GASTROENTEROLOGY FELLOWSHIP
HEPATOLOGY ROTATION
GOALS AND OBJECTIVES
University of Toledo

Educational Purpose:
The Hepatology Rotation introduces the fellow to the management of outpatients and inpatients with liver diseases. During this period, the fellow will have the opportunity to assess a wide variety of acute and chronic hepatology conditions. The fellow will participate in increasing levels of management/ treatment involvement with patient needs and procedures depending on the fellow's level of experience. The fellow will be expected to formulate the differential diagnosis, institute diagnostic studies and recommend therapy.

Objectives:
Fellows will learn variable aspects of outpatient and inpatient liver disease care and will display all general competencies during this experience. Minimum levels of achievement in each competency are expected during each of the three years of fellowship training. The following are the goals and objectives for each competency at each level of training for the Hepatology Rotation:

First Year Fellow:
Goal: A Year I fellow should be able to assess new patient problems, formulate and execute a treatment plan with guidance and teach basic hepatology and gastroenterology skills to medical students and other trainees. Year I fellows should begin to develop basic procedural competencies in diagnostic upper endoscopy and colonoscopy.

	First Year Fellow
Patient Care	Perform an accurate physical examination and present information concisely with an initial assessment plan. Follow the patient's disease course during the patient's hospital stay. With attending consultation, formulate and execute an impression and a list of recommendations for the primary service. When indicated, consent patients for procedures and order appropriate diagnostic tests (e.g., endoscopy, radiologic tests, etc.) in conjunction with the primary/referring service. Perform with supervision the following basic procedures (see practicum): o Colonoscopy • By completion of Year I a fellow should be able to perform a diagnostic colonoscopy to the cecum with limited assistance. o EsophagoGastroDuodenoscopy (EGD or Upper Endoscopy): • By completion of Year I a fellow should be able to perform a diagnostic endoscopy to the second portion of the duodenum. o Liver Biopsies: • Fellows may have formal instruction and clinical expertise and may choose to demonstrate competence in the performance of percutaneous liver biopsies. o Abdominal Paracentesis:

	• Fellows must have formal instruction and clinical expertise, and must demonstrate competence in the performance of diagnostic and therapeutic paracentesis Fellows must have formal instruction and clinical experience and demonstrate competence in: o The prevention of acute and chronic endstage liver disease o The evaluation and management of inpatients with acute and chronic endstage liver disease o The management of fulminant liver failure o The psychosocial evaluation of all candidates, in particular those with a history of substance abuse o Drug hepatotoxicity and the interaction of drugs with the liver o Diagnosis and management of autoimmune hepatitis o Diagnosis and management of cholestatic liver diseases – primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC) Learn to provide inpatient care that is safe and compassionate and to develop the ability to thoroughly and clearly educate the inpatient in the relevant areas of disease prevention, detection, progression and therapy to promote liver health.
Medical Knowledge	Attend core conferences and teaching rounds --- especially all Hepatology Conferences to learn the pathophysiology, epidemiology, disease management and procedure and medicine management skills for common and uncommon inpatient liver diseases including: o The prevention of acute and chronic endstage liver disease o The evaluation and management of inpatients with acute and chronic endstage liver disease o The management of fulminant liver failure o The psychosocial evaluation of all candidates, in particular those with a history of substance abuse o Drug hepatotoxicity and the interaction of drugs with the liver o Diagnosis and management of autoimmune hepatitis o Diagnosis and management of cholestatic liver diseases – primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC) Accumulate and begin to solve the issues that he/she encounters from other trainees, attendings and related medical professionals. Teach medical students the basics of gastroenterology and hepatology care.
Practice-Based Learning and Improvement	Become familiar with the concepts of quality improvement. Participate in conferences such as M&M, geared to the programmatic review of adverse events. Begin to review, analyze and utilize scientific evidence from the hepatology literature for the management of liver disease patients.

