

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 should receive the first dose within 24 hours of birth and complete the series
- All previously unvaccinated children and adults through age 59 years should be vaccinated
- All previously unvaccinated adults age 60 or older may be vaccinated

People age 60 years or older should be vaccinated routinely if they 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)

Refer to the *Adult Immunization Schedule by Age* for more information about hepatitis B vaccines and vaccine dose series at www.cdc.gov/vaccines/hcp/imz-schedules/adult-age.html

Hepatitis B Serologic Testing

All adults 18 years and older, including healthcare providers (HCP), are recommended to be screened once in a lifetime with the triple panel (HBsAg, anti-HBs, and total anti-HBc), regardless of vaccination status. The purpose of this screening is to help identify people who may not be aware that they are infected and to help stop transmission of hepatitis B. Adults who are recommended for hepatitis B vaccination may get vaccinated any time after the blood sample is drawn for screening; providers do not need to wait on screening results. If screening is not feasible before vaccination, do not delay vaccination. If screening after vaccination, re-offer screening at least 4 weeks after vaccination. Vaccination has resulted in transient HBsAg positive screening results up to 18 days after administration.

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. See the 2018 ACIP recommendations (page 21–23) for details about which individuals are recommended for postvaccination testing (see reference below).

Screening for hepatitis B infection is recommended during each pregnancy, preferably in the first trimester, regardless of vaccination history or history of testing.

Adults who remain unvaccinated and at risk for acquiring hepatitis B infection following the triple panel screen are recommended to have periodic testing. See CDC's 2023 screening and testing guidelines, pages 14–16 for details (see reference below).

If you are not sure who needs hepatitis B testing or screening, consult your state or local health department (see www.cdc.gov/vaccines/vpd/hepb/hcp/perinatal-contacts.html).

For guidance related to the initial follow-up of people who are identified with active hepatitis B infection or resolved (past) infection, see the CDC screening and testing guidelines (pages 16–18).

REFERENCES

Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2018;67(RR-1):1-30 at www.cdc.gov/mmwr/volumes/67/rr/pdfs/rr6701-H.pdf

Universal Hepatitis B Vaccination in Adults Aged 19–59 years – Updated Recommendations of the Advisory Committee on Immunization Practices—United States, 2022. *MMWR* 2022;71(13):477–483 at www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7113a1-H.pdf

Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations – United States, 2023. *MMWR Suppl* 2023;72(Suppl-1) at www.cdc.gov/mmwr/volumes/72/rr/pdfs/rr7201a1-H.pdf

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Interpreting Hepatitis B Serologic Tests

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 (or may represent passive transfer of antibodies from receipt of HBIG)	no vaccination necessary
HBsAg anti-HBc anti-HBs IgM anti-HBc	negative positive positive negative	immune due to natural infection	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	negative positive positive positive	acute resolving 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	there are four possible interpretations (see 1–4 below)	use clinical judgment (see 5 below)

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.

5 Additional resources for the evaluation of isolated anti-HBc antibody results are available from the University of Washington at www.hepatitisb.uw.edu/go/screening-diagnosis/diagnosis-hbv/core-concept/all and also from CDC at www.cdc.gov/hepatitis-b/hcp/diagnosis-testing/index.html#cdc_hcp_diagnosis_interpreting-how-to-interpret-test-results

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.

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