Hepatitis

Chronic Condition Management

Presented by Dr. Valerie Gruss, PhD, CNP-BC
University of Illinois at Chicago
College of Nursing
Learning Objectives

Following this presentation, the learner will be better able to:

- Develop a basic understanding of the transmission, presenting symptoms, and treatment of viral hepatitis A, B & C
- Understand hepatitis prevention and appropriate administration of hepatitis vaccines
- Identify which viral hepatitis is more likely to result in chronic hepatitis and the risk of developing liver cancer
- Discuss care coordination/team member actions related to management of viral hepatitis A, B & C
Hepatitis

- Inflammation of liver
- Viral hepatitis (types A, B, C) account for more than 50% of cases of acute hepatitis in U.S.
- Each type of hepatitis have different symptoms and treatments
- Blood tests can determine which type of hepatitis it is
Hepatitis Prevalence

CDC (2016): In the U.S.
- Acute hepatitis cases 41,000 (in one year)
- Chronic hepatitis cases: 3.5 million people living with chronic hepatitis
- New Hepatitis A cases: 1,239
- New Hepatitis B cases: 2,791
- New Hepatitis C cases 2,204
- Number of deaths: 7,461
WHO organizes World Hepatitis Day on **July 28** every year to increase awareness and understanding of viral hepatitis

[https://www.cdc.gov/hepatitis/worldhepday.htm](https://www.cdc.gov/hepatitis/worldhepday.htm)
Causes of Hepatitis

Inflammation of the liver from various causes

- **Infectious causes**: Viral, bacterial, fungal, and parasite organisms
- **Noninfectious causes**: Alcohol, drugs, autoimmune disease and metabolic disease

**VIRAL Hepatitis caused by:**

- Hepatitis A virus (HAV)
- Hepatitis B virus (HBV)
- Hepatitis C virus (HCV)
- Hepatitis D virus (HDV)
- Hepatitis E virus (HEV)
- Other causes include adenovirus, cytomegalovirus (CMV), Epstein-Barr virus (EBV) and rarely, herpes simplex virus (HSV)
Hepatitis: Acute and Chronic

ACUTE HEPATITIS:
- Acute disease symptoms: nausea, abdominal pain, fatigue, malaise, jaundice
- Acute HBV and HCV can lead to chronic infection

CHRONIC HEPATITIS
- Chronic infection may develop into cirrhosis and liver cancer
- Chronic hepatitis carriers remain infectious and may transmit disease for many years
Assessment Question #1:

True or False

- Acute Hepatitis B and Hepatitis C can lead to chronic infection?
True or False

- Acute Hepatitis B and Hepatitis C can lead to chronic infection?

TRUE
Typical symptoms of acute hepatitis:
- Fatigue, anorexia, nausea, vomiting. Very high aminotransferase values (>1000 U/L) and hyperbilirubinemia
- Severe cases of acute hepatitis may progress rapidly to acute liver failure
- Acute liver failure as defined by prothrombin time (PT) of 16 seconds or INR of 1.5 in absence of previous liver disease

Adults with **acute hepatitis A or B** are usually **symptomatic**

Persons with **acute Hepatitis C** may be either symptomatic or asymptomatic
Many cases of acute hepatitis may resolve over a period of days, weeks or months

- Acute HBV is resolved when patient has developed antibodies to Hep B (anti-HBs) and has cleared hepatitis B surface antigen (HBsAG) from their blood

Alternatively, acute viral hepatitis may evolve into **chronic** hepatitis

- **Hepatitis B** (HBV) infection is considered to have progressed to chronic infection when HBsAG, hepatitis B e antigen (HBeAg) and high titers of hepatitis B viral DNA are found to persist in the serum for **longer than 6 months**
  - Chronic hepatitis B (CHB)

- **Hepatitis C** infection is considered to have progressed to chronic infection when HCV RNA persists in the blood for **longer than 6 months**

- **Hepatitis A** and **Hepatitis E** **never** progress to chronic hepatitis.
Hepatitis A is spread eating contaminated food or beverages that are contaminated with feces of the infection person.