	Learn the best practice patterns to facilitate liver disease care through clinic operating procedures and patient interactions.
Interpersonal and Communication Skills	Interview patients and family members accurately, patiently and compassionately and present information in an understandable and compassionate manner. Convey bad news compassionately and honestly. Learn to communicate effectively with staff, peers, attending gastroenterologists/hepatologists, referring physicians and other consultants.
Professionalism	Learn to understand and demonstrate professional behavior in daily activities. Participate in professionalism-based learning activities through conferences. Learn to interact collegially with his/her peer group and other healthcare professionals. Learn to practice ethical principles with relation to patient care and confidentiality. Learn to practice appropriate interactions with pharmaceutical representatives and be unbiased in prescribing habits. Learn to be sensitive to cultural, age, gender and disability issues. Cross-cover colleagues' services when needed and conduct this coverage carefully with appropriate feedback to responsible colleagues. Participate in program planning.
Systems-Based Practice	Attend conferences concerning healthcare system patient management and components of systems of healthcare. Achieve basic understanding of healthcare systems related to hepatology care and overall system activities. Learn proper documentation and billing skills to practice cost-effective care. Utilize an appropriate range of healthcare professionals to care for patients, working closely with social services to maximize patient care and understanding the role of hospice, referring appropriately when needed. Begin involvement to understand the standard operating procedures and quality improvement initiatives within the hospital. Attend national gastroenterology conferences (e.g., ACG and endoscopy training courses).

Second Year Fellow:

Goal: A Year II fellow should learn to assess and care for a larger volume of patients and learn and teach basic textbook and evidence-based medicine to medical students and other trainees. Year II fellows should independently perform diagnostic upper endoscopy and colonoscopy and begin to perform therapeutic maneuvers.

	Second Year Fellow
Patient Care	Complete a time-efficient history and physical examination. Critique the work and orders of Year I fellows. Direct the Year I fellows successfully with the appropriate level of intervention for each trainee's skills. Complete competency-level performance of the following basic gastroenterology/hepatology procedures (see practicum checklist): o Colonoscopy • By completion of Year II, master all Year I colonoscopic skill requirements. Additionally, perform endoscopic maneuvers, including snare polypectomy and begin to develop competency in control of GI bleeding: sclerotherapy and thermal coagulopathy of bleeding vessels. o Upper Endoscopy • By completion of Year II, master all Year I upper endoscopic skill requirements. Additionally, begin to develop competency in performing therapeutic maneuvers: banding and sclerosing of varices, and sclerotherapy and thermal coagulopathy of bleeding vessels. o Liver Biopsies: • Fellows may have formal instruction and clinical expertise, and may choose to demonstrate competence in the performance of percutaneous liver biopsies. o Abdominal Paracentesis: • Fellows must have formal instruction and clinical expertise, and must demonstrate competence in the performance of diagnostic and therapeutic paracentesis. Fellows must have formal instruction and clinical experience and demonstrate competence in: o The comprehensive management of patients who are high on the transplant list in the intensive care setting with complications of end-stage liver disease including: refractory ascites, hepatic hydrothorax; hepatorenal syndrome, hepatopulmonary and portal pulmonary syndromes, and refractory portal hypertensive bleeding o The management of chronic viral hepatitis in the pre-transplantation, peri-transplantation, and posttransplantation settings o Nutritional support of patients with chronic liver disease o The use of interventional radiology in the diagnosis and management of portal

	hypertension, as well as biliary and vascular complications • Present cases succinctly in a direct manner. • Know the Hepatology Rotation's patients at a management level. • Handle consult calls respectfully and appropriately. • Teach good symptom management skills to medical students and other trainees. • Provide inpatient care that is safe and compassionate and develop the ability to thoroughly and clearly educate the inpatient in the relevant areas of disease prevention, detection, progression and therapy to promote gastrointestinal health.
Medical Knowledge	Begin to take a leadership role at core conferences and teaching rounds regarding the pathophysiology, epidemiology, disease management and procedures and medicine management skills for common and uncommon inpatient liver diseases including: • The comprehensive management of patients with advanced liver disease in the intensive care setting with complications of end-stage liver disease including: refractory ascites, hepatic hydrothorax; hepatorenal syndrome, hepatopulmonary and portal pulmonary syndromes, and refractory portal hypertensive bleeding • The management of chronic viral hepatitis in the pre-transplantation, peri-transplantation, and posttransplantation settings • Nutritional support of patients with chronic liver disease • The use of interventional radiology in the diagnosis and management of portal hypertension, as well as biliary and vascular complications Organize the team's performance at teaching rounds. Read textbook and pertinent literature materials concerning problems encountered. Teach medical students and other trainees about liver disease states and patient management.
Practice-Based Learning and Improvement	Participate in project groups, committees and hospital groups when requested. Participate in programmatic reviews and conferences studying adverse events. Give usable feedback to medical students and other trainees based on observation of their performance and assess improvement. Participate in problem-based quality improvement projects. Review, analyze and utilize scientific evidence from the hepatology literature for the management of liver disease patients. Know the best practice patterns to facilitate hepatology care through clinic operating procedures and patient interactions.
Interpersonal and Communication Skills	Interview patients and family members accurately, patiently and compassionately and present information in an understandable manner. Convey bad news compassionately and honestly.

