



# CDC Recommendations for Hepatitis B Screening and Testing – United States, 2022

**Erin Conners, PhD, MPH**  
Division of Viral Hepatitis

Presentation to CDC/HRSA Advisory Committee on HIV, Viral Hepatitis, and STD  
Prevention and Treatment  
November 4, 2021

## Acknowledgements

### Guideline workgroup and steering committee

- Noele Nelson
- Jessica Brown
- Liesl Hagan
- Aaron Harris
- Megan Hofmeister
- Lakshmi Panagiotakopoulos
- Karina Rapposelli
- Amy Sandul
- Philip Spradling
- Carolyn Wester

### Other CDC Consultation and Support

- NCHHSTP Office of the Director
- Guidelines and Recommendations Activity
- Strategic Business Initiatives Unit
- MMWR Serials Team

### Prevention Policy Modeling Lab

- Mehlika Toy
- David Hutton
- Joshua Salomon
- Samuel So

## Hepatitis B in the U.S. — a tale of two epidemiologies

- **880,000 million people living with hepatitis B in the U.S.**
  - Modeled estimate: **1.49-2.40 million**
- **People born outside the U.S.**
  - Chronic infection since childhood
- **Unvaccinated people with behavioral risk factors**
  - Injection drug use, unprotected sex
  - Acute infections as adults, higher clearance rate

Roberts Hepatology 2021; Wong Hepatology 2021

## Justification for Screening

- ✓ HBV infection has significant morbidity and mortality
- ✓ Chronic infection can be detected before the onset of symptoms of liver disease using reliable and inexpensive screening tests
- ✓ Treatment for chronic HBV infection has been shown to reduce morbidity and mortality
- ✓ Universal screening of adults is cost-effective
- ✓ Screening can identify people who are at risk of HBV reactivation or who would benefit from vaccination

## Universal screening

- **May help reduce stigma**
  - Non-US-born Asian and African communities
  - Risk assessments
- **Simplifies a complicated process that has fallen short**
- **Complements existing HCV and HIV screening guidelines**
- **Helps reach elimination goals**

**Cost-effectiveness analysis**

## The analysis compared current practice to current practice *plus* a one-time adult screening test.

- **Current practice**

- 33% of people with HBV diagnosed
- 36% linked to care and 18% receive treatment

- **Assumptions**

- Prevalence undiagnosed chronic HBV: 0.24%
- HBsAg testing as part of healthcare visits
- Generic treatment

Toy et al. CID 2021; Harris et al. Am J Manag Care 2020; Patel et al. CID 2019.

## Screening adults 18-80 with a HBsAg test is cost-saving compared to current practice.

	Cirrhosis	Decomp. Cirrhosis	HCC	Transplants	HBV Deaths	Cost*	QALYs	ICER
Current Practice (CP)	23.6	7.3	22.8	7.6	36.0	\$8,333,860	1,970,557	-
CP + One-time Universal Screening	16.6	4.2	17.5	5.8	26.2	\$8,133,527	1,970,686	-
Difference (Age 18-80)	-7.0	-3.2	-5.2	-1.8	-9.8	<b>-\$200,334</b>	<b>+128</b>	Cost-saving

NEEMA, Unpublished Sensitivity Analysis; Toy 2021

# Universal Screening Systematic Review

## Q1a. What is the prevalence of chronic HBV infection in the United States?

- **Restricted articles to the “general” population (N=17)**
  - Screening among people not suspected or known to be at increased risk of infection
- **Included studies among:**
  - First-time blood donors, organ donors, pregnant people, NHANES enrollees, and patients seeking care for a condition other than HBV

## The median prevalence of chronic HBV in the general population was 0.4%.

- **Prevalence range: 0.0%-2.0%**
  - Excluding a study in Guam: Median: 0.38 (Range: 0.0%-0.7%)
- **History of infection (anti-HBc+): 6.2% (Range: 4.8%-14.0%)**

CDC, Unpublished

## Considering the economic and systematic review evidence together

- **Median HBV prevalence was in line with NHANES**
  - 0.40% vs. 0.36%
- **Recommending 3-test panel rather than HBsAg only**
  - Remains cost-effective at \$11,207/QALY
- **Studies below the cost-effectiveness prevalence threshold (0.15%)**
  - 3 studies in organ and blood donors
  - 1 study of insured patients born 1945-1960 undergoing colonoscopy