Hepatitis B and C are spread mainly through infected blood, semen, or other body fluids.
Summary: transmission (spread), acute or chronic

HEPATITIS

A  B  C  D

Ingestion of contaminated food and water

Parenteral contact with contaminated body fluids

Parenteral contact with contaminated body fluids

Parenteral contact with contaminated body fluids

ACUTE vs CHRONIC

Acute

Acute or Chronic

Chronic

Acute or Chronic

RARELY results in chronic liver diseases

Results in fulminant hepatitis or acute liver failure

Results in fulminant hepatitis or acute liver failure

Results in fulminant hepatitis or acute liver failure

COMPLICATIONS

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Hepatitis A (HAV)
Hepatitis A is a viral liver disease that can cause mild to severe illness.

**TRANSMISSION**: The hepatitis A virus (HAV) is transmitted through ingestion of contaminated food and water or through direct contact with an infectious person.

- Almost everyone recovers fully from hepatitis A with a lifelong immunity.
- The risk of hepatitis A infection is associated with a lack of safe water, and poor sanitation and hygiene (such as dirty hands).
- Epidemics can be explosive and cause substantial economic loss.
- A safe and effective vaccine is available to prevent hepatitis A.
- Safe water supply, food safety, improved sanitation, hand washing and the hepatitis A vaccine are the most effective ways to combat the disease.
Hepatitis A (HAV)

- Incubation period 28 days (range 15-45 days-average 4 weeks)
- Symptoms range from mild to severe, can include fever, malaise, loss of appetite, diarrhea, nausea, abdominal discomfort, dark urine, jaundice (70%)
- Severity of disease and fatal outcomes are higher in older age groups (children generally asymptomatic)
- Hepatitis A sometimes relapses
Hepatitis A (HAV)

DIAGNOSIS
- Cases of hepatitis A are not clinically distinguishable from other types of acute viral hepatitis
- Specific diagnosis is made by the detection of HAV-specific Immunoglobulin G (IgM) antibodies in the blood
- Additional tests include reverse transcriptase polymerase chain reaction (RT-PCR) to detect the hepatitis A virus RNA, and may require specialized laboratory facilities

TREATMENT
- No specific treatment for hepatitis A
- Recovery from symptoms following infection may be slow and may take several weeks or months
- Most important is the avoidance of unnecessary medications
- Hospitalization is unnecessary in the absence of acute liver failure
- Therapy is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea
True or False

- There is no specific treatment for Hepatitis A and recovery may be slow and take several weeks or months
Assessment Question #2

True or False

- There is no specific treatment for Hepatitis A and recovery may be slow and take several weeks or months

TRUE
Hepatitis A (HAV)

PREVENTION: IMMUNIZATION

- As of June 2016, 16 countries used hepatitis A vaccine in routine immunization of children nationally (including 6 countries in the American region, 3 in the Eastern Mediterranean region, 4 in the European region, and 3 in the Western Pacific region).

- While the 2 dose regimen of inactivated hepatitis A vaccine is used in many countries, other countries may consider inclusion of a single-dose inactivated hepatitis A vaccine in their immunization schedules.

- Some countries also recommend the vaccine for people at increased risk of hepatitis A.
# Vaccines to Prevent Hepatitis A

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>TRADE NAME (MANUFACTURER)</th>
<th>AGE (Y)</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>SCHEDULE</th>
<th>BOOSTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A vaccine, inactivated</td>
<td>Havrix (GlaxoSmithKline)</td>
<td>1–18</td>
<td>0.5 mL (720 ELU) 1.0 mL (1.440 ELU)</td>
<td>IM</td>
<td>0, 6–12 mo 0, 6–12 mo</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥19</td>
<td></td>
<td>IM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A vaccine, inactivated</td>
<td>Vaqta (Merck &amp; Co., Inc.)</td>
<td>1–18</td>
<td>0.5 mL (25 U) 1.0 mL (50 U)</td>
<td>IM</td>
<td>0, 6–18 mo 0, 6–18 mo</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥19</td>
<td></td>
<td>IM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined hepatitis A and B vaccine</td>
<td>Twinrix (GlaxoSmithKline)</td>
<td>≥18 (primary)</td>
<td>1.0 mL (720)</td>
<td>IM</td>
<td>0, 1, 6 mo 0, 7, 21–30 d</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥18 (accelerated)</td>
<td></td>
<td>IM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hepatitis A Vaccine Recommendations

