

Hepatic Encephalopathy: Current Pathway for Care Resolution and Best Practices for 2025...What Every Case Manager Should Know.

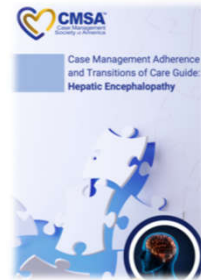
Nancy Skinner, RN, CCM, CMGT-BC, ACM-RN, CMCN, FCM
casemanager@mac.com

Learning Objectives



- Explain the physical and psychosocial impacts that a diagnosis of hepatic encephalopathy (HE) imparts on the patient, family and caregivers as well as all healthcare delivery systems.
- Consider how frequent recurrences of HE may cause nonreversible patient organ dysfunction resulting in both reduced patient quality of life and an increased economic burden for both patients and healthcare delivery systems.
- Review established Standards for Transitions of Care and avenues for implementing those Standards in patients diagnosed with HE to minimize the number of potentially avoidable readmissions.

- This presentation was not developed by and is not sponsored by any pharmaceutical entity.
- The content of the program supports information included in the Case Management Adherence and Transition of Care Guide: Hepatic Encephalopathy.
- This Guide was published by the Case Management Society of America in 2023 and was made possible by a grant from Bausch Health/Salix Pharmaceuticals.
- The guide is available for download
<https://cmsa.org/hepatic-encephalopathy-cmag/>



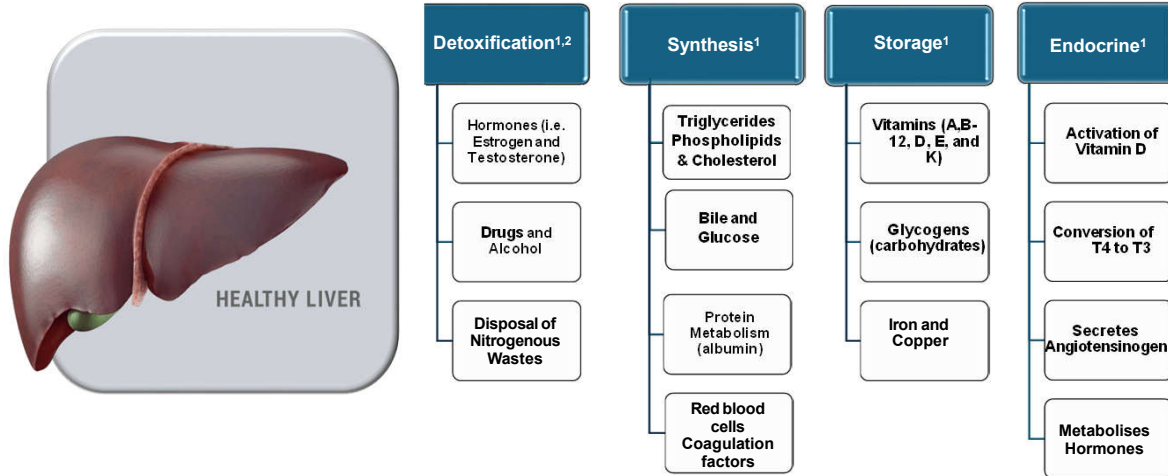
It All Starts with the LIVER



Some functions of the Liver

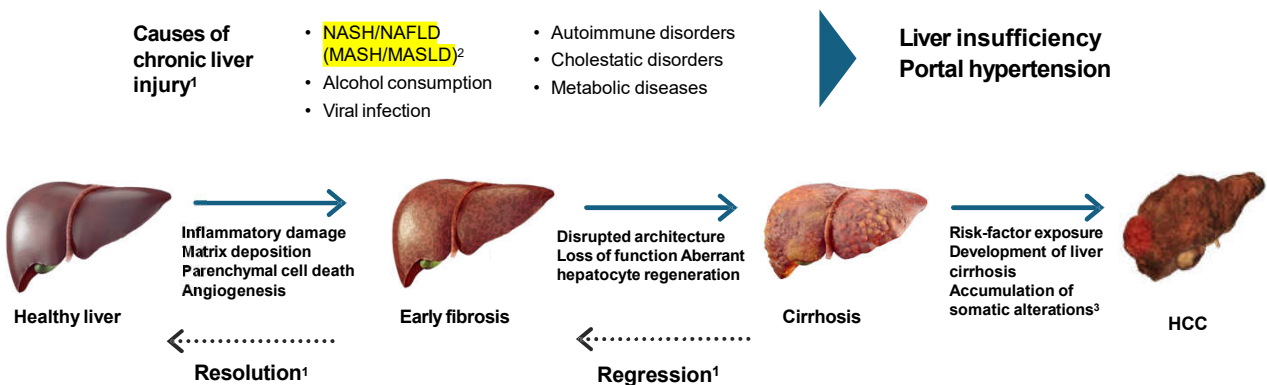
- Performs many critical metabolic functions including producing bile
- Converts glucose to glycogen
- Regulates blood clotting
- Produces cholesterol
- Regulates levels of amino acids in blood
- Processes drugs and other toxic substances
- Converts ammonia, made during digestion, to urea

Normal Healthy Liver Functions



1. Ozougwu. *Int J Res Pharm Biosci.* 2017;4(8);13-24. 2. Trefts et al. *Curr Biol.* 2017; 27(21); R1147-R1151.

Liver Damage Can Lead to Progressive Liver Disease



MASH, metabolic dysfunction-associated steatohepatitis; MASLD, metabolic dysfunction-associated steatotic liver disease; HCC, hepatocellular carcinoma
 1. Pellicoro et al. *Nat Rev Immunol.* 2014;14:181-194. 2. Rinella et al. *J Hepatol.* 2023;79;1542-1566. 3. Toh et al. *Gastroenterology.* 2023;164:766-782.

Defining MASLD/MASH – Metabolic Dysfunction– associated Steatotic Liver Disease and MASH - metabolic dysfunction-associated steatohepatitis -

MASLD

- A buildup of fat in the liver that has become the most common liver disorder in the United States.
- Two thirds of obese adults and one third of obese children have fatty livers¹.

MASH

- A leading cause of liver failure prompting an increasing need for transplant costing the United States health care system about \$100 billion annually.
- It is estimated that nine to 15 million adults have MASH.