	Plan patient and family conferences. Counsel patients about transitioning to palliative care, when needed. Address or refer patients related to spiritual or existential issues. Communicate effectively with staff, peers, attending hepatologists/gastroenterologists, referring physicians and other consultants. Present cases succinctly, in a problem-based, direct manner. Learn to become a teacher of hepatology to junior trainees, medical students and other healthcare professionals.
Professionalism	Begin to mentor medical students, other trainees and Year I fellows in professional conduct. Understand and demonstrate professional behavior in daily activities. Participate in professionalism-based learning activities through conferences. Interact collegially with his/her peer group and other healthcare professionals, including acting responsibly in the larger context of pursuing programmatic successes. Practice ethical principles with relation to patient care and confidentiality. Practice interactions with pharmaceutical representatives and be unbiased in prescribing habits. Practice sensitivity to cultural, age, gender and disability issues. Cross-cover colleagues' services when needed and conduct this coverage carefully with appropriate feedback to responsible colleagues. Participate in program planning.
Systems-Based Practice	Attend conferences concerning healthcare system patient management and components of systems of healthcare. Understand and practice proper documentation and billing skills to practice cost-effective care. Assist other trainees in the utilization of appropriate healthcare resources for the best care of the Hepatology Rotation's patients. Model appropriate interactions in multidisciplinary planning, including standard operating procedures and quality improvement initiatives.

	Attend national gastroenterology or hepatology conferences (e.g., DDW or AASLD).

Third Year Fellow:
Goal: The senior-level, Year III fellow should demonstrate rapid assessment and planning skills and near-attending level care planning and management, while teaching medical students and other trainees at near to or exceeding attending level teaching. Year III fellows should be able to perform diagnostic and therapeutic upper endoscopy and colonoscopy procedures with direct supervision available.

	Third Year Fellow
Patient Care	Master the Year II fellow objectives. Demonstrate efficient organization of the Hepatology Rotation and a working knowledge of all patients. Demonstrate near-attending level capacity for program assessment and care planning. Attain trainer level proficiency in the following procedures pertinent to his/her career choices: o Colonoscopy • By completion of Year III, master all Year II colonoscopic skill requirements. Additionally, be able to independently intubate the terminal ileum and begin to develop independent mastery of more advanced maneuvers, e.g., removal of large or complex polyps by saline assisted polypectomy or piecemeal resection and control of bleeding using clips or argon plasma laser coagulation. o Upper Endoscopy • By completion of Year III, master all Year II endoscopic skill requirements. Additionally, be able to pass a side viewing scope to identify the papilla or lesions difficult to observe with forward viewing scope and perform advanced maneuvers, such as placing clips on bleeding vessels or argon plasma laser coagulopathy. o Liver Biopsies • Fellows may have formal instruction and clinical expertise and may choose to demonstrate competence in the performance of percutaneous liver biopsies. o Abdominal Paracentesis • Fellows must have formal instruction and clinical expertise and must demonstrate competence in the performance of diagnostic and therapeutic paracentesis. • Fellows must have formal instruction and clinical experience and demonstrate competence in: • The diagnosis and management of hepatocellular carcinoma and cholangiocarcinoma including transplantation, non-transplantation, and non-surgical approaches Provide inpatient care that is safe and compassionate with the leadership ability to

	thoroughly and clearly educate the inpatient and all other trainees regarding relevant areas of disease prevention, detection, progression and therapy to promote liver health.
Medical Knowledge	Access and critique the medical literature regarding hepatology and gastroenterology problems encountered. Assume the trainee leadership role at core conferences and teaching rounds regarding the pathophysiology, epidemiology, disease management, procedures and medicine management skills for common and uncommon inpatient liver diseases including Fellows must have formal instruction and clinical experience and demonstrate competence in: • The diagnosis and management of hepatocellular carcinoma and cholangiocarcinoma including transplantation, non-transplantation, and non-surgical approaches Teach medical students, other trainees and Year I & II fellows at near-attending level. Organize team activities in a smooth and efficient fashion. Assist Year II fellows' development directly at teaching conferences and indirectly at work sites.
Practice-Based Learning and Improvement	Demonstrate mastery of Year II fellow skills and encourage participation of colleagues. Review, analyze and utilize scientific evidence from the hepatology literature for the management of liver disease patients, taking a leadership role in guiding Year I & II fellows and sharing relevant literature reviews with them. Know and be able to succinctly communicate the best practice patterns to facilitate liver disease care through clinic operating procedures and patient interactions.
Interpersonal and Communication Skills	Interview patients and family members accurately, patiently and compassionately and present information in an understandable manner. Convey bad news compassionately and honestly. Supervise Year I & II fellows' work related to planning patient/family conferences and patient communications/counseling. Communicate effectively as a consultant with staff, peers, attending gastroenterologists, referring physicians and other consultants and lead other trainees related to appropriate fellow-to-medical-professional communications. Present cases succinctly, in a problem-based, direct manner. Assume the role of a teacher of hepatology to junior trainees, medical students and other healthcare professionals.

