions and manages appropriately.</p> <p>5. Able to safely and competently perform endoscopic haemostasis and endoscopic removal of foreign bodies.</p> <p>6. Demonstrates accurate recording of the procedure in manual and electronic medical records.</p>
Colonoscopy	<p>1. Explain the principles of diagnostic and therapeutic colonoscopy and its application.</p>	<p>1. Describes the anatomy and relevant pathology of the colon.</p> <p>2. Describes the indications, contraindications, risks, complications and alternatives to colonoscopy and implications for</p>	<p>1. Performs preprocedural assessment and takes informed consent for colonoscopy.</p> <p>2. Able to administer sedation and monitor such patients.</p>

		<p>consent.</p> <ol style="list-style-type: none"> 3. List the range of bowel preparations, their benefits and risks. 4. Understands the structure and functions of the colonoscope including optical-enhanced imaging. 5. Describes the endoscopic approach to the recognition and management of colonic polyps including optical enhanced imaging and polypectomy. 5. Describe the various quality indicators for colonoscopy. 	<ol style="list-style-type: none"> 3. Able to perform a routine colonoscopy safely and competently. 4. Demonstrates appropriate handling of colonoscopes, competence in the identification and characterisation of colonic lesions and terminal ileal intubation 5. Demonstrates basic polypectomy technique with accurate accessory handling, appropriate application of diathermy and other techniques of endoscopic haemostasis. 6. Able to recognise and manage complications of colonoscopy. 7. Able to prepare appropriate manual and electronic colonoscopy reports.
ERCP	To explain the principles of ERCP and its role in management	<ol style="list-style-type: none"> 1. Describe the anatomy and pathology of the pancreas, liver and bile ducts and the implications for ERCP 2. Describe the indications and contraindications for ERCP. 3. Describe the complications of ERCP and their management and strategies to minimise their risk. 4. Describe the quality indicators for ERCP 5. Describe the role of ERCP in the management of biliary calculi, biliary strictures and malignant biliary obstruction. 	<ol style="list-style-type: none"> 1. Assessing the appropriateness and timing for ERCP in a given clinical situation and awareness of alternative options. 2. Demonstrate the ability to perform therapeutic ERCP safely and competently. 3. Able to select therapeutic interventions appropriate to the clinical situation
Endoscopic ultrasound (Optional)	Explain the principles and role of EUS in gastroenterology	<ol style="list-style-type: none"> 1. Describe the indications, contraindications, risks and benefits of EUS 2. Describe the basic principles 	<ol style="list-style-type: none"> 1. Demonstrates competence in the handling of both radial and linear EUS scopes

		<p>of radial and linear-array EUS including the use of accessories.</p> <ol style="list-style-type: none"> 3. Explain the role of EUS in the assessment and staging of lesions of the oesophagus, stomach, pancreas, biliary tract and ano- rectum. 4. Describe the diagnostic and therapeutic applications of EUS including biopsy and FNAC of lesions including lymph nodes, lesions and pancreatic cysts and drainage of pancreatic pseudocysts, EUS-guided biliary drainage. 	<p>and associated accessories during interventional procedures.</p> <ol style="list-style-type: none"> 2. Appreciates the importance of proper specimen acquisition in the assessment of pathology at EUS.
<p>Endoluminal imaging of the small bowel (Optional)</p>	<ol style="list-style-type: none"> 1. Demonstrate ability to interpret video capsule endoscopy 2. Demonstrate ability to perform deep enteroscopy (single balloon/double balloon enteroscopy) 	<ol style="list-style-type: none"> 1. Describe the indications, contraindications, preparation, risks and benefits of capsule endoscopy. 2. Able to interpret images of common findings in capsule endoscopy 3. Describe the indications, contraindications, techniques of antegrade and retrograde single and double-balloon enteroscopy. 	<ol style="list-style-type: none"> 1. Recognise common normal variants of GI anatomy seen on capsule endoscopy and deep enteroscopy. 2. Able to perform deep enteroscopy.