

Guidelines for Function of Hepatology Service

Housestaff

- 1. Intern (PGY1).** The primary responsibility of the intern will be to admit patients to the service during the hours of 8 am to 5 pm. The intern will admit no more than 5 patients per day during this period of time and he will not carry more than 12 patients on his service at any point in time. Resident may carry an additional 4 patients. If the inpatient service exceeds 16 patients, the hepatology fellow will take primary responsibility for the additional patients. The intern will not take night call. The Hepatology intern will sign out (in writing) to the on-call intern each evening prior to leaving the hospital. Hepatology fellow must be called with ALL admissions. Certain procedures will be performed by the intern under supervision of resident/hepatology fellow and attending: IV access, paracentesis, thoracentesis, NG tube placement, and flexible sigmoidoscopy. The intern will not participate in care and/or management of liver transplant recipients that are on the transplant surgical service. Patients admitted after 5 pm will be evaluated by either the on-call medicine resident or the Hepatology fellow. Patients will transfer from the night admit team to the inpatient Hepatology service the next morning. Approval of transfers to the Hepatology inpatient service is the responsibility of either the Hepatology fellow or Hepatology Attending, not the Hepatology intern.

Fellow. Fellow responsibilities include: management of post-transplant cases on the surgical service (as member of team), supervision of the Hepatology intern in terms of both patient care and procedures, management of ICU patients, performance of all GI procedures (EGD, colonoscopy, liver biopsy, etc), consultations directed to the Hepatology service, and assistance with recruitment, retention and performance of the clinical research activities of the Section.

Specifically:

- 1) Fellow is responsible for running the service
- 2) Housestaff must call fellow to discuss all admissions
- 3) Fellow must see all pts in the MICU regardless of admission time
- 4) If there are pts in the MICU on fellow's clinic day, fellow must see them prior to clinic
- 5) If fellow has any questions (at any time), contact attending. We are available 24 hours a day
- 6) When a patient of ours is unstable at night, fellow must go to the hospital to help out the housestaff
- 7) Touch base daily with surgeons and post-transplant coordinators regarding in-pts
- 8) Touch base with post-transplant coordinators regarding in-pts and discharge plans
- 9) Touch base with pre-transplant coordinators regarding in-pts and discharge plans
- 10) See pts in ASU when necessary
- 11) Sign out to weekend on call fellow
- 12) Accept all consults from the other transplant services with respect
- 13) Afternoons are "free" for teaching, performing procedures on inpts &/or post-transplant pts, seeing consults, attending outpt hepatology clinics
- 14) Fellow must attend normally assigned weekly continuity clinic
- 15) Fellow must answer outside calls and touch base with nurses and/or attending.
- 16) Participate in the education of the housestaff

17) Pick up hepatology reading material (See below) from Amanda in GI office, 6 Bridge

Off-service housestaff. Patients admitted after 5 pm will be admitted by the on-call medicine resident. The Hepatology fellow will be responsible for establishing a plan of management with the admitting resident, after thorough discussion with the Hepatology attending. Patients will transfer from the night on-call resident to the Hepatology intern the following morning.

Days off: Each intern and fellow must have 4 days off each month. Residents will have weekends off. Interns round on the weekend. The fellow cannot take off during the workweek.

Dictation of Discharge Summaries. If the Hepatology fellow admits a patient (such as may occur, post-procedure), he will be responsible for dictating the discharge summary. In all other cases, the responsibility of dictating discharge summaries from the Hepatology service is the responsibility of the Hepatology resident. If no resident is assigned to hepatology, the fellow is responsible for all dictations. Acceptable discharge summaries should adhere to Department of Medicine guidelines and should not exceed two pages in length.

2. **Rotation Specific Competency Objectives**

A. Patient Care

1. History taking. Residents at all levels of training will collect a thorough history by soliciting patient information and by consulting other sources of primary data in a logical and organized fashion. History taking will be hypothesis driven. Interviewing will adapt to the time available, use appropriate nonverbal techniques, and demonstrate consideration for the patient. The resident will inquire about the emotional aspects of the patient's experience while demonstrating flexibility based on patient need.
2. Physical Exam. Residents at all levels of training will perform a comprehensive physical exam, describing the physiological and anatomical basis for normal and abnormal findings.
3. Charting. Residents at all levels of training will record data in a thorough, systematic manner.
4. Procedures.
 - a. PGY-1 residents will demonstrate knowledge of: procedural indications, contraindications, necessary equipment, specimen handling, patient after-care, and risk and discomfort minimization. They will participate in informed consent and assist patients with decision making. They will correctly identify the meaning of test results. PGY1 residents will initially observe and then perform procedures prior to the completion of the first training year.
 - b. PGY-2 residents will demonstrate extensive knowledge and facility in the performance of procedures while minimizing risk and discomfort to patients. They will assist their junior peers in skill acquisition.
5. Medical Decision Making, Clinical Judgment, and Management Plans. All residents will demonstrate improving skills in assimilating information that they have gathered from the history and physical exam.