- International travelers:
  - Travelers to high or intermediate risk countries
    *Protected by 4 weeks after dose
  - Men who have sex with men
  - Drug users
  - Persons with occupational risk
  - Persons with chronic liver disease, including hepatitis C

- Health care workers: not routinely recommended
- Day care centers: not routinely recommended
- Food handlers: may be considered based on local circumstances
Hepatitis B (HBV)
Acute Hepatitis B virus infection is a short-term illness that occurs within the first 6 months after someone is exposed to the Hepatitis B virus.
  - Acute infection can — but does not always — lead to chronic infection.

Chronic Hepatitis B virus infection is a long-term illness that occurs when the Hepatitis B virus remains in a person’s body

- In U.S. 850,000 – 2.2 million people with Hepatitis B
- Rates of acute Hep B have declined by 82% since 1991

https://www.cdc.gov/hepatitis/hbv/bfaq.htm
Hepatitis B is spread when blood, semen, or other body fluid infected with the Hepatitis B virus enters the body of a person who is not infected.

People can become infected with the virus during activities such as:

- Birth (spread from an infected mother to her baby during birth)
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Sharing items such as razors or toothbrushes with an infected person
- Direct contact with the blood or open sores of an infected person
- Exposure to blood from needle sticks or other sharp instruments
HBV at-Risk factors

- Have sex with an infected person
- Have multiple sex partners
- Have a sexually transmitted disease
- Are men who have sexual contact with other men
- Inject drugs or share needles, syringes, or other drug equipment
- Live with a person who has chronic Hepatitis B
- Are infants born to infected mothers
- Are exposed to blood on the job
- Are hemodialysis patients
- Travel to countries with moderate to high rates of Hepatitis B
Acute Hepatitis B symptoms

Symptoms appear 90 days after exposures, but can appear any time between 6 weeks and 6 months after exposure

Symptoms of acute Hepatitis B include:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or the eyes)
Some people have ongoing symptoms similar to acute Hepatitis B, but most individuals with chronic Hepatitis B remain symptom free for as long as 20 or 30 years.

About 15%–25% of people with chronic Hepatitis B develop serious liver conditions, such as cirrhosis (scarring of the liver) or liver cancer. Even as the liver becomes diseased, some people still do not have symptoms, although certain blood tests for liver function might begin to show some abnormalities.
True or False

- People with Acute Hepatitis B have symptoms for 20 or 30 years.
True or False

- People with Acute Hepatitis B have symptoms for 20 or 30 years.

FALSE

People with CHRONIC Hepatitis B may remain symptom free for as long as 20-30 years
# HCB Diagnosis, staging and monitoring

<table>
<thead>
<tr>
<th>H &amp; P</th>
<th>Lab Tests</th>
<th>Serology/virology</th>
<th>Imaging/staging studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>S &amp; S of cirrhosis, alcohol and metabolic risk factors, family hx of HCC, vaccination status</td>
<td>CBC including platelet count, AST, ALT, total bilirubin, alkaline phosphatase, albumin, INR</td>
<td>HBeAg/anti-Hbe HBV DNA quantitation Anti-HAV to determine need for vaccination</td>
<td>Abd ultrasound, Vibration-controlled transient elastography or serum fibrosis panel (APRI, FIB-4, or Fibro Test)</td>
</tr>
<tr>
<td>In selected patients:</td>
<td>Tests to rule out other causes of chronic liver diseases if elevated liver tests (AFP, GGT) (GGT=gamma-glutamyl transpeptidase)</td>
<td>HBV genotype Anti-HDV, Anti-HIV in those who have not undergone one-time screening (ages 13-64)</td>
<td>Liver biopsy</td>
</tr>
</tbody>
</table>
Treatment

- The goal of treatment is to reduce all-cause mortality and liver-related health adverse consequences, including end-stage liver disease and liver cancer.

- Treatment for acute HBV: There is no medication available to treat acute Hepatitis B. During this short-term infection, doctors usually recommend rest, adequate nutrition, and fluids, although some people may need to be hospitalized.