1. MASLD. <https://gi.org/topics/steatotic-liver-disease-masld/>

MASLD/MASH/MetALD

- MASLD is asymptomatic and frequently undiagnosed.
- Diagnosis of MASLD requires liver steatosis together with at least one out of five cardiometabolic criteria, e.g. presence of impaired glucose regulation, type 2 diabetes, overweight or obesity, hypertension or dyslipidemia¹.
- MASH may prompt scarring of the liver, cirrhosis and liver failure.
- MetALD describes those with MASLD who consume greater amounts of alcohol per week
- REZDIFFRA (resmetirom) tablet thyroid hormone receptor-beta (THR-beta) agonist indicated in conjunction with diet and exercise for the treatment of adults with noncirrhotic nonalcoholic steatohepatitis (NASH) with moderate to advanced liver fibrosis (consistent with stages F2 to F3 fibrosis. Avoid use of REZDIFFRA in patients with decompensated cirrhosis².
- Additional resources are available at www.aasld.org

1. Hagström, et al. 99% of patients with NAFLD meet MASLD criteria and natural history is therefore identical. *Journal of Hepatology*, Volume 80, Issue 2, e76 - e77
2. REZDIFFRA-PI_14Mar2024_final-revised-clean-SPLPPI.pdf

Burden of Chronic Liver Disease (CLD) and Cirrhosis in the United States^{1,2}



PREVALENCE

- As of 2018, **4.5 million** people, or **1.8% of US adults**, were diagnosed with liver disease¹
 - Prevalence of cirrhosis increased from **0.20%** in 2006 to **0.45%** in 2020²



HEALTHCARE UTILIZATION

- Over **1 million** outpatient visits and **325,000** ED visits for CLD in 2014⁴
 - Cirrhosis-related hospitalizations and related costs increased from **\$4.8 billion** in 2001 to **\$9.8 billion** in 2011^{4,5}
- CLD patients typically require more hospital-based care than those with other chronic disease⁶



HOSPITAL READMISSIONS

- High readmission** rates in cirrhosis patients, particularly driven by **HE** (adjusted **odds ratio 1.77 each** for 30- and 90-day readmission)³



MORTALITY for CLD and Cirrhosis Combined

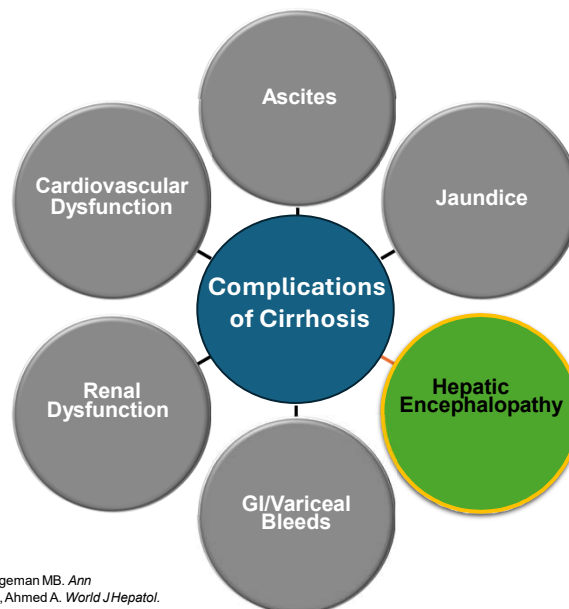
- Mortality increased from **11.0 per 100,000** persons in 2017 to **13.8 per 100,000** persons in 2020⁵
 - 56,585** deaths annually, with **17.0** deaths per **100,000** persons in 2021¹
 - 9th** leading cause of death as of 2021¹
 - Deaths associated with cirrhosis are expected to triple by 2030⁷

1. National Center for Health Statistics. <https://www.cdc.gov/nchs/fastats/liver-disease.htm>. Accessed April 14, 2023. 2. Wong et al. Poster presented at: Digestive Disease Week; May 6-9, 2023; Chicago, IL. 3. Tapper et al. *Clin Gastroenterol Hepatol*. 2016;14:1181-1188. 4. Moon et al. *Clin Gastroenterol Hepatol*. 2020;18:2650-2666. 5. Kim et al. *Clin Gastroenterol Hepatol*. 2021;19:2664-2666. 6. Asrani et al. Increasing health care burden of chronic liver disease compared to other chronic disease, 2004-2013. *Gastroenterology* 2018; 155:719-729. CLD patients typically require more hospital-based care than those with other chronic disease 7. Estes et al. Modeling the epidemic of nonalcoholic fatty liver disease. *Hepatology* 2018;67:123-133.

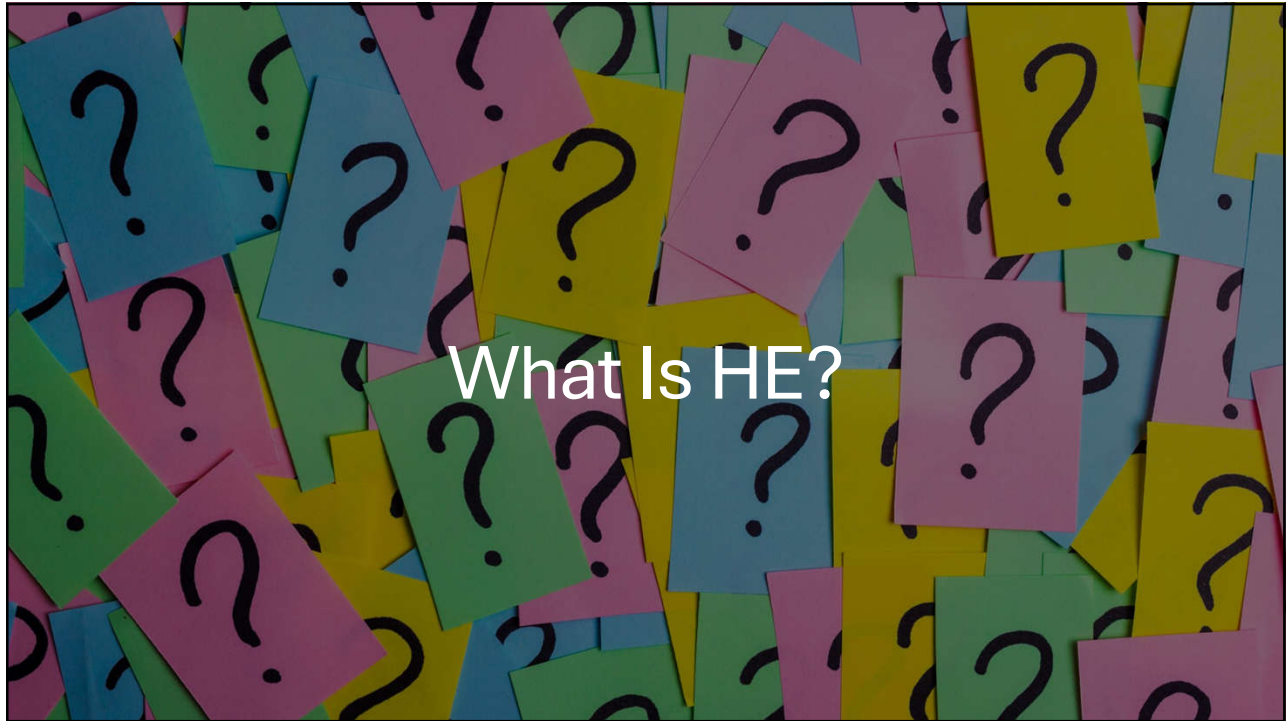
Complications of Decompensated Cirrhosis

