

Rotation:
Hepatology Subspecialty Selective

Goals:

To introduce medical residents to the discipline of hepatology and provide them with the knowledge necessary to diagnose and manage common hepatologic conditions including chronic active hepatitis of all etiologies, compensated and decompensated cirrhosis, hepatocellular carcinoma and asymptomatic abnormal liver tests.

Objectives:

By the end of the Gastroenterology subspecialty selective, PGY-1 residents are expected to expand and cultivate skills and knowledge learned during previous training and to achieve the following objectives based on the six general competencies. The resident should exhibit an increasing level of responsibility and independency as he or she progresses throughout the year.

Competency	Required Skill(s)	Teaching Method(s)	Formative Evaluation Method(s)	Frequency of Evaluation
Patient Care	SPECIALTY SPECIFIC OBJECTIVES			
	Diagnose, evaluate and treat the following hepatologic disorders: <ul style="list-style-type: none"> • Viral hepatitis • Autoimmune liver disease (autoimmune hepatitis, primary biliary cirrhosis, primary sclerosing cholangitis) • Nonalcoholic steatohepatitis (NASH) • Inherited liver disorders (hemochromatosis, Wilson’s disease, alpha one antitrypsin deficiency) • Non-cirrhotic portal hypertension • Hepatocellular carcinoma 	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Evaluate and manage patients with decompensated liver disease of any etiology, i.e., ascites, hepatic hydrothorax, hepatopulmonary syndrome encephalopathy, portal hypertensive bleeding, spontaneous bacterial peritonitis, pruritis, autonomic neuropathy, metabolic abnormalities, and the hepatorenal syndrome.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Interpret the analysis of the ascitic fluid.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform and document admitting histories and physical examinations on selected inpatients and then perform daily physical examinations, review all laboratory, radiology and pathology examinations	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	

	Perform, depending upon skill level and experience, some necessary procedures (e.g. central line placement, thoracentesis, lumbar puncture).	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Observe any endoscopic procedures on patients	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform five to ten large volume paracenteses	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Formulate a diagnosis based upon medical history, physical examination, and laboratory studies	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
Medical Knowledge	SPECIALTY SPECIFIC OBJECTIVES			
Practice Based Learning and Improvement	SPECIALTY SPECIFIC OBJECTIVES See General Internal Medicine Objectives for a comprehensive list.			
Interpersonal and Communication Skills	SPECIALTY SPECIFIC OBJECTIVES See General Internal Medicine Objectives for a comprehensive list.			
Professionalism	SPECIALTY SPECIFIC OBJECTIVES See General Internal Medicine Objectives for a comprehensive list.			

Systems-Based Practice	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			

By the end of the Gastroenterology subspecialty selective, PGY-2 residents are expected to expand and cultivate skills and knowledge learned during previous training and to achieve the following objectives based on the six general competencies. The resident should exhibit an increasing level of responsibility and independency as he or she progresses throughout the year.

Competency	Required Skill(s)	Teaching Method(s)	Formative Evaluation Method(s)	Frequency of Evaluation
Patient Care	SPECIALTY SPECIFIC OBJECTIVES			
	Diagnose, evaluate and treat the following hepatologic disorders: <ul style="list-style-type: none"> • Viral hepatitis • Autoimmune liver disease (autoimmune hepatitis, primary biliary cirrhosis, primary sclerosing cholangitis) • Nonalcoholic steatohepatitis (NASH) • Inherited liver disorders (hemochromatosis, Wilson’s disease, alpha one antitrypsin deficiency) • Non-cirrhotic portal hypertension • Hepatocellular carcinoma 	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Evaluate and manage patients with decompensated liver disease of any etiology, i.e., ascites, hepatic hydrothorax, hepatopulmonary syndrome encephalopathy, portal hypertensive bleeding, spontaneous bacterial peritonitis, pruritis, autonomic neuropathy, metabolic abnormalities, and the hepatorenal syndrome.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Interpret the analysis of the ascitic fluid.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform and document admitting histories and physical examinations on selected inpatients and then perform daily physical examinations, review all laboratory, radiology and pathology examinations	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform, depending upon skill level and experience, some necessary procedures (e.g. central line placement,	Clinical Teaching	Written Exam	

