

Interpretation of Hepatitis B Serologic Test Results

Hepatitis B serologic testing involves measurement of several hepatitis B virus (HBV)-specific antigens and antibodies. Different serologic “markers” or combinations of markers are used to identify different phases of HBV infection and to determine whether a patient has acute or chronic HBV infection, is immune to HBV as a result of prior infection or vaccination, or is susceptible to infection.

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| HBsAg anti-HBc anti-HBs | negative negative negative | Susceptible |
| HBsAg anti-HBc anti-HBs | negative positive positive | Immune due to natural infection |
| HBsAg anti-HBc anti-HBs | negative negative positive | Immune due to hepatitis B vaccination |
| HBsAg anti-HBc IgM anti-HBc anti-HBs | positive positive positive negative | Acutely infected |
| HBsAg anti-HBc IgM anti-HBc anti-HBs | positive positive negative negative | Chronically infected |
| HBsAg anti-HBc anti-HBs | negative positive negative | Interpretation unclear; four possibilities: 1. Resolved infection (most common) 2. False-positive anti-HBc, thus susceptible 3. “Low level” chronic infection 4. Resolving acute infection |

Adapted from: A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. Part I: Immunization of Infants, Children, and Adolescents. MMWR 2005;54(No. RR-16).

- **Hepatitis B surface antigen (HBsAg):**
A protein on the surface of hepatitis B virus; it can be detected in high levels in serum during acute or chronic hepatitis B virus infection. The presence of HBsAg indicates that the person is infectious. The body normally produces antibodies to HBsAg as part of the normal immune response to infection. HBsAg is the antigen used to make hepatitis B vaccine.
- **Hepatitis B surface antibody (anti-HBs):**
The presence of anti-HBs is generally interpreted as indicating recovery and immunity from hepatitis B virus infection. Anti-HBs also develops in a person who has been successfully vaccinated against hepatitis B.
- **Total hepatitis B core antibody (anti-HBc):**
Appears at the onset of symptoms in acute hepatitis B and persists for life. The presence of anti-HBc indicates previous or ongoing infection with hepatitis B virus in an undefined time frame.
- **IgM antibody to hepatitis B core antigen (IgM anti-HBc):**
Positivity indicates recent infection with hepatitis B virus (≤ 6 mos). Its presence indicates acute infection.



DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Disease Control and Prevention

Division of Viral Hepatitis



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