- Decompensated cirrhosis is associated with serious complications due to hepatic insufficiency and portal hypertension¹
- Hepatic encephalopathy (HE) is a primary complication of decompensated cirrhosis¹⁻⁴

- Up to 80% of patients will develop HE, ranging from minimal to overt^{2,5,6}**



1. James J, Liou IW. *Med Clin North Am*. 2015;99(5):913-933. 2. Jawaro T, Yang A, Dixit D, Bridgeman MB. *Ann Pharmacother*. 2016;50(7):569-577. 3. Liu A, Perumpail RB, Kumari R, Youncossi ZM, Wong RJ, Ahmed A. *World J Hepatol*. 2015;7(29):2871-2879. 4. Saab S. *Int J Gen Med*. 2015;8:165-173. 5. Vilstrup H, Amodio P, Bajaj J, et al. *Hepatology*. 2014;60(2):715-735. 6. Flamm SL. *Am J Manag Care*. 2018;24(4 Suppl):S51-S61.



Overview of HE

Hepatic encephalopathy (HE) is a progressive cognitive disorder caused by liver insufficiency or portosystemic shunting (PSS), which manifests as a wide range of neurological or psychiatric impairments¹

Reversible neuropsychiatric syndrome encountered in patients with cirrhosis of the liver.

- OHE may occur in **30% to 45%** of patients with cirrhosis²
- Among patients with cirrhosis, the rate of overt HE (OHE) in the United States increased from **11.8%** in 2006 to **21.4%** in 2020, with an estimated **200,000 adults with OHE in 2020**³
- Cognitive impairment results in utilization of more health care resources in adults than other manifestations of liver disease.



CMS implemented HE-specific ICD-10 code K76.82 on October 1, 2022⁴

CMS, Centers for Medicare & Medicaid Services; ICD, International Classification of Diseases.
 1. Vilstrup et al. *Hepatology*. 2014;60:715-735. 2. Poordad. *Aliment Pharmacol Ther*. 2007;25(suppl 1):3-9. 3. Wong et al. Poster presented at: Digestive Disease Week, May 6-9, 2023; Chicago, IL.
 4. Klein. *AJMC*. <http://www.ajmc.com/view/new-icd-10-code-aims-to-provide-more-insight-into-hepatic-encephalopathy>. Accessed May 8, 2023.

Healthcare Resource Patterns With OHE

Adults with OHE commonly experience long-term care (LTC) stays and inpatient admissions, representing substantial healthcare resource burden

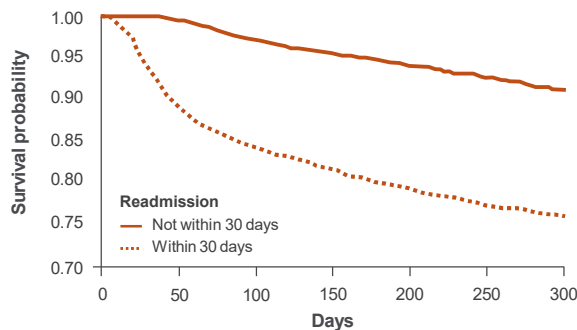
- Among adult patients with OHE in a Medicare population
 - 63% had ≥ 1 LTC stay
 - 95% were transferred to a skilled nursing facility from an inpatient stay
 - After a skilled nursing facility stay, 19% were admitted to an inpatient hospital stay
 - Inpatient readmissions within 30 days of skilled nursing facility discharge were commonly related to OHE (36%)



OHE, overt hepatic encephalopathy.
Heimanson et al. Poster presented at: Digestive Disease Week; May 6-9, 2023; Chicago, IL.

OHE Is Associated With Increased Mortality

Calendar-Year Survival of Patients Readmitted Within 30 Days in the Nationwide Readmission Database²



CI, confidence interval; HE, hepatic encephalopathy; HR, hazard ratio; OHE, overt HE.
1. Bajaj et al. *Clin Gastroenterol Hepatol*. 2017;15:565-574. 2. Kruger et al. *Ann Hepatol*. 2019;18:310-317.

- In a study of hospitalized patients with cirrhosis, grade III/IV OHE had significantly higher 30-day mortality (38%) vs grade I/II HE (8%) or no HE (7%)¹
- Among 24,473 patients with cirrhosis hospitalized with HE, 32% were readmitted within 30 days²
 - Early readmission was a highly significant predictor of calendar-year mortality

Readmission Rates With OHE



Recurrent HE underlies elevated rates of hospital readmission

- 53% of patients with cirrhosis experienced ≥ 1 readmission within 90 days, with HE as the primary reason for readmission (NACSELD cohort)
- 36% of patients with ≥ 3 complications of cirrhosis were readmitted within 90 days, with HE as a significant predictor of 30- and 90-day readmissions (State Inpatient Databases^a)² significant predictor of 30- and 90-day readmissions (State Inpatient Databases^a)²