Professionalism	Demonstrate proficiency in Year II objectives. Mentor medical students, other trainees and fellows in professional conduct. Assist in formal teaching exercises as requested. Assert leadership in program planning.
Systems-Based Practice	Attend conferences concerning healthcare system patient management and components of systems of healthcare. Model appropriate interactions in multidisciplinary planning, including improvements related to standard operating procedures and quality improvement initiatives. Participate in hospital and national medical association committees and multidisciplinary planning groups when requested. Attend national conferences directed at career goals. Demonstrate near-attending level utilization of overall systems of care.

Teaching Methods:
Gastroenterology fellows participate in the Hepatology Rotation during all three fellowship years. Teaching of medical students, residents and other trainees as well as appropriate interactions with other healthcare providers are important aspects of this rotation. Participating in all required conferences is mandatory, and rounding is an integral part of this experience. As fellows gain experience throughout their training, skills of organization and efficiency as well as team leadership become increasingly important.

The Hepatology Rotation experience will prepare the fellow to evaluate and manage acute and chronic liver diseases that will be encountered in the fellow's future practice. This rotation will expose the fellow to a wide variety of acute and chronic liver diseases. Fellows will learn the appropriate use of interventional radiology facilities capable of performing Transjugular Intrahepatic Portal Systemic Shunts (TIPS) and balloon angioplasty. Fellows assigned to this Rotation will evaluate the new consults at UTMC and will continue to have their continuity clinic one-half day per week. They will present new consults to the attending within 24 hours for routine consults and as soon as possible for emergencies. Fellows will evaluate each patient and will make initial recommendations regarding diagnostic tests and treatments. They will make arrangements for studies such as GI endoscopic procedures, liver biopsies (percutaneous and transjugular), abdominal paracenteses and thoracenteses, percutaneous transhepatic cholangiograms (PTC), etc. They will review the appropriateness of the procedure with the attending before making final scheduling plans. The fellow will follow each patient under active consultation on a regular basis, will make further recommendations as indicated and will keep the attending informed of the patient's status. Fellows must also communicate with the procedure fellow for all diagnostic studies.

Progressive Fellow Responsibility: Attending Staff supervise participants in professional graduate medical education programs in their patient care responsibilities in a manner commensurate with the Fellow's level of training and experience. The Program Director is responsible for ensuring that the degree of professional responsibility accorded to each Fellow is progressively increased through the course of training, commensurate with his or her skill, training and experience. Fellow graded responsibilities for each level of training are

described in the individual goals and objectives for each clinical rotation. The attending physician is also responsible for determining in an individual case the degree of resident independent functioning.

Disease Mix:
Fellows see a complete mix of liver diseases and conditions have a substantial primary care basis during the Hepatology Rotation, which provides the entire spectrum of internal medicine diagnoses and gastroenterology/hepatology care. Diagnoses range from acute viral hepatitis (A/B), drug induced liver injury, fulminant liver failure, chronic viral hepatitis post transplantation, complicated hepatocellular carcinoma and cholangiocarcinoma. There is also an appropriate concentration of common liver diseases such as evaluation of abnormal liver function tests, management of ascites including refractory ascites, hepatic hydrothorax, hepatorenal syndrome, and portal hypertensive bleeding, diagnosis and management of autoimmune liver diseases and cholestatic liver diseases (PBC and PSC), metabolic liver diseases (Non-Alcoholic Fatty Liver Disease [NAFLD]), Inherited Liver Diseases such as Genetic Hemochromatosis; Wilson's Disease and Alpha One Antitrypsin Deficiency.