	thoracentesis, lumbar puncture).	Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
	Observe any endoscopic procedures on patients	Clinical Teaching	Written Exam	
		Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
	Perform five to ten large volume paracenteses	Clinical Teaching	Written Exam	
		Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
	Formulate a diagnosis based upon medical history, physical examination, and laboratory studies	Clinical Teaching	Written Exam	
		Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
Medical Knowledge	SPECIALTY SPECIFIC OBJECTIVES			
Practice Based Learning and Improvement	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Interpersonal and Communication Skills	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Professionalism	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Systems-Based Practice	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			

By the end of the Gastroenterology subspecialty selective, PGY-3 residents are expected to expand and cultivate skills and knowledge learned during previous training and to achieve the following objectives based on the six general competencies. The resident should exhibit an increasing level of responsibility and independency as he or she progresses

throughout the year.

Competency	Required Skill(s)	Teaching Method(s)	Formative Evaluation Method(s)	Frequency of Evaluation
Patient Care	SPECIALTY SPECIFIC OBJECTIVES			
	Diagnose, evaluate and treat the following hepatologic disorders: <ul style="list-style-type: none"> • Viral hepatitis • Autoimmune liver disease (autoimmune hepatitis, primary biliary cirrhosis, primary sclerosing cholangitis) • Nonalcoholic steatohepatitis (NASH) • Inherited liver disorders (hemochromatosis, Wilson’s disease, alpha one antitrypsin deficiency) • Non-cirrhotic portal hypertension • Hepatocellular carcinoma 	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Evaluate and manage patients with decompensated liver disease of any etiology, i.e., ascites, hepatic hydrothorax, hepatopulmonary syndrome encephalopathy, portal hypertensive bleeding, spontaneous bacterial peritonitis, pruritis, autonomic neuropathy, metabolic abnormalities, and the hepatorenal syndrome.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Interpret the analysis of the ascitic fluid.	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform and document admitting histories and physical examinations on selected inpatients and then perform daily physical examinations, review all laboratory, radiology and pathology examinations	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform, depending upon skill level and experience, some necessary procedures (e.g. central line placement, thoracentesis, lumbar puncture).	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Observe any endoscopic procedures on patients	Clinical Teaching Reading Lists Didactic Sessions	Written Exam ABIM global assessment Procedure Log Review	
	Perform five to ten large volume paracenteses	Clinical Teaching	Written Exam	

		Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
	Formulate a diagnosis based upon medical history, physical examination, and laboratory studies	Clinical Teaching	Written Exam	
		Reading Lists	ABIM global assessment	
		Didactic Sessions	Procedure Log Review	
Medical Knowledge	SPECIALTY SPECIFIC OBJECTIVES			
Practice Based Learning and Improvement	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Interpersonal and Communication Skills	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Professionalism	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			
Systems-Based Practice	SPECIALTY SPECIFIC OBJECTIVES			
	See General Internal Medicine Objectives for a comprehensive list.			

Learning Venues:

1). The inpatient hepatology service will provide the bulk of the learning experience. Residents will be assigned monthly to the MUH liver service. The MUH liver service includes both the care of inpatients assigned to any of the hepatology attendings and consultative services for MUH. A hepatology attending and a hepatology fellow will staff the service daily. Residents will perform and document admitting histories and physical examinations on selected inpatients and then perform daily physical examinations, review all laboratory, radiology and pathology examinations on these patients during a typical work week (Monday through Friday). In addition, the resident will document daily progress notes and present these select patients on daily attending rounds. Residents will be responsible for dictating discharge summaries on these select patients also. For those patients that are admitted through the night float system, the resident responsibilities will be identical to the above with the exception that the repeated admitting history and physical examination will focus primarily on any differences in findings. The resident will also be assigned by the attending to see select liver inpatient consultations and to follow those patients daily with physical examinations and progress notes. The GI/Liver fellow on call will evaluate and write progress notes on the inpatient liver service on Saturdays and Sundays (in conjunction with a GI or liver attending.). Learning will be primarily case-based and patient-centered.