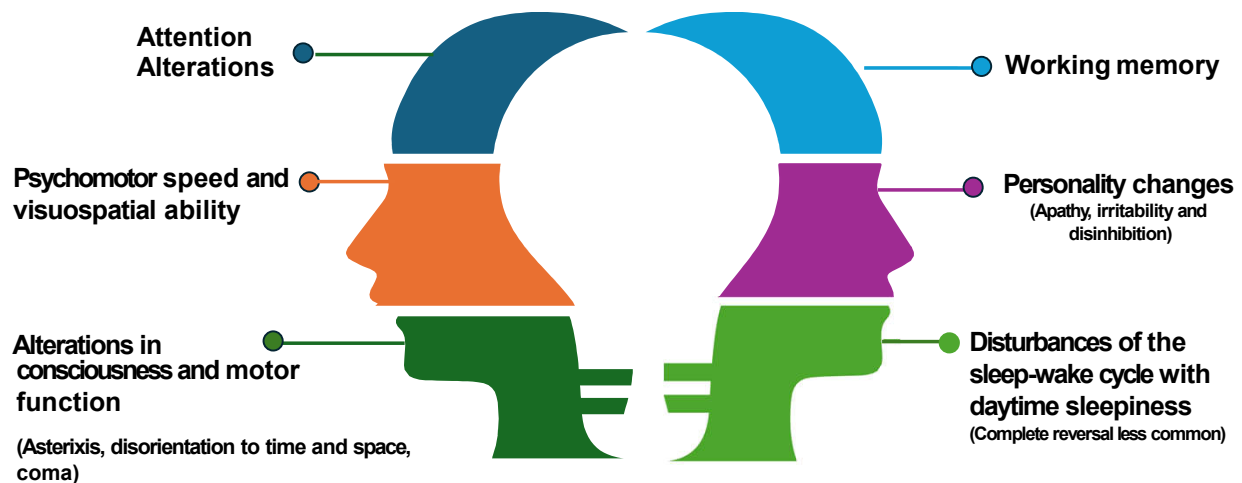
Factors contributing to HE-related readmission include^{3,4}

- Caregiver burden
- Failure to refill prescription
- Lack of follow-up
- Limited social support
- Limited access to transitional education
- Other disease factors (eg, hypertension)

HE, hepatic encephalopathy; NACSELD, North American Consortium for the Study of End-Stage Liver Disease; OHE, overt HE.
^aAdult patients with cirrhosis admitted to hospitals in California, Florida, Massachusetts, Mississippi, and New York in 2011 were included.
 1. Bajaj et al. *Hepatology*. 2016;64(2):238-248. 2. Tapper et al. *Clin Gastroenterol Hepatol*. 2016;14(11):1181-1188.e1-1188.e2. 3. Neff. *Hepatology*. 2013;57(1):309-314. 4. Rossa et al. *South Med J*. 2016;109:365-369.

Clinical Features of Hepatic Encephalopathy (HE)

HE manifests a wide spectrum of neurological or psychiatric abnormalities ranging from subclinical alterations to coma



Vilstrup H, et al. *Hepatology*. 2014;60(2):715-735.

Symptoms of HE

- Anxiety or irritability
- Cognitive impairment
- Shortened attention span; difficulty concentrating
- Flapping hand motions (asterixis)
- Muscle twitching (myoclonus)
- Reduced alertness
- Sleep problems
- Slurred speech
- Bizarre or inappropriate behavior
- Coma

<https://cmsa.org/hepatic-encephalopathy-cmag/>



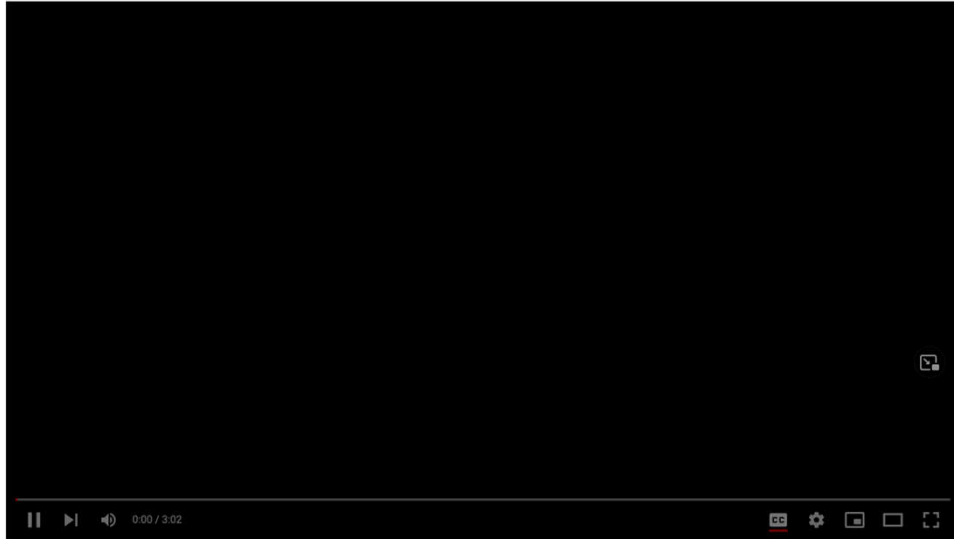
Common Triggers for HE

- Binge drinking alcohol
- Constipation
- Diarrhea
- GI bleeding
- Infection
- Kidney disease
- Portosystemic shunting
- Primary hepatocellular cancer
- Medication nonadherence
- Electrolyte imbalance
- Thrombosis in the portal vein
- Respiratory distress
- Medications that impact the nervous system (opiates, benzodiazepines, antidepressants, and antipsychotic agents)
- Sudden change in diet