- Treatment is recommended for all patients with chronic HCV infection, except those with a short life expectancy that cannot be remediated by HCV therapy, liver transplantation, or another directed therapy.

Pre-Treatment Assessment:

- Evaluation for advanced fibrosis using liver biopsy, imaging, and/or noninvasive markers is recommended for all persons with HCV infection, to facilitate decision making regarding HCV treatment strategy and to determine the need for initiating additional measures for the management of cirrhosis (e.g., liver carcinoma screening).
Assessment PRIOR to starting antiviral therapy

### Recommended Assessments Prior to Starting Antiviral Therapy

**RECOMMENDED**

1. Staging of hepatic fibrosis is essential prior to HCV treatment (see Testing and Linkage to Care and see When and in Whom to Treat).

2. Assessment of potential drug-drug interactions with concomitant medications is recommended prior to starting antiviral therapy.
   - Patients should also be educated about the proper administration of medications (e.g., dose, frequency of medicines, food effect, missed doses, adverse effects, etc.), the crucial importance of adherence, and the necessity for close supervision and blood tests during and after treatment.

3. The following laboratory tests are recommended within 12 weeks prior to starting antiviral therapy:
   - Complete blood count (CBC)
   - International normalized ratio (INR)
   - Hepatic function panel (i.e., albumin, total and direct bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), and alkaline phosphatase levels)
   - Calculated glomerular filtration rate (GFR)

4. The following laboratory tests are recommended at any time prior to starting antiviral therapy:
   - HCV genotype and subtype
   - Quantitative HCV RNA (HCV viral load)

5. Patients scheduled to receive an HCV NS3 protease inhibitor (i.e., paritaprevir, simeprevir, grazoprevir, voxilaprevir, glecaprevir) should be assessed for a history of decompensated liver disease and for liver disease severity using the Child-Turcotte-Pugh (CTP) score (see third-party calculator).
   - Patients with current or prior history of decompensated liver disease or with a current CTP score ≥7 should not receive treatment with regimens that contain NS3 protease inhibitors due to increased blood levels and/or lack of safety data.
   - Similarly, patients with a CTP score of 5 or 6 who cannot be closely monitored for laboratory or clinical symptoms during treatment should not receive treatment with a regimen that contains paritaprevir/ritonavir.

6. All patients initiating HCV direct-acting antiviral (DAA) therapy should be assessed for HBV coinfection with HBsAg testing, and for evidence of prior infection with anti-HBs and anti-HBc testing.

7. Testing for the presence of resistance-associated substitutions (RASs) prior to starting treatment should be performed as recommended in the Initial Treatment and the Retreatment sections.
# Chronic HBV Treatment

<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult dose</th>
<th>Pregnancy category</th>
<th>Side effects</th>
<th>Monitoring on TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peg-IFN</td>
<td>180 µg weekly</td>
<td>C</td>
<td>Flu-like symptoms, fatigue, mood disturbances, cytopenias, autoimmune disorders, anorexia</td>
<td>CMC (monthly to every 3 months), TSH (every 3 months), clinical monitoring for autoimmune, ischemic, neuropsych, and infections complications</td>
</tr>
<tr>
<td>Lamivudine</td>
<td>100 mg daily</td>
<td>C</td>
<td>Pancreatitis, lactic acidosis</td>
<td>Amylase if symptoms lactic acid levels if clinical concern</td>
</tr>
<tr>
<td>Telbivudine</td>
<td>600 mg daily</td>
<td>B</td>
<td>Creatine kinase elevations and myopathy, Peripheral neuropathy, lactic acidosis</td>
<td>Creatine kinase if symptoms clinical eval is symptoms like lactic acid levels a concern</td>
</tr>
<tr>
<td>Entecavir</td>
<td>0.5 to 1.0 mg daily</td>
<td>C</td>
<td>Lactic acidosis</td>
<td>Lactic acid levels if clinical concern</td>
</tr>
<tr>
<td>Adefovir</td>
<td>10 mg daily</td>
<td>C</td>
<td>Acute renal failure, Fanconi syndrome, nephrogenic diabetes, lactic acidosis</td>
<td>Creatinine clearance at baseline. If risk for renal impairment, creatinine clearance, serum phosphate, urine glucose, and protein at least annually. Consider bone density at baseline and during tx in persons with hx fx. Lactic acid if clinical concern</td>
</tr>
<tr>
<td>Tenofovir</td>
<td>300 mg daily</td>
<td>B</td>
<td>Nephropathy, Fanconi syndrome, Osteomalacia, lactic acidosis</td>
<td>Creatinine clearance at baseline If at risk for renal impairment, creatinine clearance, serum phosphate, urine glucose, and protein at least annually Consider bone density study at baseline and during treatment in persons with history of fracture or risks for osteopenia. Lactic acid levels if clinical concern</td>
</tr>
</tbody>
</table>
**Recommended monitoring during antiviral Therapy**

