

Understanding Your Hepatitis B Blood Tests

Understanding your hepatitis B blood test results can be confusing. It is important to talk to your doctor so you understand your test results and your hepatitis B status. This fact sheet can help you understand and answer questions about what your blood tests mean and if you are infected, protected or at risk for hepatitis B. Be sure to ask for a printed copy of any blood tests so you can understand your results.

Only one sample of blood is needed for a hepatitis B blood test, but the "Hepatitis B Panel" includes three parts. All three test results are needed to fully understand someone's hepatitis B status.

The Hepatitis B Panel includes the following 3 tests:

1. **Hepatitis B Surface Antigen (HBsAg)** – The "surface antigen" is part of the hepatitis B virus that is found in the blood of someone who is infected. If this test is positive or "reactive," then the hepatitis B virus is present.
2. **Hepatitis B Surface Antibody (HbsAb or anti-HBs)** – The "surface antibody" is formed in response to the hepatitis B virus. Your body can make this antibody if you have been vaccinated, or if you have recovered from a hepatitis B infection. If this test is positive or "reactive," then your immune system has successfully developed a protective antibody against the hepatitis B virus. This will provide long-term protection against future hepatitis B infection. Someone who is HBsAb+ is not infected and cannot pass the virus to others.
3. **Hepatitis B Core Antibody (HBcAb or anti-HBc)** – This antibody does not provide any protection or immunity against the hepatitis B virus. A positive or "reactive" test indicates that a person may have been infected with the hepatitis B virus at some point in time. This test is often used by blood banks to screen blood donation, however, all three test results are needed to make a diagnosis.

EXPLANATION OF THE HEPATITIS B TEST PANEL

Interpretation and Action Needed	HBsAg	HBsAb (anti-HBs)	HBcAb (anti-HBc)
Not Immune - Get Vaccinated Has not been infected, but still at risk for possible hepatitis B infection. Get the vaccine.	-	-	-
Immune – You are protected Surface antibodies present due to natural infection. You have recovered from a prior hepatitis B infection. You cannot infect others.	-	+	+
Immune – You are protected You have already been vaccinated. You cannot infect others. No vaccine is needed.	-	+	-
Infected – Need more testing Positive surface antigen, which means hepatitis B virus is present. You can spread the virus to others. Find a doctor who knows about hepatitis B for more tests and care.	+	-	+
Could be infected – Need more Tests This result usually indicates a person has been infected, but different interpretations are possible. Discuss this with doctor who knows about hepatitis B.	-	-	+

Additional Hepatitis B Blood Tests:

Hepatitis B can be a complicated liver infection to understand, so additional blood tests may be ordered so your doctor has a better understanding of what kind of care and follow-up is needed. If you learn you have a chronic infection, your doctor will monitor your hepatitis B infection and the health of your liver by ordering these tests every 3 to 6 months, or at least annually. These tests can also help your doctor monitor your progress and determine if you need treatment.

- **Hepatitis B e-Antigen (HBeAg)** – This is a protein that is made by the virus. If this test is positive, it indicates that the virus is very actively reproducing in the liver and so the proteins are entering into the bloodstream. A negative test indicates the virus is not actively reproducing in the liver, so there is no protein spilling into the blood. The loss of HBeAg can occur naturally or as a result from drug treatment. In general, a person is usually considered *not infectious* when the test is negative. Sometimes, however, a negative test result may indicate a mutant hepatitis B virus is present, so a doctor will have to order more tests.
- **Hepatitis B e-Antibody (HBeAb or anti-Hb)** – This is not a protective antibody and is made in response to the HBeAg. Once the virus stops actively replicating in the liver, the e-antigen protein can disappear and the e-antibody appears (making this a positive test result or HBeAb+). This can happen spontaneously or after treatment.
- **Hepatitis B Virus DNA or HBsAg Quantitative** – These tests measure the amount of hepatitis B DNA or hepatitis B virus in the blood. The HBV DNA or viral load test is highly sophisticated and accurate, but is a more expensive test that may not be available in some countries. Both blood tests are considered in conjunction with other information such as e-antigen status, liver enzymes, and may even be used in relation to each other during the evaluation, treatment and monitoring of chronic hepatitis B. The HBV DNA test is usually measured in "International Units per milliliter" (IU/mL), but may also be measured in "Copies per milliliter" (cp/mL). There are typically 5.6 Copies in 1 International Unit.

Other Tests:

Liver Function Tests and Liver Enzymes – These blood tests measure potential liver damage (or liver inflammation) caused by the hepatitis B virus. When the liver is injured, the liver enzymes can leak into the bloodstream. The larger the number, the greater the risk of potential liver damage.

- **Alanine Aminotransferase (ALT or SGPT)** – This enzyme is monitored most closely with a hepatitis B infection and is found almost exclusively in the liver. This test is useful in deciding whether a person would benefit from treatment or for evaluating how well a person is responding to therapy. The upper limits of normal ALT for men is 30 units/liter and for women is 19 units/liter.

For a description of additional liver function tests, visit the **Other Liver Tests** Section on our website at www.hepb.org/othertests

Alpha-Feto Protein (AFP) – This blood test is used to screen for the development of primary liver cancer in those living with chronic hepatitis B and should be tested at every visit. AFP is a normal protein produced in the developing fetus, thus, pregnant women will have elevated AFP levels. Other adults should not have elevated AFP. If an individual does have elevated AFP, then more tests and imaging should be ordered.

Imaging Studies of the Liver – Your doctor may order an ultrasound, FibroTest, or transient elastography to evaluate or monitor the amount of liver damage (e.g. inflammation, fibrosis, cirrhosis) and to screen for primary liver cancer.

For more information about **HBV Diagnostic Tests**,
visit our website at www.hepb.org/diagnosis



The Hepatitis B Foundation is a national nonprofit organization dedicated to finding a cure and improving the quality of life for those affected by hepatitis B worldwide.

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