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EPI-NEWS

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IN THIS ISSUE: Updated Hepatitis B Virus Infection Screening and Testing Recommendations

TITLE: Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations, 2023

Introduction

Hepatitis B (HepB) is a vaccine-preventable liver infection caused by the hepatitis B virus (HBV). HBV is spread when blood, semen, or other body fluids from a person infected with the virus enters the body of someone who is not infected. For many persons HepB is an acute, short-term illness. However, HepB can become a chronic illness that can lead to serious adverse health outcomes, including cirrhosis, liver cancer, and death.[1] Chronic HepB disproportionately affects persons born outside the US; non-US–born persons account for 14% of the general population, but account for 69% of the US population living with chronic HepB infection.[2]

An estimated 580,000 to 2.4 million persons are living with HepB in the United States, two thirds of whom might be unaware of their infection. The *Viral Hepatitis National Strategic Plan for the United States* calls for an increase in the proportion of persons with HepB who are aware of their infection from 32% (2013–2016) to 90% by 2030. In support of this goal the Centers for Disease Control and Prevention (CDC) released updated and expanded recommendations for screening and testing for HBV infection in March 2023. New recommendations include HBV screening using three laboratory tests at least once during a lifetime for adults. The report also expands risk-based testing recommendations to include: incarcerated or formerly incarcerated persons; persons with a history of sexually transmitted infections or multiple sex partners; and persons with a history of hepatitis C virus infection. In addition, anyone who requests HBV testing should receive it [Fig1].[2]

Types of HBV Screening Tests[2]

The three main serologic markers used to determine HBV infection status are hepatitis B surface antigen (HBsAg), antibody to hepatitis B surface antigen (anti-HBs), and antibody to hepatitis B core antigen (anti-HBc). Serologic markers change over typical courses of resolved acute infection and progression to chronic infection.

- **HBsAg:** The presence of HBsAg indicates HBV infection, either acute or chronic, except when it might be transiently positive shortly after a dose of HepB vaccine. The American Association for the Study of Liver Diseases defines chronic infection as the presence of HBsAg for ≥6 months.
- **Anti-HBs**: The appearance of anti-HBs after a decline of HBsAg indicates recovery from HBV infection. Among immunocompetent persons never infected with HBV, anti-HBs at concentrations of ≥10 mIU/mL at 1–2 months after completion of a HepB vaccine series indicates immunity.
- **Total anti-HBc**: Total anti-HBc develops in all HBV infections, resolved or current, and typically persists for life. Persons whose immunity to HBV is from a vaccine do not develop anti-HBc.
- **Other markers** (HBV DNA, HBeAg, and anti-HBe): HBV DNA is a measure of viral load. HBeAg is a marker for viral replication and high infectivity; antibody to HBeAg (anti-HBe) can be used to monitor response to treatment and chronic HBV infection progression. After identifying a person with HBV infection, testing for HBeAg, anti-HBe, and HBV DNA can provide information on the level of viral replication and infectivity and help guide clinical management.

For more information on result interpretation visit https://www.cdc.gov/hepatitis/hbv/interpretationOfHepBSerologicResults.htm.

Updated HBV Screening and Testing Recommendations[2]

In these guidelines, "screening" refers to conducting serologic testing of asymptomatic persons not known to be at increased risk for exposure to HBV. "Testing" refers to conducting serologic testing of persons with symptoms or who are identified to be at increased risk for exposure to HBV. Recommendations are summarized in Figure 1.

HBV screening using three laboratory tests (HBsAg, anti-HBs, and total anti-HBc) at least once during a lifetime for adults aged ≥18 years (NEW).

- Universal screening of adults is cost-effective compared with risk-based screening and averts

liver disease and death. Additionally, early diagnosis and treatment of chronic HepB reduces the risk for cirrhosis, liver cancer, and death.

- The triple panel (HBsAg, anti-HBs, and total anti-HBc) is recommended for initial screening because it can help identify persons who have an active HBV infection and could be linked to care, have resolved infection and might be susceptible to reactivation (e.g., immunosuppressed persons), are susceptible and need vaccination, or are vaccinated. When someone receives triple panel screening, any future periodic testing can use tests as appropriate.
- Children and adolescents aged <18 years were not included in the universal screening recommendation because of the low prevalence of HBV infection in this age group and high levels of vaccination. Children and adolescents aged <18 years who have risk factors and did not receive a complete vaccine series should be tested.

Expanded risk-based testing recommendations (UPDATED) to include the following populations, activities, exposures, or conditions associated with increased risk for HBV infection: persons incarcerated or formerly incarcerated in a jail, prison, or other detention setting; persons with a history of sexually transmitted infections or multiple sex partners; and persons with a history of hepatitis C virus infection. The addition of these three new risk groups was based on the HBV infection prevalence cutoff of ≥1%.

Anyone who requests HBV testing should receive it (NEW), regardless of disclosure of risk, because many persons might be reluctant to disclose stigmatizing risks.

Note: CDC screening guidelines were developed independently from the ACIP recommendations for HBV vaccination. The 2018 ACIP recommendations also include recommendations for serologic testing. CDC's screening and testing guidelines cover all persons recommended for serologic testing per ACIP and expand beyond that list.

Reporting

The list of reportable communicable diseases and reporting forms can be found at: **http://tinyurl.com/WashoeDiseaseReporting**

Report communicable diseases, including HepB, to the Washoe County Health District. To report a communicable disease, please call 775-328-2447 or fax your report to the WCHD at 775-328-3764.

Acknowledgement

Thank you to all health care providers, infection control practitioners, laboratory staff, as well as schools and daycares for their reporting and collaboration to make this work possible.

References

1 Centers for Disease Control and Prevention. Hepatitis B Questions and Answers for Health Professionals. Accessed 5 May 2023 https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm

2 Conners EE, Panagiotakopoulos L, Hofmeister MG, et al. Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations — United States, 2023. MMWR Recomm Rep 2023;72(No. RR-1):1–25. Accessed 5 May 2023 https://www.cdc.gov/mmwr/volumes/72/rr/rr7201a1.htm?s_cid=rr7201a1_w.

Figure 1. Hepatitis B virus screening and testing recommendations — CDC, 2023[2]

Universal hepatitis B virus (HBV) screening

- HBV screening at least once during a lifetime for adults aged ≥18 years (new recommendation)
- During screening, test for hepatitis B surface antigen (HBsAg), antibody to HBsAg, and total antibody to HBcAg (total anti-HBc) (new recommendation)

Screening pregnant persons

- HBV screening for all pregnant persons during each pregnancy, preferably in the first trimester, regardless of vaccination status or history of testing*
- Pregnant persons with a history of appropriately timed triple panel screening and without subsequent risk for exposure to HBV (i.e., no new HBV exposures since triple panel screening) only need HBsAg screening

Risk-based testing

- Testing for all persons with a history of increased risk for HBV infection, regardless of age, if they might have been susceptible during the period of increased risk†
- Periodic testing for susceptible persons, regardless of age, with ongoing risk for exposures, while risk for exposures persists†

* **Source:** Schillie S, Vellozzi C, Reingold A, et al. Prevention of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices. MMWR Recomm Rep 2018;67(No. RR-1):1–31.

† Susceptible persons include those who have never been infected with HBV (i.e., total anti-HBc negative) and either did not complete a HepB vaccine series per Advisory Committee on Immunization Practices recommendations or who are known to be vaccine nonresponders.