

Hepatitis B Facts: Testing and Vaccination

Who Should Be Vaccinated

The following people should receive routine hepatitis B vaccination, according to the Centers for Disease Control and Prevention (CDC):

Routine vaccination

- All newborns at birth prior to hospital discharge
- All children and teens ages 0 through 18 years
- All people who wish to be protected from hepatitis B virus (HBV) infection. ACIP and CDC state it is not necessary for the patient to disclose a risk factor to receive hepatitis B vaccine.

People who are at risk for sexual exposure

- Sexually active people who are not in long-term, mutually monogamous relationships
- Sex partners of HBsAg-positive people
- People seeking evaluation or treatment for an STD
- Men who have sex with men

People at risk for infection by percutaneous or mucosal exposure to blood:

- People with diabetes (type 1 and type 2) who are younger than 60 years of age
- Injection-drug users, current or past
- Household contacts of HBsAg-positive people
- Residents and staff of facilities for developmentally challenged people
- Healthcare and public safety workers with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids
- People with end-stage renal disease and those receiving dialysis

Others:

- Travelers to areas with moderate or high rates of HBV infection
- People with chronic (life-long) liver disease
- People with HIV infection

Refugees, immigrants, and adoptees from countries where HBV infection is endemic should have hepatitis B testing. Adults should discuss their need or desire for hepatitis B vaccination with their healthcare providers.

For certain people at risk, postvaccination testing is recommended. Consult ACIP recommendations for details (see references).

Hepatitis B Lab Nomenclature

HBsAg: *Hepatitis B surface antigen* is a marker of current infection. Its presence indicates either acute or chronic HBV infection.

Anti-HBs: *Antibody to hepatitis B surface antigen* is a marker of immunity. Its presence indicates an immune response to HBV infection, an immune response to vaccination, or the presence of passively acquired antibody. (It is also known as HBsAb, but this abbreviation is best avoided since it is often confused with abbreviations such as HBsAg.)

Anti-HBc (total): *Antibody to hepatitis B core antigen* is a nonspecific marker of acute, chronic, or resolved HBV infection. It is not a marker of vaccine-induced immunity. It may be used in prevaccination testing to determine previous exposure to HBV infection. (It is also known as HBcAb, but this abbreviation is best avoided since it is often confused with other abbreviations.)

IgM anti-HBc: *IgM antibody subclass of anti-HBc.* Positivity indicates recent infection with HBV (within the past 6 mos). Its presence indicates acute infection.

HBeAg: *Hepatitis B “e” antigen* is a marker of a high degree of HBV infectivity, and it correlates with a high level of HBV replication. It is primarily used to help determine the clinical management of patients with chronic HBV infection.

Anti-HBe: *Antibody to hepatitis B “e” antigen* may be present in an infected or immune person. In persons with chronic HBV infection, its presence suggests a low viral titer and a low degree of infectivity.

HBV-DNA: *HBV deoxyribonucleic acid* is a marker of viral replication. It correlates well with infectivity. It is used to assess and monitor the treatment of patients with chronic HBV infection.

About Hepatitis B Serologic Testing

Serologic testing prior to vaccination may be done based on your assessment of your patient’s level of risk and your or your patient’s need for definitive information (see information in the left column). If you decide to test, draw the blood first, and then give the first dose of vaccine at the same office visit. Vaccination can then be continued, if needed, based on the results of the tests. If you are not sure who needs hepatitis B testing, consult your state or local health department (see www.cdc.gov/mmwr/pdf/rr/rr5516.pdf).

TEST	RESULTS	INTERPRETATION	VACCINATE?
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible	vaccinate if indicated
HBsAg anti-HBc anti-HBs	negative negative positive with >10mIU/mL	immune due to vaccination	no vaccination necessary
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected	no vaccination necessary (may need treatment)
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible*	use clinical judgment

* 1 May be recovering from acute HBV infection

2 May be distantly immune, but the test may not be sensitive enough to detect a very low level of anti-HBs in serum

3 May be susceptible with a false positive anti-HBc

4 May be chronically infected and have an undetectable level of HBsAg present in the serum

Managing Chronic HBV Infection

When you identify a patient who is chronically infected with HBV, make sure you consult a specialist knowledgeable in the treatment of liver disease so your patient’s care is optimized. Chronically infected persons need medical evaluation every 6–12 months to assess the status of their liver health and their need for antiviral therapy, as well as to screen for liver cancer. In addition, people with chronic HBV infection should be educated about their disease and how to protect others.

Household members and sex partners should be tested for HBV infection (HBsAg and antiHBs) and should be given the first dose of hepatitis B vaccine at the same visit. (Vaccinating a patient who has already been infected will do no harm). If testing indicates HBV susceptibility, complete the hepatitis B vaccination series. If testing indicates the presence of HBV infection, consultation and further care with a physician knowledgeable about chronic hepatitis B is needed.

REFERENCES

- 1 A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the U.S.: Recommendations of the ACIP, Part I: Immunization of Infants, Children and Adolescents, *MMWR*, Dec. 23, 2005, Vol. 54(RR-16)
- 2 A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the U.S.: Recommendations of the ACIP, Part II: Immunization of Adults, *MMWR*, Dec. 8, 2006, Vol. 55(RR-16)

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