Hepatitis B Facts: Testing and Vaccination

Who Should Be Vaccinated

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

Routine vaccination

- All newborns within 24 hours of birth
- All children and teens ages 0 through 18 years
- All adults through age 59 years

Risk-based vaccination for people age 60 years or older who are at risk for hepatitis B virus infection due to

- Sexual exposure (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive people; sexually active people not in monogamous relationships; people seeking treatment for a sexually-transmitted infection; men who have sex with men)
- Percutaneous or mucosal exposure to blood (e.g., current or recent injection-drug use; household contacts of HBsAg-positive people; residents and staff of facilities for developmentally disabled people; healthcare and public safety workers with anticipated risk of exposure to blood or blood-contaminated body fluids; hemodialysis, peritoneal dialysis, home dialysis, and predialysis patients; patients with diabetes at the discretion of the treating clinician)
- Other factors (e.g., anticipated travel to countries with high or intermediate endemic hepatitis B; people with hepatitis C infection; chronic liver disease, including but not limited to people with cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice upper limit of normal; HIV infection; incarceration

Any adult age 60 years or older who does not meet the risk-based recommendations above may still receive hepatitis B vaccine, if desired.

Refugees, immigrants, and adoptees from countries where HBV infection is endemic should have hepatitis B testing. They should discuss their test results and need for hepatitis B vaccine with their healthcare provider.

For certain people at risk, postvaccination testing is recommended. Postvaccination testing, when it is recommended, should be performed 1–2 months after the last dose of vaccine. Infants born to HBsAg-positive mothers should be tested for HBsAg and anti-HBs after completion of at least 3 doses of a hepatitis B vaccination series, at age 9–18 months. Consult ACIP recommendations for details (see references on page 2).

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 pre-vaccination 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.

**HBV-DNA:** HBV deoxyribonucleic acid is a measure of viral load and reflects viral replication.

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/vaccines/vpd/hepb/hcp/perinatal-contacts.html).

<table>
<thead>
<tr>
<th>TEST</th>
<th>RESULTS</th>
<th>INTERPRETATION</th>
<th>VACCINATE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg anti-HBc anti-HBs</td>
<td>negative negative negative</td>
<td>susceptible</td>
<td>vaccine if indicated</td>
</tr>
<tr>
<td>HBsAg anti-HBc anti-HBs</td>
<td>negative negative positive with &gt;10mlU/mL</td>
<td>immune due to vaccination (or may represent passive transfer of antibodies from receipt of HBIG)</td>
<td>no vaccination necessary</td>
</tr>
<tr>
<td>HBsAg anti-HBc anti-HBs IgM anti-HBc</td>
<td>negative positive positive negative</td>
<td>immune due to natural infection</td>
<td>no vaccination necessary</td>
</tr>
<tr>
<td>HBsAg anti-HBc IgM anti-HBc</td>
<td>negative positive positive positive</td>
<td>acute resolving infection</td>
<td>no vaccination necessary</td>
</tr>
<tr>
<td>HBsAg anti-HBc IgM anti-HBc</td>
<td>positive positive positive positive</td>
<td>acutely infected</td>
<td>no vaccination necessary</td>
</tr>
<tr>
<td>HBsAg anti-HBc IgM anti-HBc</td>
<td>positive positive negative negative</td>
<td>chronically infected</td>
<td>no vaccination necessary (may need treatment)</td>
</tr>
<tr>
<td>HBsAg anti-HBc anti-HBs</td>
<td>negative positive positive negative</td>
<td>there are four possible interpretations (see below)</td>
<td>use clinical judgment</td>
</tr>
</tbody>
</table>

1 May be distantly immune, but the test may not be sensitive enough to detect a very low level of anti-HBs in serum.
2 May be susceptible with a false positive anti-HBC.
3 May be chronically infected and have an undetectable level of HBsAg present in the serum.
4 Passive transfer of antibody following HBIG administration or from an HBsAg-positive mother to her newborn.

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Managing Chronic HBV Infection

People chronically infected with HBV need medical evaluation every 6–12 months to assess their liver health and need for antiviral therapy, and screen for liver cancer. Consultation with a specialist knowledgeable in the treatment of liver disease is recommended.

Household members and sex partners of HBsAg-positive people should be tested for HBV infection (HBsAg and anti-HBs or anti-HBc) 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 HBV infection, refer for medical care and consultation with a liver disease specialist.

REFERENCES