https://www.hcvguidelines.org/evaluate/monitoring

<table>
<thead>
<tr>
<th>Clinic visits or telephone contact are recommended as clinically indicated during treatment to ensure medication adherence, and to monitor for adverse events and potential drug-drug interactions with newly prescribed medications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete blood count (CBC), creatinine level, calculated glomerular filtration rate (GFR), and a hepatic function panel are recommended after 4 weeks of treatment and as clinically indicated. More frequent assessment for drug-related adverse effects (e.g., CBC for patients receiving ribavirin) is recommended as clinically indicated. Patients receiving elbasvir/grazoprevir should be monitored with a hepatic function panel at 8 weeks (and again at 12 weeks if receiving 16 weeks of treatment). A 10-fold increase in alanine aminotransferase (ALT) activity at any time during treatment should prompt discontinuation of therapy. Any increase in ALT &lt;10-fold that is accompanied by any weakness, nausea, vomiting, jaundice, or significantly increased bilirubin, alkaline phosphatase, or international normalized ratio (INR) should also prompt discontinuation of therapy. Asymptomatic increases in ALT &lt;10-fold should be closely monitored with repeat testing at 2-week intervals. If levels remain persistently elevated, consideration should be given to discontinuation of therapy. Quantitative HCV viral load testing is recommended after 4 weeks of therapy and 12 weeks after completion of therapy. Antiviral drug therapy should NOT be interrupted or discontinued if HCV RNA levels are not performed or available during treatment. Quantitative HCV viral load testing can be considered at the end of treatment and 24 weeks or longer following the completion of therapy. Patients with compensated cirrhosis who are receiving paritaprevir/ritonavir-based regimens should be assessed for clinical signs of decompensated liver disease (e.g., ascites, encephalopathy, or serum bilirubin &gt;3 mg/dL) and for biochemical evidence of liver injury with a hepatic function panel at week 2 and week 4 of treatment, and as needed during the remainder of treatment. Paritaprevir/ritonavir-based regimens should be discontinued if a patient develops ascites, encephalopathy, or a significant increase in direct bilirubin, ALT, or AST. For HBsAg-positive patients who are not already on HBV suppressive therapy, the following are recommended:</td>
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<tr>
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<tr>
<td>- For patients whose HBV DNA level meets AASLD criteria for treatment, antiviral therapy for HBV should be initiated.</td>
</tr>
<tr>
<td>- For patients whose baseline HBV DNA level does not meet criteria for treatment, one of two approaches may be taken:</td>
</tr>
<tr>
<td>- Initiate prophylactic antiviral therapy for those with low or undetectable HBV DNA levels. If this course is elected, pending further data, prophylaxis should be continued until 12 weeks after completion of DAA therapy.</td>
</tr>
<tr>
<td>- Monitor HBV DNA levels during and immediately after DAA therapy for HCV. Antiviral treatment for HBV should be given in the event of a rise in HBV DNA &gt;10-fold above baseline or to &gt;1000 IU/mL in those with a previously undetectable or unquantifiable HBV DNA level.</td>
</tr>
</tbody>
</table>
Resolved CHB infection is defined by clearance of HBsAg with acquisition of antibody to HBsAg in blood test

Approximately 0.5% of persons with inactive CHB will clear HBsAg yearly; most will develop antibody to HBsAg (anti-HBs)

Low levels of HBV DNA are transiently detected in the blood in the minority of persons achieving seroclearance. Clearance of HBsAg, whether spontaneous or after antiviral therapy, reduces risk of hepatic decompensation and improves survival
The Hepatitis B vaccine is given as a series of 3 or 4 shots over a 6-month period