- a. PGY-1 residents will be able to identify patient problems and develop a prioritized differential diagnosis. Abnormal findings will be interrelated with altered physiology. They will understand their limitation of knowledge and seek the advice of more advanced clinicians. PGY-1 residents will begin to develop therapeutic plans that are evidenced or consensus based. Residents will establish an orderly succession of testing based on their history and exam findings.
 - b. PGY-2 residents will also regularly integrate medical facts and clinical data while weighing alternatives and keeping in mind patient preference. They will regularly incorporate consideration of risks and benefits when considering testing and therapies. They will present up-to-date scientific evidence to support their hypotheses. They will consistently monitor and follow-up patients appropriately. They will develop plans to avoid or delay known treatment complications and be able to identify when illness has reached a point where treatment no longer contributes to improved quality of life.
6. Patient counseling
- a. PGY-1 residents will be able to describe the rationale for a chosen therapy and will be able to describe medication side effects in lay terms. They will assess patient understanding and provide more information when necessary. Residents will demonstrate the ability to be a patient advocate.
 - b. PGY-2 residents, in addition to the above, will be able to explain the pros and cons of competing therapeutic interventions. PGY-2 residents will be expected to counsel patients regarding adverse habits. PGY-2 residents will be able to educate patients and families for enhanced compliance.

B. Medical Knowledge

- 1. PGY-1 Residents will consistently apply current concepts in the basic sciences to clinical problem solving. They will use information from the literature and other sources including electronic databases. PGY-1 residents will demonstrate satisfactory knowledge of common medical conditions, sufficient to manage urgent complaints with supervision. Residents must exhibit sufficient content knowledge of common conditions to provide care with minimal supervision by completion of the PGY1 year.
- 2. PGY-2 residents will demonstrate a progression in knowledge and analytical thinking in order to develop well-formulated differential diagnoses for multi-problem patients. They will also demonstrate socio-behavioral knowledge.

C. Interpersonal and Communication Skills

- 1. PGY-1 residents will develop and refine their individual style when communicating with patients. They will strive to create ethically sound relationships with patients, the physician team and supporting hospital personnel. They will create effective written communications through accurate, complete, and legible notes. They will exhibit listening skills appropriate to patient-centered interviewing and communication. Residents will recognize verbal and nonverbal cues from patients.

2. PGY-2 residents will also exhibit team leadership skills through effective communication as manager of a team. PGY2 residents are expected to assist junior peers, medical students, and other hospital personnel to form professional relationships with support staff. Residents will respond to feedback in an appropriate manner and make necessary behavioral changes. PGY-2 residents will be able to communicate with patients concerning end-of-life decisions.

D. Professionalism

All residents will demonstrate integrity, accountability, respect, compassion, patient advocacy, and dedication to patient care that supercedes self-interest. Residents will demonstrate a commitment to excellence and continuous professional development. They will be punctual and prepared for teaching sessions. Residents will demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, and informed consent. Residents are expected to show sensitivity and responsiveness to patients' culture, age, gender and disabilities.

E. Practice Based Learning and Improvement

1. PGY-1 residents will use hospital and University library resources to critically appraise medical literature and apply evidence to patient care. They will use hand-held computers, desktop PC's and Internet electronic references to support patient care and self-education. They will model these behaviors to assist medical students in their own acquisition of knowledge through technology.
2. PGY-2 residents will in addition consistently seek out and analyze data on practice experience, identify areas for improvement in knowledge or patient care performance and make appropriate adjustments. They will regularly demonstrate knowledge of the impact of study design on validity or applicability to individual practice.

F. Systems Based Practice

1. PGY-1 residents will be sensitive to health care costs while striving to provide quality care. They will begin to effectively coordinate care with other health care professionals as required for patient needs.
2. PGY-2 residents, in addition to the above, will consistently understand and adopt available clinical practice guidelines and recognize the limitations of these guidelines. They will work with patient care managers, discharge coordinators and social workers to coordinate and improve patient care and outcomes.
3. PGY3 residents, in addition to the above, will enlist social and other out-of-hospital resources to assist patients with therapeutic plans. PGY-3 residents are expected to model cost-effective therapy.

3. Educational Purpose and Goals

Management of hospitalized patients remains essential for the practice of hepatology. The hepatology rotation at University allows residents to refine history and physical exam skills, develop experience in selection of diagnostic tests and learn management of a wide variety of hepatological diseases. These experiences provide exposure to common medical problems of pre-transplant and post-transplant patients.

