

We can't know the future, but
we can try to protect ourselves
from it

Camilla S. Graham, MD, MPH
Co-Director, Viral Hepatitis Clinic
Division of Infectious Disease
Beth Israel Deaconess Medical Center
Harvard Medical School
Medical Director: Program RISE

Unexpected Ways Hepatitis B Infection/Exposure Can Impact Other Medical Care

- People who were previously exposed to HBV, even if they do not have active infection now, can reactivate the HBV lying dormant in the liver, and develop severe liver damage and even death
 - Cancer chemotherapy
 - Immunosuppressive treatment for autoimmune disease
 - High-dose steroids for more than a couple of weeks
 - Immune suppression with organ transplant
 - Hepatitis C treatment
- Experimental treatment for COVID-19
 - One trial requires liver enzymes that are not too high
 - One drug is used to suppress an over-exuberant immune response; has a theoretical concern for HBV reactivation

Adult Hepatitis B Vaccination Recommendations are Based on Common Events and Complications

- Persons at risk for infection by exposure to even small amounts of 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
 - Hemodialysis patients and predialysis, peritoneal dialysis, and home dialysis patients
 - Persons with diabetes mellitus aged <60 years and persons with diabetes mellitus aged ≥60 years at the discretion of the treating clinician
- Persons at risk for infection by sexual exposure:
 - sex partners of HBsAg-positive persons
 - sexually active persons who are not in a mutually monogamous relationship
 - persons seeking evaluation or treatment for a sexually transmitted infection
 - Men who have sex with other men
- International travelers to countries with high or intermediate levels [HBsAg prevalence of ≥2%] of endemic HBV infection
- Persons with HCV infection
- Persons with other chronic liver disease [including, but not limited to, those with cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, and an ALT or AST level greater than twice the upper limit of normal]
- Persons with HIV infection
- Incarcerated persons
- Pregnant women
- People who share needles, syringes, or other drug-injection equipment
- Persons seeking protection from HBV infection without acknowledgement of a specific risk factor

It is Better to Receive HBV Vaccination Before Developing Complications

Healthy People, Age 18 to 55			
	<i>Heplisav-B</i> wk 12 % (95% CI)	Engerix-B wk 28 % (95% CI)	Difference (95% CI)
Seroprotection Rate (n=1,482)	95.1 (94, 96.1)	81.1 (77.7, 84.4)	13.9 (10.6, 17.6)

People with Type 2 Diabetes Mellitus, Age 18 to 70			
	<i>Heplisav-B</i> wk 28 % (95% CI), n=640	Engerix-B wk 28 % (95% CI), n=321	Difference (95% CI)
Seroprotection Rate	90.0% (87.4, 92.2)	65.1% (59.6, 70.3)	24.9% (19.3, 30.7)

People Need the Correct Combination of Tests to Recognize If They Need Hepatitis B Vaccination

BIDMC data 2010 – 2018:

Number tested for anti-HBs and/or HBsAg = 174,000

Number tested for all three (anti-HBs, anti-HBc and HBsAg) = 85,555

- BIDMC laboratory staff reported inappropriate anti-HBc IgM, HBeAg, anti-HBe, and HBV DNA tests being ordered
- Quest (national lab) has 27 different HBV testing options
 - Hepatitis B Immunity Panel: Hepatitis B Core Antibody, Total and Hepatitis B Surface Antibody [no HBsAg]
 - Hepatitis Panel Acute with Reflex: Hepatitis A IgM Antibody; Hepatitis B Surface Antigen; Hepatitis B Core Antibody (IgM); Hepatitis C Antibody with Reflex to HCV RNA [no total anti-HBc, no anti-HBs]

- [Blastomycosis Antibody \(by CF and ID\)](#)
- [Cardiolipin Antibodies \(IgG, IgM\)](#)
- [CMV IgG Ab](#)
- [CMV IgG/IgM Ab Panel](#)
- [Coccidioides Ab, Complement Fixation and Immunodiffusion](#)
- [Cryptococcal Antigen](#)
(w/reflex titer if positive)
- [EBV Ab Panel](#)
- [H. pylori IgG Ab](#)
- [Hepatitis A Antibody](#)
- [Hepatitis A Antibody, IgM](#)
- [Hepatitis B Screening Panel](#)
(Includes Hepatitis B Surface Antigen,
Hepatitis B Surface Antibody,
Hepatitis B Core Antibody (Total))
- [Hepatitis B Core Antibody](#)
- [Hepatitis B Core Antibody, IGM](#)
- [Hepatitis B Surface Antibody](#)
- [Hepatitis B Surface Antigen](#)
- [Hepatitis Be Antibody](#)
- [Hepatitis Be Antigen](#)



Solution: New Hepatitis B Screening Panel

- Ensure all three necessary HBV tests are performed
- Reduce inappropriate testing
- Assist with future HBV evaluation programs

All commercial laboratories need a similar panel for HBV screening

Immunizations

BIDMC has made Heplisav-B the default HBV vaccine for most groups, but it is not approved for certain populations. Need to program formulation, dose, and dosing schedule

Patient is due for the following immunizations:

- PCV 13 (Pevnar 13 – Conjugate)
- Zoster Recombinant (Shingrix)

* For date:

Type Last entry

Type Last entry

Routine Immunizations

Hepatitis A Vaccination

- Hepatitis B Vaccination
 - [Project-HD Recombivax Enderix Vaccination Flyer](#)
 - Heplisav-B (Adult, Routine administration)
 - Recombivax or Enderix, Adult standard dose (1mL/dose) (preferred in pregnancy, Recombivax Age>10, Enderix Age >19)
 - Recombivax, high dose (40mcg = 1mL/dose) (End-stage renal disease, immunocompromised host)
 - Enderix, high dose (40mcg = 2mL/dose) (End-stage renal disease, immunocompromised host)
 - Recombivax (5mcg) or Enderix (10mcg), Pediatric dose (0.5mL/dose) – (Recombivax Age<=10, Enderix <=19)

HPV Vaccination (Gardasil)

Influenza Vaccination [02/27/2019](#)

MenACWY (Menveo; Menactra)

MMR Vaccination

PCV 13 (Pevnar 13 – Conjugate) [11/30/2015](#)

DTP [08/08/2014](#)

Consider an All-Adult Testing Program for Hepatitis B

- Identify everyone with chronic hepatitis B infection
 - Currently 65% of people with chronic HBV infection in the US are undiagnosed
- Identify people with no evidence of prior exposure to hepatitis B and provide vaccination
 - Cannot predict who may benefit from HBV vaccination in the future, but each of us has a high enough likelihood of developing a condition that may benefit from HBV vaccine to warrant universal vaccination
- Identify people with prior exposure to HBV who could be at risk for reactivation, so they receive appropriate management