Patient Characteristics:
UTMC offers a diverse mix of socioeconomic and gender status. Teaching faculty provide an abundant supply of upper- and middle-class patients, and our contracts with medical assistance and pro bono care efforts ensure access to lower-income patients. Due to a primary care base simultaneous with the hospital's constantly active referrals (complete with helicopter), patients are seen in both acute status and in diagnostic dilemma status, with both common and uncommon disorders.

Types of Clinical Encounters – Attending Supervision:
Encounters are outpatient and inpatient in nature during the Hepatology Rotation. Fellows provide care under the supervision of an attending within duty hour limits and with faculty back up for situations of overload. Daily attending supervision is available seven days per week, and in-house supervision is available all night as well. The attending has ultimate responsibility for patients.

Supervising attending physicians have the responsibility to enhance the knowledge of the Fellow and to ensure the quality of care delivered to each patient by any Fellow. This responsibility is exercised by observation, consultation and direction. It includes the imparting of the practitioner's knowledge, skills and attitudes by the practitioner to the Fellow and assuring that the care is delivered in an appropriate, timely and effective manner. Fulfillment of such responsibility requires personal involvement with each patient and each Fellow who is providing care as part of the training experience. Supervising attending physicians should act professionally and as a role model for trainees.

Supervisors will direct the care of the patient and provide the appropriate level of supervision based on the complexity of care, and the experience, judgment and level of training of the Fellow being supervised.

Procedures:
During the Hepatology Rotation, emergency procedures (e.g. for acute gastrointestinal bleeding) are performed 24/7 within duty hour limits by the fellow with the attending. Non-emergent procedures are performed during daytime hours in the GI endoscopy unit by the fellow under the direct supervision of the attending. Procedure based evaluation is performed twice per year by a supervising attending.

Evaluation:
Fellows are evaluated during all Hepatology rotations and are expected to participate in the evaluation of other fellows as well. This occurs in the following forms:

Detailed, automated evaluations using the New Innovation are submitted for each rotation. These evaluations are reflective of the program's curriculum requirements. Attendings evaluate fellows, and the fellows evaluate the attendings as well. Evaluations include:

- 360-degree (attending, nurse, nurse practitioner, staff/clerical, etc.);
- Direct observation;
- Peer-reviewed; and
- Patient.

Evaluation summaries become part of the fellows' and attendings' promotional documents.

- The fellow also evaluates the Gastroenterology Fellowship Program annually through a confidential basis.
- Attendings evaluate the Gastroenterology Fellowship Program annually.
- A Curriculum Committee oversees major changes to the curriculum. Representative program personnel (i.e., program director, representative faculty and at least one fellow are organized to review program goals and objectives and the effectiveness with which they are achieved. This group conducts a formal documented meeting at least annually for this purpose. In the evaluation process, the group must take into consideration written comments from the faculty and the residents' confidential written evaluations. If deficiencies are found, the group will prepare an explicit plan of action, which should be approved by the faculty and documented in the minutes of the meeting.
- The Program Director meets with all fellows individually twice per year.
- An in-service GTE exam is given to all fellows annually.

Bibliography:

Resource Documents

- *Up-To-Date*
- *PubMed*
- *Textbook of Gastroenterology* – Yamada, et.al.
- *Gastrointestinal Disease: Pathophysiology Diagnosis Management* – Sleisenger & Fordtran.
- *Diseases of the Liver* - Leon Schiff and Eugene Schiff
- *Zakim and Boyer's Hepatology: A Textbook of Liver Disease*
- Major Gastroenterology/Hepatology/Transplantation journals online and in the program's fellow library including *Gastroenterology*, *American Journal of Gastroenterology*, *Gut*, *Hepatology*, *Liver Transplantation*, *Journal of Hepatology* and other major publications.
- Recommended reading and landmark articles are available on the Division of Gastroenterology, Hepatology and Nutrition's shared-access drive. This information includes:
    - Practice Guidelines from the American Association for the Study of Liver Diseases (AASLD) [may also be accessed via www.aasld.org].
    - Transplant Hepatology CAQ
    - Curricular Design
- ACGME Outcome Project documentation (from www.acgme.org).
- Graduate Education in Internal Medicine: A Resource Guide to Curriculum Development
- The report of the Federated Council for Internal Medicine Task Force on the Internal Medicine Residency Curriculum, 1997.

Pertinent Teaching References:

- *Textbook of Gastroenterology* – Yamada, et.al.
- *Gastrointestinal Disease: Pathophysiology Diagnosis Management* – Sleisenger & Fordtran.

- *Diseases of the Liver* - Leon Schiff and Eugene Schiff