# Proposed recommendation language

## Screening Recommendations for Hepatitis B

- **Universal hepatitis B screening:**
  - Hepatitis B screening at least once in a lifetime for adults  $\geq 18$  years of age. [\[New recommendation\]](#)
- **Pregnant people screening:**
  - Hepatitis B screening for all pregnant people during each pregnancy, preferably in the first trimester, regardless of vaccination status or history of testing\* (Schillie et al. 2018).
- **Risk-based testing:**
  - One-time testing for all individuals, regardless of age, with increased risk of HBV infection (next slide) if they were susceptible<sup>†</sup> at time of exposure; and
  - Periodic testing for susceptible<sup>†</sup> people with ongoing risk exposure(s), while exposure(s) persist.
- **During screening, test for hepatitis B surface antigen (HBsAg), antibody to hepatitis B surface antigen (anti-HBs), and total [IgG and IgM] antibody to hepatitis B core antigen (total anti-HBc)**  
[\[New recommendation\]](#)

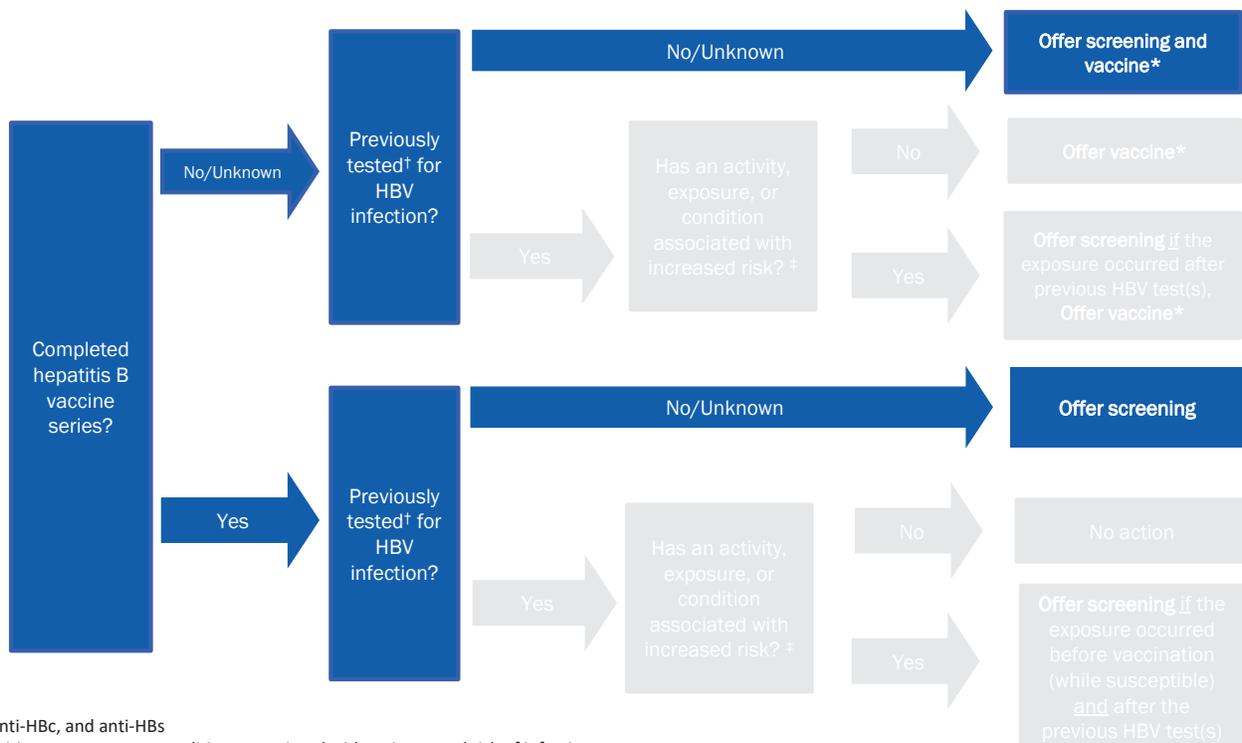
\*Pregnant people with a history of 3-test screening and without subsequent risk can be screened with only HBsAg during pregnancy.

<sup>†</sup> Susceptible people include those who have never been infected with HBV and either did not receive a U.S. licensed hepatitis B vaccine series completed according to the recommended schedule or who are known vaccine non-responders.

# Activities, exposures, or conditions associated with an increased risk of HBV infection

- History of incarceration (i.e., jail, prison) **[New recommendation]**
- History of sexually transmitted infections or multiple sexual partners **[New recommendation]**
- History of HCV infection **[New recommendation]**
- Anyone who requests hepatitis B testing **[New recommendation]**
- People born in regions of HBV prevalence  $\geq 2\%$
- U.S.-born persons not vaccinated as infants whose parents were born in regions with prevalence  $\geq 8\%$
- HIV infection
- History of injection drug use
- Men who have sex with men
- Infants born to persons who are HBsAg positive
- Household, needle-sharing, or sexual contacts of people with known HBV infection
- Predialysis, hemodialysis, peritoneal dialysis, or home dialysis
- Elevated alanine aminotransferase or aspartate aminotransferase levels of unknown origin

