

Hepatitis B Vaccination Update: New Recommendations from the ACIP

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Conflict of Interest

- Rick Davis, PA-C has no disclosures to report

HBV Vaccination: Learning Objectives

- 1. Informed of the epidemiology of acute/chronic hepatitis B in the U.S.
- 2. Become aware of the morbidity and mortality of chronic hepatitis B infection from complications of cirrhosis and hepatocellular carcinoma (HCC)

HBV Vaccination: Learning Objectives

- 3. Select the currently available hepatitis B vaccines for the appropriate patients and schedule
- 4. Review the new ACIP recommendations for universal vaccination against hepatitis B in adults in the U.S.

ACIP HBV Vax Recs: What's New?

www.cdc.gov/vaccines/acip

- (November, 2021)
- The following groups should receive Hepatitis B vaccine:
 - Adults age 19 thru 59 years of age
 - Adults 60 years of age and older with risk factors for Hepatitis B infection
 - Anyone over 60 without risk factors may also receive the HBV vaccines

ACIP HBV Vax Recs: Why?

November, 2021

- HBV vaccinations rates are low in the U.S.
- > 60 million Americans were born before 1991 when infant vaccination was adopted
- HBV cases are rising, likely associated with the opioid epidemic and IVDU
- 2018, 1,649 reported deaths from HBV
- 2016, estimated 862,000-2M Americans infected with chronic hepatitis B
- Vaccination >95% effective in preventing HBV infection

HBV: US Prevalence

- Chronic HBV prevalence: **847,000-2.2 million**

4X higher rate among **veterans**

5X higher rate among **inmates**

20X higher rate among **AAPIs**

- www.cdc.gov/hepatitis/statistics/

WHO: HBV Epidemiology

Worldwide (7/27/21)

- Estimates 296 M living with chronic HBV in 2019 worldwide
- 1.5 M new infections/year
- 820,000 deaths in 2019, mostly from complications of cirrhosis and primary liver cancer (HCC)

HBV Transmission

CDC/HBV vaccine information sheet

- Body fluids, blood, semen enter body of uninfected person
- Birth from HBsAg+ mother
- Sharing razors, toothbrushes with infected person
- Sex with an infected partner
- Sharing needles, syringes, or other drug injection equipment
- Needle sticks or other sharps exposure
- Vaccination protects > 95% from becoming infected

Hepatitis B Serologies

- HBsAg (+) chronic carrier or active dz
- HBsAb (+) immunity or previous exposure
- HBcAb(IgM) acute exposure
- HBcAb(IgG) previous exposure
- HBeAg (+) viral replication
- HBeAb (+) viral clearance or pre-core mutant if DNA (+)
- HBV-DNA $< 10^4$ chronic carrier or prev exposure
- HBV-DNA $> 10^4$ active chronic infection
- AASLD Hepatitis B Guidelines, Hepatol, 2018

Hepatitis B: Complications

- Hepatocellular carcinoma (HCC)
 - In absence of cirrhosis
 - > men from Africa/Asia > 40
 - > women from Asia > 50
- Cirrhosis
 - Portal hypertension
 - Ascites, variceal bleeding, encephalopathy
 - Liver failure

Patients with known chronic HBV: assessment of fibrosis

- Fibrosis calculators from readily available routine labs: APRI, FIB-4, MELD, NAFLD scores
- Imaging: U/S, CT, MR
- Fibrosis scans: elastography, fibroscan; measure 'stiffness' of liver, not anatomy
- Liver biopsy: percutaneous, transjugular

HBV: Surveillance for HCC HBsAg+ patients (AASLD, 2018)

- Abd U/S with +/- AFP q 6 months
- Begin at age 40: Asian/African descent men
- Begin at age 50: Asian women
- FH liver cancer
- Hepatitis Delta co-infection
- All with advanced fibrosis, F3-F4