<https://cmsa.org/hepatic-encephalopathy-cmag/>



Wrestling the Monster



<https://liverhealthnow.com/PC/wrestling-the-monster>

19

West Haven Criteria

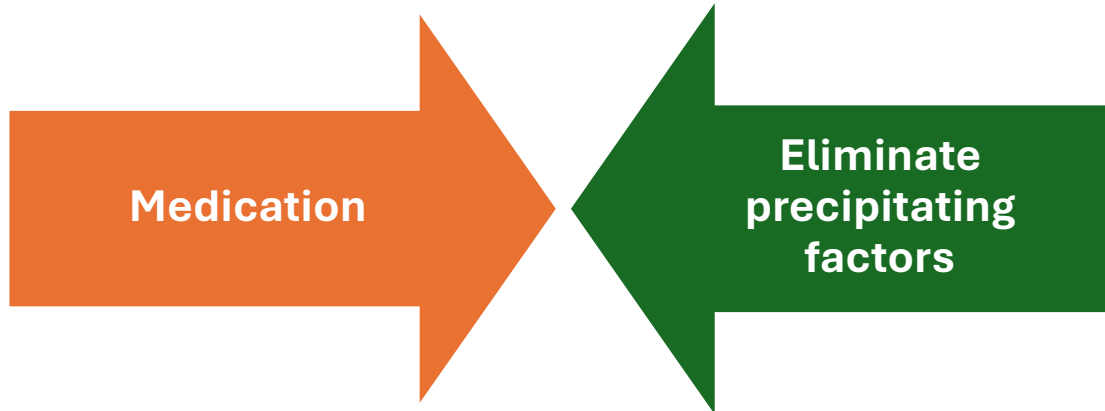
COVERT HE

OVERT HE

Minimal	Grade I	Grade II	Grade III	Grade IV
<ul style="list-style-type: none"> ✓ No observable symptoms ✓ Detectable solely by psychometric testing 	<ul style="list-style-type: none"> ✓ Trivial lack of awareness ✓ Euphoria or anxiety ✓ Shortened attention span ✓ Impairment of addition or subtraction ✓ Altered sleep rhythm 	<ul style="list-style-type: none"> ✓ Lethargy or apathy ✓ Disorientation for time ✓ Obvious personality change ✓ Inappropriate behavior ✓ Asterixis 	<ul style="list-style-type: none"> ✓ Somnolence to semi-stupor ✓ Responsive to stimuli ✓ Confused ✓ Gross disorientation ✓ Bizarre behavior 	<ul style="list-style-type: none"> ✓ Coma

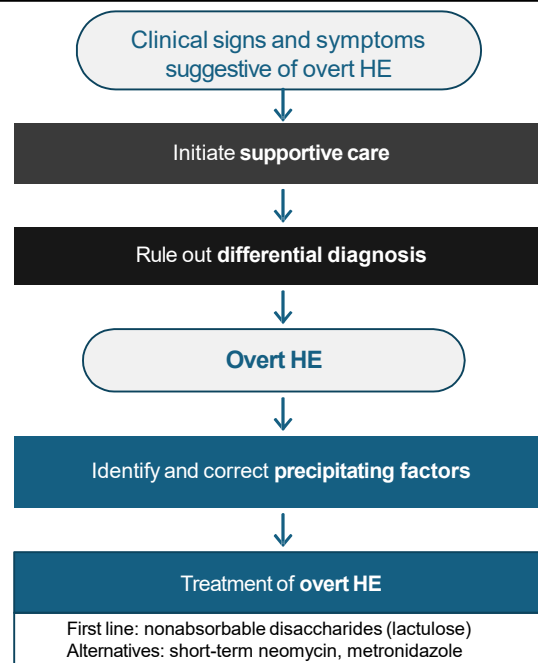
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Treatment of HE



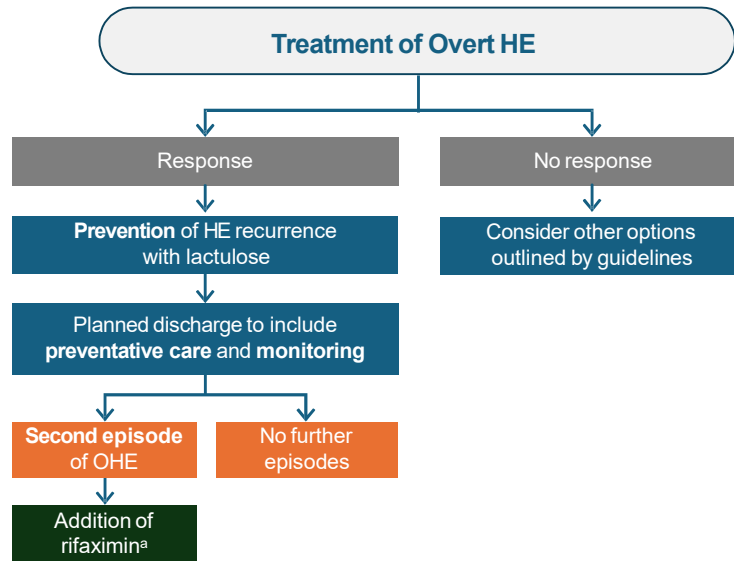
<https://cmsa.org/hepatic-encephalopathy-cmag/>

Management of an Overt HE Episode^{1,2}



HE, hepatic encephalopathy.
1. Vilstrup et al. *Hepatology*. 2014;60:715-735.
2. Shawcross et al. *Eur J Gastroenterol Hepatol*. 2016;28:146-152.

Prevention of Recurrent Overt HE^{1,2}



BID, twice daily; HE, hepatic encephalopathy; OHE, overt HE.
^aRifaximin 550 mg BID is indicated for the reduction in risk of overt HE recurrence in adults.
 1. Vilstrup et al. *Hepatology*. 2014;60:715-735. 2. Shawcross et al. *Eur J Gastroenterol Hepatol*. 2016;28:146-152

Treatment of HE

- **First-line medical treatment: lactulose**
 - Lowers ammonia levels by causing bowel movements
 - Elimination of ammonia-producing bacteria from the intestines
 - Lowers the absorption time of ammonia
 - Administered orally or per rectum (enema) during an acute episode
- **Rifaximin for breakthrough episodes**
 - Minimally absorbed antibiotic that decreases the risk for additional episodes
 - Decreases ammonia production in the intestine
 - AASLD/EASL* Guidelines state Rifaximin is an effective add-on therapy to lactulose to reduce the risk of another overt HE recurrence

* American Association for the Study of Liver Disease/European Association for the Study of Liver Disease
<https://cmsa.org/hepatic-encephalopathy-cmag>



+ . The Role of the Case Manager
 o in Supporting a Patient
 Diagnosed with HE

CASE MANAGEMENT AT-A-GLANCE

What Is Case Management?
 Case management is a service offered by medical professionals to help individuals and their family caregivers manage their health needs. Case management professionals seek to assist patients to receive the care they need to manage their diagnosis, illness or injury. They may also provide the support necessary to connect individuals to right doctors, resources, education, and services.

