

Hepatitis — Overview, Screening, and Vaccination

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Objectives:

- Recognize when to vaccinate against Hep A/B
- Recognize when and how to screen for Hep B/C
- Make the above part of your routine health maintenance (HM) evaluation.
- Recognize when to refer/treat Hep B/C

I. Hepatitis A

A. Epidemiology and Natural History

1. Transmitted through fecal-oral contamination, occasional outbreaks through food sources.
2. Hepatitis A rates in US have declined by 95% since Hepatitis A vaccine became part of national vaccine schedule in 1994
3. Most patients recover within two months, does not usually result in chronic infection or chronic liver disease. <1% fulminant hepatic failure
4. In 2017, more than 704 individuals in California were infected with hepatitis A (including 461 hospitalizations and 21 deaths)-- largest outbreak in the US in two decades. Vaccinate ALL homeless.

B. Hep A vaccine- Dosing schedule: 0 and 6 months.

1. Recommended/required vaccine for children 12-23 mos (2006)
2. Screen (check HAV IgG) and vaccinate these high risk groups:
 - a. Persons traveling to or working in countries that have high or intermediate rates of Hepatitis A.
 - b. Men who have sex with men
 - c. Users of illegal injection and noninjection drugs.
 - d. Persons who have occupational risk for infection (eg. HAV primate research)
 - e. Persons who have chronic liver disease.
 - f. Persons who have clotting-factor disorders.
 - g. Household members and other close personal contacts of adopted children newly arriving from countries with high or intermediate hepatitis A endemicity.
 - h. Individuals age <40yo with recent exposure for postexposure prophylaxis

II. Hepatitis B

A. Epidemiology and Natural History

- In US estimated 850,000 individuals with chronic HBV, 70% foreign born.
- Transmission percutaneous or mucosal contact with infectious blood or body fluids (STD)
- Acute HBV infection lasts 2-4 months, most adults are symptomatic (about 70% have subclinical or anicteric hepatitis, 30% icteric hepatitis).
- Approximately 95 percent of acute infections are self-limited in adults, with patients recovering and developing immunity. Fewer than 5 percent of adults progress to chronic infection. → 15-40% develop cirrhosis/HCC/liver failure

- Risk for chronic HBV infection decreases with increasing age at infection

B. Testing

- Which tests to screen with? (review CDC HBV serologies and testing PDFs)
 - a. HBsAg (positive for >6 months, Hep B core antibody (anti-HBc) and Hep B surface antibody (anti-HBs)
- Screen these high risk groups:
 - a. Those born in countries with endemic Hep B (prevalence $\geq 2\%$)—see MAP
 - b. Pregnant women
 - c. Below listed high risk groups (in C2) who will require vaccination
- If Hep B Sag positive \rightarrow HBeAg, HBeAb, and serum HBV DNA
- Refer for treatment if ALT $>2x$ ULN and HBV DNA >2000 IU/L, cirrhotic, or first degree family member with hx HCC
 - i. Otherwise can be monitored with repeat LFTs q6-12mos
 - ii. Hep B tx – 4-5 years or indefinite depending on clinical variables

C. Hep B Vaccine- dosing schedule: 0, 1, and 6 months. (part of US Vaccination schedule since 1994. 84+% worldwide vaccination rate)

1. All Neonates
2. Vaccinate these high risk groups:
 - a. Sexually active individuals with multiple sex partners and homosexual or bisexual males, hx STI
 - b. Household contacts of patients with hepatitis B
 - c. Injection drug users
 - d. Incarcerated
 - e. HIV
 - f. Healthcare practitioners: Perform pre-vaccination serologic testing and post-vaccination testing. If anti-HBs $< 10\text{mIU/mL}$ administer series again with testing performed 1-2mos after
 - e. Patients on chronic HD or requiring repeated blood transfusion should also be vaccinated. Check Anti-HBs titers annually
 - f. Patients with chronic liver disease
 - g. Travel to areas with intermediate to high levels of endemic HBV infection.
 - h. Unvaccinated patients with diabetes ages 19 to 59.
 - i. Anyone who wants the vaccine
 - j. Persons with isolated anti-HBc (HBsAg and anti-HBs negative) who have risk factors for HBV including having grown up in high endemic areas likely had prior exposure and do not require vaccination. However, persons who are positive only for anti-HBc and who are from a low endemic area with no risk factors for HBV should be given the full series of hepatitis B vaccine
 - k. Post-exposure prophylaxis