Hepatitis B vaccination is recommended for:

- All infants, starting with the first dose of Hepatitis B vaccine at birth
- All children and adolescents younger than 19 years of age who have not been vaccinated
- People whose sex partners have Hepatitis B
- Sexually active persons who are not in a long-term, mutually monogamous relationship
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who have close household contact with someone infected with the Hepatitis B virus
- Health care and public safety workers at risk for exposure to blood or blood-contaminated body fluids on the job
- People with end-stage renal disease, including pre-dialysis, hemodialysis, peritoneal dialysis, and home dialysis patients
- Residents and staff of facilities for developmentally disabled persons
- Travelers to regions with moderate or high rates of Hepatitis B
- People with chronic liver disease
- People with HIV infection
- Anyone who wishes to be protected from Hepatitis B virus infection
Tattoos and Piercings

- Getting a tattoo or piercing? Lessen your risk of hepatitis B and C by finding a salon that’s serious about controlling infections. It should be clean and tidy, the staff licensed and well trained.
- Are the tools heat-sterilized between uses?
- Hepatitis B and C can be transmitted through improper sterilization and reuse of equipment such as needles. And make sure people wash their hands and put on fresh gloves before touching you.
Pedicures, Manicures, and Hair Cuts

- Trips to the salon or barbershop may pose a small risk of exposure to Hepatitis B and C.

- While there's a small (2%-5%) chance of transmitting hepatitis through grooming items, anytime there's potential for exposure to blood you may be at risk for hepatitis. Reduce your risk by bringing your own nail files, cuticle clippers, razors, or other equipment.
Sexual contact

- Having sex with someone who has hepatitis B is a major cause of new infections
- The hepatitis B virus can be found in an infected person's blood, vaginal fluid, or semen
- Short of abstinence, being vaccinated is the surest way to avoid being infected by your partner
- Latex condoms and dental dams may help reduce your risk, too
Sharing Personal Items

- Hepatitis B and C can spread by sharing personal items belonging to someone else. That goes for toothbrushes, razors, nail clippers, washcloths, needles, or anything else that might harbor traces of infected blood.
- Keep these items for your own use only.
Hepatitis C (HCV)
Hep C Transmission & Risk Factors

- HCV is primarily transmitted through percutaneous exposure to blood.
- The most important risk for HCV infection is injection drug use, accounting for at least 60% of acute HCV infections in the United States.

Other modes of transmission include:
- mother-to-infant and
- contaminated devices shared for non-injection drug use
- sexual transmission also occurs but generally seems to be inefficient except among HIV-infected men who have unprotected sex with men

- Healthcare exposures are important sources of transmission, including the receipt of blood products before 1992 (after which routine screening of blood supply was implemented), receipt of clotting factor concentrates before 1987, long-term hemodialysis, needle stick injuries among healthcare workers, and patient-to-patient transmission resulting from poor infection control practices.

- Other risk factors include having been born to an HCV-infected mother, having been incarcerated, and percutaneous or parenteral exposures in an unregulated setting: examples are tattoos received outside of licensed parlors and medical procedures done internationally or domestically where strict infection control procedure may not have been followed (e.g. surgery before the implementation of universal precautions).
Are you at risk for Hepatitis C?

There IS a CURE for Hepatitis C

get tested

Learn more
HCV Testing

- **One time HCV testing is recommended for persons born between 1945 and 1965** without prior ascertainment of risk

Other persons should be screened for **risk factors** for HCV infection, and one-time testing should be performed for all persons with behaviors, exposures, and conditions associated with an increased risk of HCV infection

- Risk behaviors Injection-drug use (current or ever, including those who injected once) Intranasal illicit drug use

- Risk exposures Persons on long-term hemodialysis (ever) Persons with percutaneous/parenteral exposures in an unregulated setting Healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-infected blood Children born to HCV-infected women Prior recipients of transfusions or organ transplants, including persons who: Were notified that they received blood from a donor who later tested positive for HCV infection Received a transfusion of blood or blood components, or underwent an organ transplant before July 1992 Received clotting factor concentrates produced before 1987 Persons who were ever incarcerated