Who Are Case Managers?
 Case managers are healthcare professionals who work with you and your family or caregivers to help you understand and manage your health and care needs.
 Case managers can be registered nurses, social workers, or other medical professionals.
 Case managers can be called by different names such as Discharge Planners, Life Coaches, Navigators, Population Health Managers, Social Workers, or Care Managers. They all work to help individuals reach their desired health goal.

How Has a Case Manager Helped Others?
 Andrea was in a car accident and was in the hospital. She needed to go to a rehabilitation center to recover. A case manager helped to arrange the care and explained what was happening.
 Hector was diagnosed with asthma at 13 years old. A case manager helped him understand the disease, why and how to take the medications, and how to manage his exercise routine.

How Can a Case Manager Help Me?
 Case Managers can help you understand:
 • What you are going through
 • What you need to do
 • Why you need to do it
 • Which resources may be available
 • How to connect to information on insurance benefits
 • How to manage day-to-day
 • How to find the care you need when you need it

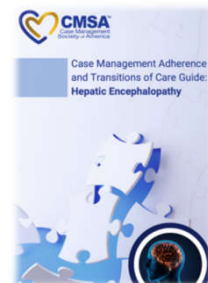
How Can I Find a Case Manager?
 Case managers work at many places such as hospitals, health insurance companies, medical or mental health offices, outpatient clinics, doctor's offices, home care, rehabilitation facilities, or almost anywhere you receive care. If you need a case manager, ask for one at any of these places.

Case Manager Consumer Definition, Standards of Practice for Case Management, CMSA, 2022

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The Case Management Process for the Management of HE: Client Selection

- Would a patient who is diagnosed with cirrhotic liver disease benefit from case management intervention with education about liver disease and the serious complications associated with that disease including hepatic encephalopathy?
- Provide information to family and caregivers regarding the symptoms of hepatic encephalopathy.
- Review medications to determine if lactulose was previously prescribed.



<https://cmsa.org/hepatic-encephalopathy-cmag>

The Case Management Process for the Management of HE: Comprehensive Assessment

Conduct a biopsychosocial assessment

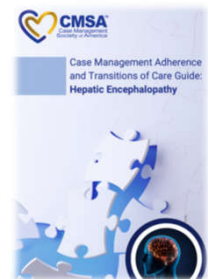
- Physical conditions(s) and symptoms
- Presence of psychological challenges
- Social and health system challenges

Concerns and preferences

- What worries the patient and family/caregiver?
- What is most important to them?

Health experiences

- How has liver disease impacted their lives?
- What do they know about liver disease?
- What do they want to know?



<https://cmsa.org/hepatic-encephalopathy-cmag>

The Case Management Process for the Management of HE: Comprehensive Assessment

Current and past treatment

- What treatment has been recommended?
- What was the response to the prescribed treatments?

Other barriers or concerns

- Presence of behavioral or mental health symptoms or disorders

Presence of health-related social needs

- Financial
- Living environment

<https://cmsa.org/hepatic-encephalopathy-cmag>



The Case Management Process for the Management of HE: Comprehensive Assessment

- Readily available social supports/caregivers
- Trusted providers
- Ability to obtain medications
- Nutritional status
- Ability to drive
- Triggers
- Adherence to prescribed treatment regime
- Level of engagement
- Primary decision maker



The Case Management Process for the Management of HE: Comprehensive Assessment

The CAGE questionnaire is a four-question screening tool used to identify potential alcohol use disorder in adults:

- C**: cutting down on drinking
- A**: annoyance by criticism of drinking
- G**: guilty feeling about drinking
- E**: early-morning drink (eye-opener)

To score the questionnaire, you assign one point for each "yes" answer.

A higher score indicates a greater risk for alcohol misuse. A total score of two or more is considered clinically significant.

file:///Users/nancyskinner/Downloads/CAGE_questionnaire.pdf

The Case Management Process for the Management of HE: Development of a Case Management Plan of Care

- Define the patient/family/caregiver challenges
- What challenges are most important to the patient/family/caregiver?
- What is the primary goal the patient/family/caregiver wish to achieve
- Develop interventions to achieve identified goals
- Evaluate the results of the care plan at regular intervals

<https://cmsa.org/hepatic-encephalopathy-cmag>



The Case Management Process for the Management of HE

Implementation and Coordination of the Case Management Plan of Care

- Consult with hepatologist or transplant center
- Availability of prescribed medications
 - Part D annual out-of-pocket drug spending cap is \$2,000
- Physical and Occupational therapy
- Consult to registered dietician
- Counseling
- Home health care
- Assisted living or skilled nursing facility
- Advancing adherence



<https://cmsa.org/hepatic-encephalopathy-cmag>

Important Safety Considerations

Outpatient Management

- Monitor for the patient's capability to manage their care.