4. Principal Teaching Methods

A. Supervised Direct Patient Care:

1. Residents encounter patients admitted to the hepatology service at University. The population is obtained from the outpatient hepatology and post-transplant clinics, the emergency department, and in transfer from other hospitals. Faculty supervise admission histories, physical exams, daily management, and discharge plans.
2. Management and teaching rounds are conducted daily for 2.0 – 2.5 hours. The management team includes one attending physician, one fellow, and either 2 PGY1 interns or 1 PGY1 intern and 1 PGY2 resident. Bedside rounds emphasize fundamental skills for management of hospitalized patients while incorporating issues such as resource utilization. This mandatory session involves critical critique and discussion assimilating basic science knowledge, clinical data, pathophysiology, and evidence based principles. The bedside component includes confirmation of residents' history and physical examination skills by the teaching attending physician. The teaching attending assesses and models communication skills.

The following schedule is suggested for the clinical service and rounds:

7:00 – 7:15 am	Intern/resident meets with post-call team for x-cover issues & new admissions
8:00 – 9:00 am	Intern rounds on his patients Fellow and Attending procedures
9:30 – 12:00 pm	Hepatology Rounds (intern/resident, fellow, attending)
12:00 – 1:00 pm	Noon conferences
1:00 – 5:00 pm	Admissions to service Consults Procedures (including observing TIPSS, chemoembo, EGDs) Teaching sessions

B. Didactic Sessions

In addition to the required general medicine conferences (and GI conferences, for fellows), the hepatology team members must attend:

Patient Selection Committee (Thursday 7:00 am)
Liver Pathology Conference (Thursday 8:00am)
Hepatobiliary Conference (Friday Noon)

C. Small Group Discussions: On-Service Teaching Seminars

Potential topics

Asymptomatic Elevation in LFTs
NASH
Alcoholic Hepatitis
Acute Hepatitis
Fulminant Hepatic Failure
Chronic Hepatitis

HCV
HBV
AI-CAH
Drug-induced
Wilson's Disease
Hemochromatosis
PBC/PSC
Cirrhosis
Transplantation Issues for Internists
Liver Disease in Pregnancy
Evaluation of Hepatic Mass

5. Clinics

Each intern/resident/fellow must attend their weekly continuity clinic. In addition, they can also attend hepatology attending's outpt clinic as well.

6. Educational Content

A. Mix of Diseases

Encountered patients have a variety of conditions representative of common hepatologic problems and include refractory ascites, spontaneous bacterial peritonitis, hepatorenal syndrome, hepatic encephalopathy, autoimmune hepatitis flare, cholangitis, hepatocellular carcinoma, TIPSS, acute liver failure, and pre-transplant evaluations. In addition, common post-transplant problems encountered include acute cellular rejection, biliary strictures, hepatic artery thrombosis, recurrent HCV, recurrent PSC, cholangitis, and infection.

B. Learning Venues

1. 5West, 6West, 7West, Stepdown Unit

C. Procedures

1. The procedures that are either learned or reinforced on hepatology include but are not limited to:

1. Abdominal paracentesis

2. Nasogastric intubation

2. Interpretive skills that are reinforced or learned on hepatology include:

1. Serum electrolytes and routine chemistry panel

2. Urinalysis and urine electrolyte interpretation

3. Liver function tests

4. Coagulation studies

5. Abdominal CT interpretation

7. Principal Ancillary Educational Materials

A. All residents and managing physicians are provided with the Hepatology Curriculum and Learning Objectives prior to the start of each rotation.

B. Full service libraries are present at Denison Library at the University of Colorado Health Sciences Center. 24-hour access to on-line programs and literature is available.

C. Housestaff are provided with hepatology reading material at the start of the rotation. Bibliography is as follows:

Ong JP, Sands M, Younossi ZM. Transjugular intrahepatic portosystemic shunts (TIPS): a decade later. *J Clin Gastroenterol* 2000;30(1): 14-28.

Kuo PC, Plotkin JS, Gaine S, Schroeder RS, Rustgi VK, Rubin LJ, Johnson LB. Portopulmonary hypertension and the liver transplant candidate. *Transplantation* 1999;67:1087-1093.

Riley CA. Liver disease in the pregnant patient. *Am J of Gastroenterol* 1999 Jul;94(7):1728-1732.

Forman LM, Lewis JD, Berlin JA, Feldman HI, Lucey MR. The association between hepatitis C infection and survival after orthotopic liver transplantation. *Gastroenterology* 2002;122:889-896.