- Other considerations HIV infection, Sexually active persons about to start pre-exposure prophylaxis (PreP) for HIV, Unexplained chronic liver disease and/or chronic hepatitis including elevated alanine aminotransferase levels, Solid organ donors (deceased and living)
Follow-up of initial testing HCV

- Anti-HCV test is recommended for HCV testing
  - if result is positive, current infection confirmed by a sensitive HCV RNA

- Persons with a negative anti-HCV test who are suspected of having liver disease, testing for HCV RNA or follow-up testing for HCV antibody is recommended if exposure to HCV occurred within the past six months; testing for HCV RNA can also be considered in persons who are immunocompromised

- Among persons at risk of reinfection after previous spontaneous or treatment-related viral clearance, initial HCV-RNA testing is recommended because an anti-HCV test is expected to be positive.
  - Quantitative HCV-RNA testing is recommended prior to the initiation of antiviral therapy to document the baseline level of viremia (ie, baseline viral load).
  - Testing for HCV genotype is recommended to guide selection of the most appropriate antiviral regimen.
    - If found to have positive results for anti-HCV test and negative results for HCV RNA by polymerase chain reaction (PCR), persons should be informed that they do not have evidence of current (active) HCV infection
Course of Hepatitis C

Course of illness with Hepatitis C

- Cure
- Acute infection (80%)
- Chronic inflammation of the liver
- Fibrosis
- Cirrhosis of the liver
- 2-6% per annum
- Cancer of the liver
True or False

- All persons with HCV infection should be provided education on how to avoid HCV transmission to others
True or False

- All persons with HCV infection should be provided education on how to avoid HCV transmission to others

TRUE
HCV Client Education

- Persons with current (active) HCV infection should receive education and interventions aimed at reducing progression of liver disease and preventing transmission of HCV.
- Abstinence from alcohol and, when appropriate, interventions to facilitate cessation of alcohol consumption should be advised for all persons with HCV infection.
- Evaluation for other conditions that may accelerate liver fibrosis, including HBV and HIV infections, is recommended for all persons with HCV infection.
- Evaluation for advanced fibrosis using liver biopsy, imaging, and/or noninvasive markers is recommended for all persons with HCV infection, to facilitate an appropriate decision regarding HCV treatment strategy and to determine the need for initiating additional measures for the management of cirrhosis (e.g., hepatocellular carcinoma screening) (see When and in Whom to Initiate HCV Therapy).
- Vaccination against hepatitis A and hepatitis B is recommended for all susceptible persons with HCV infection.
- Vaccination against pneumococcal infection is recommended to all patients with cirrhosis.

All persons with HCV infection should be provided education on how to avoid HCV transmission to others.
HCV Patient education—prevent transmission of HCV

- Persons should be counseled to avoid sharing toothbrushes and dental or shaving equipment, and be cautioned to cover any bleeding wound to prevent the possibility of others coming into contact with their blood

- Persons should be counseled to stop using illicit drugs and enter substance abuse treatment. Those who continue to inject drugs should be counseled to avoid reusing or sharing syringes, needles, water, cotton, and other drug preparation equipment; use new sterile syringes and filters and disinfected cookers; clean the injection site with a new alcohol swab; and dispose of syringes and needles after one use in a safe, puncture-proof container

- Persons with HCV infection should be advised not to donate blood and to discuss HCV serostatus prior to donation of body organs, other tissue, or semen

- Persons with HIV infection and those with multiple sexual partners or sexually transmitted infections should be encouraged to use barrier precautions to prevent sexual transmission. Other persons with HCV infection should be counseled that the risk of sexual transmission is low and may not warrant barrier protection

- Household surfaces and implements contaminated with visible blood from an HCV-infected person should be cleaned using a dilution of 1 part household bleach to 9 parts water. Gloves should be worn when cleaning up blood spills.