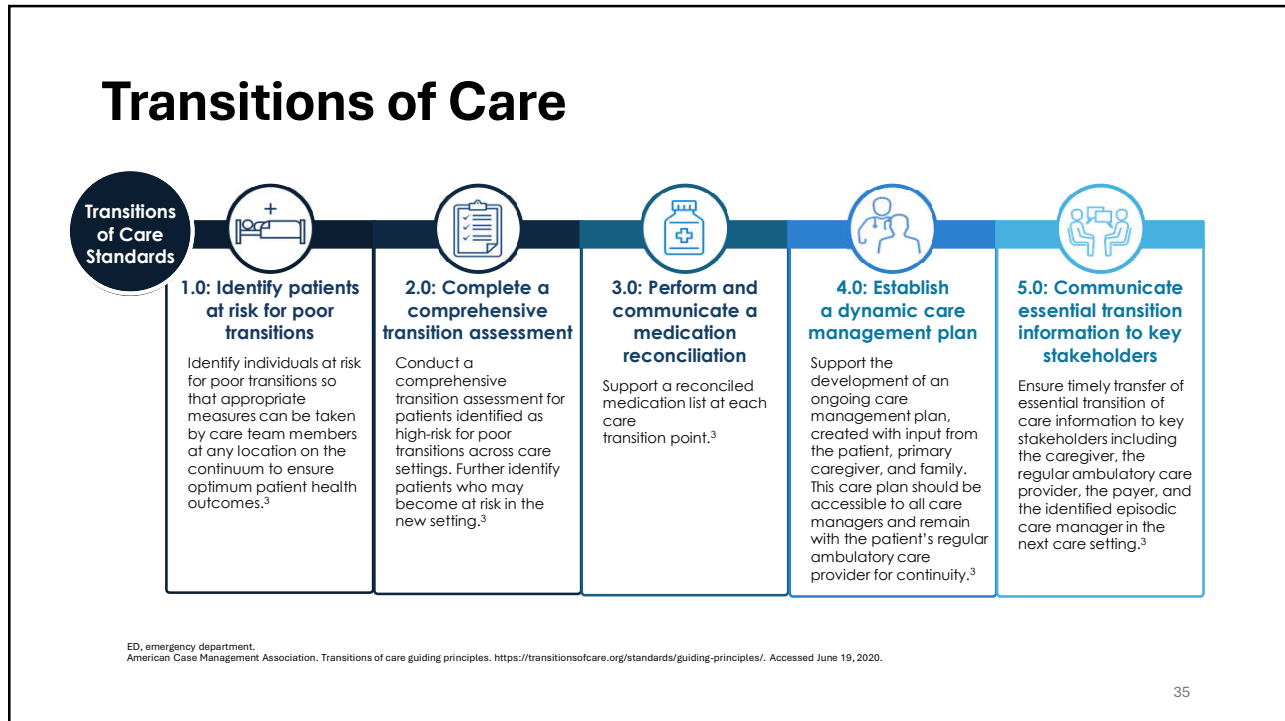
Capacity to drive

- Increased risk of driving accidents in the presence of cognitive deficits.
- Restrict driving for those whose condition suggests the patient is at risk.
- Neuropsychiatric testing may be required to determine fitness to drive.
- With disease progression, re-evaluation to drive may be necessary.

The loss of independence may be very difficult- be supportive but firm in safety recommendations.



<https://cmsa.org/hepatic-encephalopathy-cmag>



Readmission Rates for Patients with HE

- 30-day readmission rates ranging from 10% to 50%, with a pooled estimate around 26%
- Patients experiencing hepatic encephalopathy are more likely to be readmitted to the hospital compared to other complications of cirrhosis¹.
- According to one study, the 30-day readmission rate for patients with hepatic encephalopathy (HE) is around 30-35%².

1. Frenette et al. Hepatic Encephalopathy-Related Hospitalizations in Cirrhosis: Transition of Care and Closing the Revolving Door. *Dig Dis Sci*. 2022 Jun;67(6):1994-2004. 2. Pusateri et al. Randomized intervention and outpatient follow-up lowers 30-d readmissions for patients with hepatic encephalopathy, decompensated cirrhosis. *World J Hepatol*. 2023 Jun 27;15(6):826-840

Reducing Readmissions

The primary cause of readmissions for patients diagnosed with overt hepatic encephalopathy is recurrence of the hepatic encephalopathy itself, often due to poor medication adherence or failure to manage precipitating factors like infections, electrolyte imbalances, or dietary indiscretions.

Frenette et al. Hepatic Encephalopathy-Related Hospitalizations in Cirrhosis: Transition of Care and Closing the Revolving Door. Dig Dis Sci. 2022 Jun;67(6):1994-2004.

Reducing Readmissions

Or

The patient, family or caregiver does NOT does not understand information regarding

- Their diagnosis
- What they need to do about it
- The value of adherence and the consequences of nonadherence

Based on HCAHPS data, only 52% of patients nationally indicated that they "Strongly Agree" they understood their care when they left the hospital.

www.medicare.gov/care-compare

Reducing Readmissions

Establish a multidisciplinary approach involving collaboration among

- Hepatologists, gastroenterologists, PCPs and transplant centers
- Physical and occupational therapists
- Dieticians
- Pharmacists across the care continuum
- Case managers in acute & post-acute care and managed care
- Social workers
- Behavioral health professionals
- Patient educators
- Support groups

In order to address potential contributing factors and optimize treatment plans

Patient Education Resources

Liver Health Now Tools (*requires registration*)

<https://liverhealthnow.com/health-tools>

The image displays a grid of 10 patient education resource cards from Liver Health Now. Each card features a title, a brief description, and a 'Member Login' button. The cards are:

- Discharge Instructions for Patients With Hepatic Encephalopathy:** Tips for managing hepatic encephalopathy (HE) after being discharged from the hospital.
- Importance of Taking Medication As Prescribed for Overt Hepatic Encephalopathy (OHE):** An OHE attack will most likely not improve without proper medication and lifestyle modifications.
- High-Risk Triggers for Overt Hepatic Encephalopathy (OHE):** It is important to recognize the high-risk triggers of OHE in patients with liver disease to help reduce the risk of recurrence.
- Counseling Your Patients With Hepatic Encephalopathy About Driving:** Patients with hepatic encephalopathy (HE) often have deficits in driving ability, which can lead to poor driving outcomes.
- Caregiver Intake Questionnaire:** The symptoms of hepatic encephalopathy (HE) can vary depending on the patient and the severity of the condition.
- The Importance of Patient Journaling:** When you have any type of liver disease, it is important to manage your health every day.
- Nurse Checklist for Patients With Hepatic Encephalopathy Who Are Transitioning to Another Care Setting:** If you are referring a patient with hepatic encephalopathy (HE) to another care setting.
- Help Patients Set Goals Using Shared Decision Making:** Communication is important when discussing chronic liver disease (CLD) with your patients.
- I Have HE:** I have hepatic encephalopathy, also known as HE.

Patient Education Resources

Hepatic Encephalopathy

<https://www.hepatitis.va.gov/pdf/HE-fact-sheet.pdf>

March 2018 | www.hepatitis.va.gov

Hepatic Encephalopathy

What is hepatic encephalopathy (HE)?

- Hepatic encephalopathy (HE) is abnormal function of the brain caused by severe liver disease.
- It occurs when the liver is sick and no longer able to effectively remove toxins from the blood.
- When toxins build up, problems with attention, memory, judgment, and sleep can occur.
- HE symptoms can be managed if caught early and treated properly.

What are triggers for HE?

- Dehydration
- Bleeding inside your stomach or bowel
- Infections, even as minor as urinary tract infections
- Sedatives, pills for sleep or pain medications that contain opiates
- Kidney problems
- Constipation
- Surgery
- Not taking the medications needed to treat HE

How is HE diagnosed?