## Adults $\geq 18$ years without a known history of HBV infection

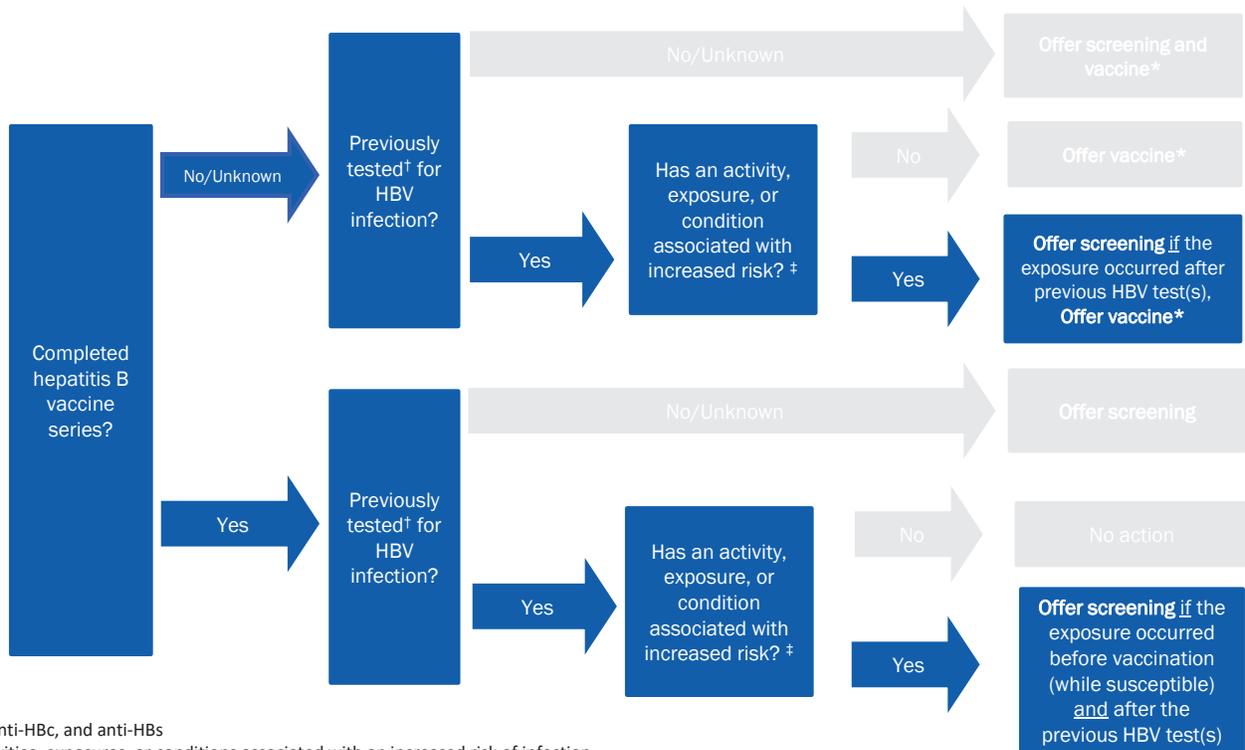


† With HBsAg, anti-HBc, and anti-HBs

‡ See list of activities, exposures, or conditions associated with an increased risk of infection

\*Offer vaccine per ACIP recommendations

## Adults $\geq 18$ years without a known history of HBV infection

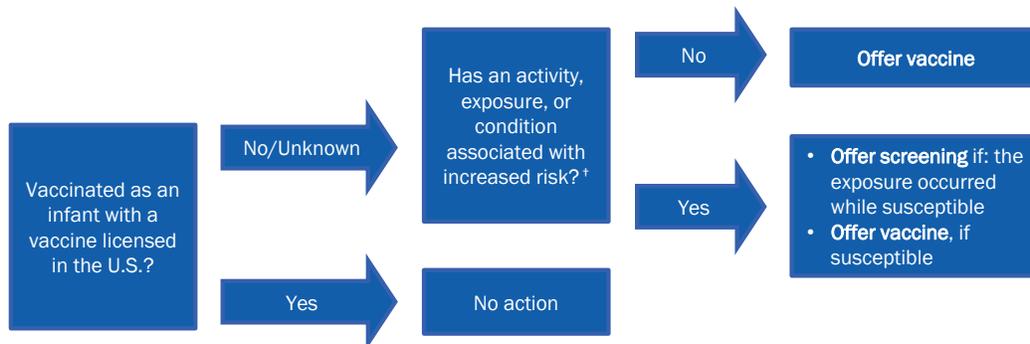


† With HBsAg, anti-HBc, and anti-HBs

‡ See list of activities, exposures, or conditions associated with an increased risk of infection

\*Offer vaccine per ACIP recommendations

## Children and adolescents 1-17 years without a known history of HBV infection



† See list of activities, exposures, or conditions associated with an increased risk of infection

# Thank you

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