The assigned resident depending upon skill level and experience will perform some necessary procedures (e.g. central line placement, thoracentesis, lumbar puncture). Five to 10 large volume paracenteses will also be performed and a procedure log will be kept.

2). Outpatient Hepatology clinics approximately one half day per week will provide residents with exposure to patients with liver disease in the ambulatory setting. Emphasis will be on new patient evaluation so that initial evaluations, diagnostic work-up and management can be stressed. Patients with chronic problems will also be evaluated. Learning in this venue will also be primarily case-based and patient-centered.

3). Endoscopy Lab at MUH. Residents are encouraged to observe any endoscopic procedures on patients whom they are following.

4). Reading materials will be provided at the beginning of the each rotation. The syllabus provided will span the broad spectrum of liver disorders and will cover topics that may not present themselves in the inpatient or outpatient teaching venues. The resident is expected to read each of the articles during the month rotation. Exam questions may come from the information in these articles.

5). Didactic-teaching sessions will be used to supplement the educational experience. These include GI and hepatology journal clubs, a pathophysiology conference and pathology conferences. In addition, there will be specific teaching rounds by the hepatology fellows and attendings.

Reading List:

Alcoholic liver disease. Pathogenesis, diagnosis, and treatment of alcoholic liver disease. *Mayo Clinic Proc.* 2002;76:1021-9.

Complications of Portal hypertension. Current management of the complications of cirrhosis and portal hypertension: variceal hemorrhage, ascites, and spontaneous bacterial peritonitis. *Gastroenterol.* 2001;120:726-48.

Treatment of hepatic encephalopathy. *NEJM.* 1997;337:473-80.

Ruiz F, Riely CA. Pregnancy and Liver Disease: Disease of the liver and bile ducts. G. Wu, J. Israel, eds., Humana Press, Totowa, NJ. 1998; 359-368.

American Association for the Study of Liver Disease: Practice Guidelines. *Hepatology.* 2001;34:1225-272.

1. Chronic Hepatitis B
2. Diagnosis and Management of Hemochromatosis
3. Diagnosis and Treatment of Autoimmune Hepatitis
4. Management of Primary Biliary Cirrhosis
5. Liver Transplantation
6. Management of Adult Patients with Ascites Caused by Cirrhosis

Pratt D, Kaplan M. Evaluation of abnormal liver-enzyme results in asymptomatic patients. *NEJM.* 2000;342:1266-1271.

Carrell R, Lomas D. Mechanisms of Disease: Alpha-1 Antitrypsin Deficiency – A model for conformational disease. *NEJM.* 2002;346(1):45-53.

El-Serag H, Mason A. Rising incidence of hepatocellular carcinoma in the United States. *NEJM.* 1999;340(10):745-750.

Shiffman M, Brown R, Olthoff K, Everson G, Miller C, Siegler M, Hoofnagel J. Living Donor Liver Transplantation: Summary of a Conference at the National Institutes of Health. *Liver Transplantation.* 2002;8(2):174-188.

Bravo A, Sheth S, Chopra S. Current Concepts. Liver Biopsy. NEJM. 2001;344(7):495-500.

Lauer G, Walker B. Medical Progress. Hepatitis C Virus Infection. NEJM. 2001;345(1):41-52.

Reid A. Special Reports and Reviews. Nonalcoholic Steatohepatitis. Gastroenterology. 2001;121:710-723.

Competency Evaluation:

ABIM Global Assessment Form – all 6 competencies must be rated as satisfactory or superior. Written examination at the end of the rotation will be performed to assess medical knowledge and patient care. A score of 80% is necessary. A procedure log of all procedures will be kept.

Outcomes Assessment:

The annual program assessment form completed by residents will contain one to two questions related to the hepatology curriculum. In addition, hepatology faculty are expected to score at or above the mean for the training program in teaching ability.