III. Hepatitis C

A. Epidemiology and Natural history

1. Transmission: large or repeated percutaneous exposures to infectious blood

2. Approximately 20%–30% of those newly infected with HCV experience fatigue, abdominal pain, poor appetite, or jaundice.
 3. Infection progresses to a chronic state in 75-80% of patients, clears completely in 15-20% of patients.
 4. Majority of liver transplants in US are for Hep C
- B. Screening
1. Hep C Ab → If Hep C Ab positive, check RNA viral load
 2. In patients with confirmed HCV infection, quantitative HCV RNA testing (viral load) and testing for HCV genotype is recommended
 3. Screen these high risk groups:
 - a. Persons born from 1945 through 1965 (Baby-boomers, CDC and USPSTF Grade B recommendation)
 - b. Persons who have ever injected illegal drugs, including those who injected only once many years ago
 - c. Recipients of clotting factor concentrates made before 1987
 - d. Recipients of blood transfusions or solid organ transplants before July 1992
 - e. Patients who have ever received long-term hemodialysis treatment
 - f. Persons with known exposures to HCV, such as
 - i. health care workers after needlesticks involving HCV-positive blood
 - ii. recipients of blood or organs from a donor who later tested HCV-positive
 - g. All persons with HIV infection
 - h. Patients with signs or symptoms of liver disease (e.g., chronically abnormal liver enzyme tests)
 - i. Children born to HCV-positive mothers (to avoid detecting maternal antibody, these children should not be tested before age 18 months)
 - j. History of incarceration
 4. Annual testing is recommended for:
 - a. persons who inject drugs
 - b. HIV-seropositive men who have unprotected sex with men.
 - c. persons with ongoing risk factors for exposure to HCV
 - d. Previous known exposure to HCV positive source, e.g., HCW
 - e. Repeat screening at 6 months after exposure
- B. Remember to vaccinate against Hep A and B if chronic Hep C
- C. All genotypes can be referred for treatment, any VL (see EP). Direct antivirals x 12-24 weeks

Other important points:

1. Remember to check for HIV co-infection
2. Order the OVMC Acute hepatitis panel for evaluation of ACUTE symptoms suggestive of hepatitis, not screening. This panel includes: Hep A IgM, Hep B core IgM, Hep B SAg, Hep C Ab
3. HCC screening using US q6mos should be performed for:
 - Hep C patients with cirrhosis

- Hep B patients who are at high risk for HCC defined as: patients with cirrhosis, Asian men >40 years, Asian women >50 years, Africans/North American blacks, patients with a family history of HCC, Caucasian patients (men>40, women>50) with a high viral load and active inflammation for several years.
- <1cm lesion repeat US in 3 months, >1cm quad phase CT or MRI
- 4. Most patients with cirrhosis should undergo endoscopic screening for esophageal varices. In populations with cirrhosis predominantly due to HCV, the risk of varices being present appears to be very low --If the platelet count drops to <150,000 or the liver stiffness increases to ≥ 20 kPa, then endoscopic screening for varices should be performed.
- 5. Remember to screen for Hep B and/or C if risk factors are present -- Make this part of your routine HM evaluation. HCM is not just a list, tailor for each pt based on risk factors and social history
- 6. Refer to the three DHS expected practices on Hep A/B/C for practice guidelines.

References:

UpToDate

Aafp.org

Cdc.gov/hepatitis

Who.int

Annals of Internal Medicine • Vol. 167 No. 11 • 5 December 2017

ACP Clinic Guideline for screening, vaccination, and linkage to care for Hep B