Hepatocellular Carcinoma (HCC): Treatment

Surgical resection or liver
transplantation best options

- Alcohol ablation
- Embolization (cryo-,chemo-,
TACE)
- ChemoRx, e.g. sorafenib

Hepatitis B Vaccination

HBV available vaccines

- Engerix-B[®]
- Recombivax HB[®]
- Heplisav-B[®]
- TwinRx: Hep A&B

ACIP HBV Routine Vaccination schedule: Adults 19-59 years old

Complete a 2- or 3-, or 4- dose series:

- - 2-dose series only applies when 2 doses of Hepelisav-B* are used at least 4 weeks apart
- - 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks])
- - 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

ACIP HBV Vaccination schedule 2022: Adults 19-59 years old, 4-dose series

- 4-dose series HepA-HepB (Twinrix)
accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months
- - 4-dose series Engerix-B at 0, 1, 2, and 6 months for persons on adult hemodialysis (note: each dosage is double that of normal adult dose, i.e., 2 mL instead of 1 mL)
- ***Note:** Heplisav-B not recommended in pregnancy due to lack of safety data

ACIP Vaccination Schedule 2022: Special Populations

- **Age 60 years or older and at risk for hepatitis B virus infection*:**
- 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix)

***Note:** Anyone age 60 years or older who does not meet risk-based recommendations may still receive Hepatitis B vaccination.

ACIP Vaccination Schedule 2022: Special Populations

- **Chronic liver disease:**
- Chronic Hepatitis C
- Cirrhosis
- Fatty liver disease
- Alcoholic liver disease
- Autoimmune hepatitis
- Elevated transaminasea > 2x ULN

ACIP Vaccination Schedule 2022: Special Populations

- **HIV infection**
- **Current or recent injection drug use**
- **Incarcerated persons**
- **Travel in countries with high or intermediate endemic hepatitis B**
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ACIP Vaccination Schedule 2022: Special Populations

- **Sexual exposure risk:**
- Sex partners of hepatitis B surface antigen [HBsAg]-positive persons
- Sexually active persons not in mutually monogamous relationships
- Persons seeking evaluation or treatment for a sexually transmitted infection
- Men who have sex with men

ACIP Vaccination Schedule 2022: Special Populations

- **Percutaneous or mucosal risk for exposure to blood:**
- Household contacts of HBsAg-positive persons
- Residents and staff of facilities for developmentally disabled persons
- Health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids

ACIP Vaccination Schedule 2022: Special Populations

- **Percutaneous or mucosal risk for exposure to blood, cont'd:**
- Hemodialysis
- Peritoneal dialysis
- Home dialysis
- Predialysis patients
- Patients with diabetes

ACIP pediatric/adolescent HBV vaccination recommendations 2022

- Unchanged from 2018
- Routine:
 - HepB monovalent vaccine at birth
 - 1-2 month
 - 18 months
- Mother HBsAg+:
 - Sgl monovalent HepB vaccine + HBIG
 - 1 month
 - 3 months
 - Ck HBsAg + HBsAb at 9-12 months
 - 18 months

Reactivation of HBV:

previously infected but HBsAb+

- Ck HBcAb total, prior to beginning biologic, immunomodulatory, or immunosuppressive therapy.
- Monitor for reactivation during therapy with LFT, HBV-DNA or HBsAg
- May require viral suppression therapy during therapy with entecavir, tenofovir
- AASLD, 2018 guidelines

Summary

- New ACIP recommendations to vaccinate adults age 19-59 yrs and those over 60 if at risk or if they wish
- HBV vaccination prevents infection in > 95% of individuals
- Pts with chronic HBV infection are at risk of primary liver cancer and development of cirrhosis with complications.

References

- [CDC.gov/vaccines/schedule/downloads/adult/-schedule](https://www.cdc.gov/vaccines/schedule/downloads/adult/-schedule). 2022
- AASLD 2018 Hepatitis B Guidance, *Hepatology* 2018;67(4): 1560-99.
- WHO: <https://www.who.int/news-room/fact-sheets/detail/hepatitis-b> [accessed 2/25/22]
- Prevention of Hepatitis B virus infection in the U.S.: Recommendations of the Committee on Immunization Practices. *MMWR* 2018;67(1): 1-36