Reuben A. A better mousetrap. *Hepatology* 2004;40(4):1023-1027.

Malinchoc M, Kamath PS, Gordon FD, Peine CJ, Rank J, ter Borg PCJ. A model to predict poor survival in patients undergoing transjugular intrahepatic portosystemic shunts. *Hepatology* 2000;31(4): 864-871.

Keefe EB, Dieterich DT, Han SHB, Jacobson IM, Martin P, Schiff ER, Tobias H, Wright TL. A treatment algorithm for the management of chronic hepatitis B virus infection in the United States. *Clin Gastroenterol and Hepatol* 2004;2:87-106.

Ochs A, Rossle M, Haag K, Hauenstein KH, Deibert P, Siegerstetter V, Huonker M, Langer M, Blum HE. The transjugular intrahepatic portosystemic stent-shunt procedure for refractory ascites. *NEJM* 1995;332(18): 1192-1197.

Krawitt EL. Autoimmune Hepatitis. *N Engl J Med* 1996;334(14): 897-903.

Dienstag JL, Schiff ER, Wright TL, Perrillo RP, Hann HWL, Goodman Z, Crowther L, Condreay LD, Woessner M, Rubin M, Brown NA. Lamivudine as initial treatment for chronic hepatitis B in the United States. *N Engl J Med* 1999;341(17): 1256-1263.

Reuben A. The liver has a body- a cook's tour. *Hepatology* 2005;41(2):408-415.

Runyon BA. Management of adult patients with ascites caused by cirrhosis. *Hepatology* 1998;27(1):264-272.

Trotter JF, Wachs M, Everson GT, Kam I. Adult-to-adult transplantation of the right hepatic lobe from a living donor. *N Engl J Med* 2002;346(14):1074-1082.

Riordan SM, Williams R. Treatment of hepatic encephalopathy. *N Engl J Med* 1997;337(7):473-479.

Jensen DM. Endoscopic screening for varices in cirrhosis: findings, implications, and outcomes. *Gastroenterology* 2002;122:1620-1630.

Befeler AS, di Bisceglie AM. Hepatocellular carcinoma: diagnosis and treatment. *Gastroenterology* 2002;122:1609-1619.

Fung J, Kelly D, Kadry Z, Patel-Tom K, Eghtesad B. Immunosuppression in liver transplantation: beyond calcineurin inhibitors. *Liver Transpl.* 2005 Mar;11(3):267-280.

Sharma P, Rakela J. Management of pre-liver transplantation patients- part 1. *Liver Transpl.* 2005 Feb;11(2):124-133.

Sharma P, Rakela J. Management of pre-liver transplantation patients- part 2. *Liver Transpl.* 2005 Mar;11(3):249-260.

Andrews NC. Disorders of iron metabolism. *N Engl J Med.* 1999;341(26):1986-1995.

Kaplan MM. Primary biliary cirrhosis. *N Engl J Med* 1996;335(21):1570-1580.

Clark JM, Brancati FL, Diehl AM. Nonalcoholic fatty liver disease. *Gastroenterology* 2002;122:1649-1657.

Fallon MB, Abrams GA. Pulmonary dysfunction in chronic liver disease. *Hepatology* 2000;32(4): 859-865.

Polson J, Lee WM. AASLD position paper: the management of acute liver failure. *Hepatology* 2005;41(5): 1179-1197.

Rodriguez-Luna H, Vargas H. Management of hepatitis C infection in the setting of liver transplantation. *Liver Transpl.* 2005 May;11(5):479-489.

Arroyo V, Guevara M, Gines P. Hepatorenal syndrome in cirrhosis: pathogenesis and treatment. *Gastroenterology* 2002;122:1658-1676.

Strader DB, Wright T, Thomas DL, Seeff LB. Diagnosis, management, and treatment of hepatitis C. *Hepatology* 2004;39(4):1148-1171.

Sort P, Navasa M, Arroyo V, Aldeguer X, et al. Effect of intravenous albumin on renal impairment and mortality in patients with cirrhosis and spontaneous bacterial peritonitis. *N Engl J Med.* 1999;341(6):403-409.

8. Methods of Evaluation

1. Faculty complete computerized resident evaluation forms. The evaluation is competency-based. The evaluation is shared with the resident, who receives a copy, and is internally reviewed by the residency office. The evaluation is part of the resident file and is incorporated into the semiannual performance review for directed resident feedback.

2. Upon completion of the rotation, residents complete a service evaluation commenting on the faculty, facilities and service experience. Evaluations are reviewed by the program and attending faculty physicians receive anonymous copies of completed evaluations. Collective evaluations serve as a tool to assess faculty development needs. The Training and Evaluation Committee reviews results annually.