There is no vaccine capable of protecting against Hepatitis C
## Treatment HCV infection (Hepatitis C)
### Genotype 1A

### Treatment-Naive Genotype 1a Patients Without Cirrhosis

<table>
<thead>
<tr>
<th>RECOMMENDED</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) for patients without baseline NS5A RASs for elbasvir</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Daily fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg)</td>
<td>8 weeks</td>
</tr>
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<td>Daily fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg)</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Daily fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) for patients who are non-black, HIV-uninfected, and whose HCV RNA level is &lt;6 million IU/mL</td>
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</tr>
<tr>
<td>Daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)</td>
<td>12 weeks</td>
</tr>
</tbody>
</table>

### Treatment-Naive Genotype 1a Patients With Compensated Cirrhosis

<table>
<thead>
<tr>
<th>RECOMMENDED</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) for patients without baseline NS5A RASs for elbasvir</td>
<td>12 weeks</td>
</tr>
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</table>
### Treatment HCV infection (Hepatitis C) Genotype 1B

#### Treatment-Naive Patients Genotype 1b Without Cirrhosis

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#### Treatment-Naive Genotype 1b Patients With Compensated Cirrhosis

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## Treatment HCV infection (Hepatitis C) Genotype 2 & Genotype 3

### Treatment-Naive Genotype 2 Patients Without Cirrhosis

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### Treatment-Naive Genotype 2 Patients With Compensated Cirrhosis

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</table>

### Treatment-Naive Genotype 3 Patients Without Cirrhosis

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### Treatment-Naive Genotype 3 Patients With Compensated Cirrhosis

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</table>
Alcohol, Illegal Drugs, and Cigarettes

Medications

If you have cirrhosis (liver scarring) from hepatitis C, you need to be very careful about the meds you take—some doses should be adjusted and some medications avoided.

Things to avoid include:
- Acetaminophen, Ibuprofen, NSAIDs
- Sleeping pills or tranquilizers

Whatever stage of hepatitis C you have, make sure to:
- Share a medication list and over-the-counter drugs with your medical care team.
- Make sure all your doctors know you have Hep C.
- Take as few medications as you can.
- Carefully read the ingredient list of your over-the-counter drugs. Acetaminophen is in many cold and flu medications. It's also in most painkillers labeled "non-aspirin."
- Always take your meds exactly as your doctor recommend
- Supplements and Herbs
True or False

- It is not necessary for someone who already has Hepatitis C to avoid alcohol, cigarettes or illegal drugs.
Assessment Question #5

True or False

- It is not necessary for someone who already has Hepatitis C to avoid alcohol, cigarettes or illegal drugs.

**FALSE**

Foods and drugs to avoid with Hepatitis C:

- Alcohol, Illegal Drugs, Cigarettes, Medications:
  - Acetaminophen, Ibuprofen, NSAIDs
  - Sleeping pills or tranquilizers
Care Coordination and Continuity

- Identify responsible primary care provider
- Identify team member(s) responsible for care coordination
- Ensure communication to appropriate team member(s), service(s), and caregiver(s)
- Ensure timing of follow-up care and how to access future care
- Ensure care coordination across services and care environments
Care Management Strategies

- Elicit and incorporate client preferences into medical decision-making
- Provide holistic, patient-centered care
- High illness and treatment burden assessment
- Care coordination and continuity

- Incorporate other health care team members
- Consider treatment complexity and clinical feasibility when making decisions
- Client decision-making styles should be accommodated
- All clients should have the opportunity to evaluate choices and prioritize their preferences for care, within personal and cultural contexts in a collaborative care partnership model
95% of people with hepatitis are unaware of their infection—get tested!

Treatment:
90% of people with Hep C can be completely cured within 3-6 months
Treatment for Hep B an Hep C can prevent development of major life-threatening complications (cirrhosis and liver cancer)

Overview- transmission and vaccines available
Resources

Websites with more information about Hepatitis

https://www.cdc.gov/hepatitis/worldhepday.htm

World Hepatitis Alliance:
http://www.worldhepatitisday.org/

World Health Organization:
http://www.who.int/campaigns/hepatitis-day/2016/event/en/
Thank you all for being here and for your commitment to enhancing the care provided to your participant, clients and members.

Through advocacy, care coordination, and teamwork we can ensure the health and well-being of our clients.
Questions
References

- American Association for the Study of Liver Diseases
  https://www.hcvguidelines.org/
- CDC: https://www.cdc.gov/hepatitis/hbv/index.htm
- Medscape: https://www.medscape.com/nurses