- There is no single test used to diagnose HE. A physical exam, medical history, and your symptoms can help in the diagnosis of HE.

What are signs and symptoms of HE?

- Sleep disturbances (e.g., sleepy during the day and awake at night)
- Hand tremors
- Worsening handwriting
- Slurred speech
- Agitation
- Irritability or personality changes
- Forgetfulness or poor memory
- Floor concentration
- Sleepiness
- Confusion (not knowing the date, not recognizing family members or surroundings)

It is important for you and your family to be familiar with the symptoms of HE so that you can recognize them early and seek proper medical attention.

How can HE be managed and treated?

- Identify and correct triggers**
 - Lactulose**
 - Decreases absorption of toxic substances from your intestines, so they can be eliminated when you have bowel movements
 - Work with your provider to determine a lactulose dose that produces 2-3 soft stools a day
 - Continue taking your lactulose even if you feel fine, to have 2-3 soft stools a day
 - If you get severe diarrhea (more than 5-6 stools/day), please call your provider
 - Rifaximin**
 - An antibiotic that decreases the production of toxic substances in the intestine
 - Continue taking your rifaximin even if you feel fine
- Diet**
 - It is important to include adequate protein in your diet to prevent malnourishment
 - Increasing plant and dairy sources of protein, such as yogurt and beans, helps keep you nourished without building up too many toxins
- Living with HE**
 - It may not be safe for you to drive
 - You may need help remembering to take your medications, cleaning, cooking, or other activities

Seek immediate medical attention if you experience any of the following triggers for HE or worsening HE symptoms:

- Fever since this may be a sign of an infection
- Diarrhea which can result in dehydration
- Signs of internal bleeding such as black stools or blood in the stool
- Difficulty with driving
- Increased sleepiness
- Agitation or confusion

Patient Education Resources

Understanding HE

<https://www.understandinghe.com/he-resources/>

Managing Relationships & HE

When your loved one is diagnosed with Hepatic Encephalopathy (HE), it can be a stressful experience for both you and them. According to a recent survey of 169 individuals affected by HE, 91% of respondents felt their role as a caregiver created a fair or significant amount of emotional stress. The below suggestions offer guidance on how you, as a caregiver, can best speak with your loved one about their diagnosis, and help explain it to others.

RELATIONSHIP WITH YOUR LOVED ONE:

- The diagnosis can have big impact on daily life, such as not being able to drive a car, not being able to work and not being able to care for oneself. These can be difficult topics to broach, and may be made easier with the assistance of input from your loved one's doctor.
- You and your loved one are in this together. The needs and concerns of both the patient and caregiver must be addressed for the relationship to stay healthy.
- The changes that your loved one is going through may be difficult for them to manage on their own. You both may benefit from talking to a professional counselor or therapist, as they may help you and your loved one cope with the emotions and stress from managing HE.
- Encourage your loved one know how important it is for them to adhere to their care plan.

Understanding Liver Disease and Hepatic Encephalopathy (HE)

As of 2022, about 30 million people are living with some type of liver disease in the United States. All types of long-term liver disease may lead to liver damage, liver scarring or even liver failure.*

Up to 5.5 million people in the U.S. have a form of chronic liver disease or cirrhosis.*

What is Hepatic Encephalopathy?

Caregiver Support Tip Sheet

It is difficult to watch someone you love experience a condition like Hepatic Encephalopathy (HE), but you are not alone. There are things you can do to help you and your loved one cope.

HELP YOUR LOVED ONE:

- It can be difficult for HE patients to put what they are feeling into words. According to a recent survey of 169 individuals affected by HE, 78% of patients agreed or strongly agreed that it is difficult for them to explain what they are going through to other people.
- Ways to help your loved one include:
 - Listen to what they are thinking and feeling - even a long way encourage them to keep a diary or journal
 - Ask questions around how your loved one wants to be helped re: making assumptions about their events and needs.
 - Stay positive so you and your loved one can have better quality of life
 - Stay at attention on the doctor regarding symptoms, medicines and medication adherence, as patients can possibly forget to be consistent. It may be helpful to write down what you are writing at home, as well as write down specific instructions given by the doctor
 - Caregivers should help manage medications to ensure patients adhere to regimen
 - Do what works for you both - whether it's an outing or a focused, sit-down conversation

Liver Disease FAQ

Following are frequently asked questions that can help you understand liver disease.

WHAT IS LIVER DISEASE?

Liver disease refers to any condition that affects the liver's ability to function properly, such as inflammation, scarring, or damage to liver cells. There are many causes of liver disease including viral infections (such as hepatitis A, hepatitis B, or hepatitis C), alcohol abuse, metabolic liver disease (NAFLD, autoimmune diseases, metabolic disorders), and certain medications or toxins.

Symptoms of liver disease may include fatigue, weakness, weight loss, jaundice (yellowing of the skin and eyes), abdominal pain and swelling, itchy skin, dark urine, pale stool, easy bruising or bleeding, and loss of appetite.

HE Treatment Plan Checklist

If you or your loved one has been diagnosed with Hepatic Encephalopathy (HE) - now what? The below checklist provides suggested first steps after a HE diagnosis - before leaving the hospital, and once you leave the hospital.

BEFORE LEAVING THE HOSPITAL, TRY TO GET AN UNDERSTANDING OF HE AND YOUR OR YOUR LOVED ONE'S CARE PLAN.

- HE is a complex disease. It is a complication of liver disease, due to decreased liver function. Here are a few questions to ask your doctor and write down to help make sure you understand what HE is before leaving the hospital:
 - What is HE? Why did it occur in my loved one's HE?
 - What is your recommended course of treatment?
 - What are the differences between inpatient and outpatient HE?
 - Should or my loved one anticipate making any lifestyle changes? If so, what are they?
 - How will I know if or my loved one is having an episode? What does an episode look like?
 - What more can we do to manage HE?

AFTER LEAVING THE HOSPITAL, HERE IS A CHECKLIST:

- Fill prescriptions and take HE medication, as directed by a doctor. Ask the pharmacist to help you understand when and how to take the medicine - questions to ask include:
 - Is there a time of day the medicine should be taken?
 - Are there any side effects to watch out for? What should