

Hepatitis B Virus Tests

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Test Overview

Hepatitis B virus (HBV) tests check for substances in the blood that show whether a hepatitis B infection is active or has occurred in the past. The tests look for different signs of infection

- The presence of HBV antigens means that the virus is in the body.
- Antibodies are proteins produced by the body to fight infection. The presence of HBV antibodies means that you have been exposed to the hepatitis B virus at some time. But you could have been infected long ago and gotten better, or you may have a current infection.
- Genetic material (DNA) of the hepatitis B virus shows that the virus is in the body. The amount of DNA can help determine how severe the infection is and how easily the HBV infection can be spread.

It is important to identify the type of hepatitis virus causing infection to prevent its spread and choose the proper treatment.

Hepatitis B virus (HBV) testing

HBV is transmitted through infected body fluids, including blood, semen, and vaginal fluids (including menstrual blood). It also can be transmitted from a pregnant woman to her child at or near the time of birth.

There are several different HBV tests. These are the HBV tests most commonly done:

- **Hepatitis B surface antigen (HBsAg)** is the earliest indicator of an active hepatitis B infection. This antigen may be present before symptoms of an HBV infection are present. If this antigen level remains high for more than 6 months, then you will probably become a carrier of HBV, meaning you can transmit it to others throughout your life.
- **Hepatitis B surface antibody (HBsAb)** usually appears about 4 weeks after HBsAg disappears. The presence of this antibody means that the infection is at the end of its active stage and you cannot pass the virus to others (you are no longer contagious). This antibody also protects you from getting HBV again in the future. The test is done to determine the need for vaccination—the antibody will be present after receiving the HBV vaccine series, showing that you have protection (immunity) from the virus. Occasionally your test may show that you have both the HBsAb and HBsAg antibodies. In this case, you are still contagious.
- **Hepatitis B e-antigen (HBeAg)** is an HBV protein that is only present during an active HBV infection. This test determines how contagious you are. Testing for this antigen can also be used to monitor the effectiveness of treatment for HBV.
- **HBV DNA testing** checks for genetic material (DNA) from the hepatitis B virus. The HBV DNA tests measure how much genetic material is present. A high level of HBV DNA means that the virus is multiplying in your body and you are very contagious. If you have a chronic HBV, an elevated viral DNA level means you are at an increased risk for liver damage and may want to consider treatment with antiviral medicine. Testing for HBV DNA is also used to monitor the effectiveness of treatment for chronic HBV infection. HBV DNA testing is a more sensitive test than HBeAg (above) for detecting HBV in the blood.

Other HBV tests are not done as often

- **Hepatitis B core antibody (HBcAb)** is an antibody to the hepatitis B core antigen that appears about 1 month after an active HBV infection. It can be found in people who had an infection in the past and in those with long-term (chronic) HBV. It usually is present for life. Blood banks test for this antibody when screening donated blood for hepatitis B.
- **Hepatitis B core antibody IgM (HBcAbIgM)** is another antibody to the hepatitis B core antigen. It indicates an HBV infection that has occurred within the last 6 months.
- **Hepatitis B e-antibody (HBeAb)** shows that the active stage of an acute HBV infection is almost over, and your risk of being contagious is greatly reduced.

A hepatitis B vaccine is available to prevent an HBV infection.

Why It Is Done

Hepatitis B virus testing is done to:

- Identify the type of hepatitis B virus infection. Testing can determine whether an infection has occurred recently or in the past. Other tests that indicate how well the liver is functioning are usually done to help make treatment decisions.{Image Link}
- Screen people who have an increased risk of getting or spreading a hepatitis B infection, such as doctors, dentists, and nurses.
- Screen blood donors and donor organs to prevent the spread of hepatitis B.
- Find out if a person has developed antibodies after receiving vaccinations for hepatitis B. The presence of antibodies to hepatitis B virus (HBsAb) means that the vaccinations were effective.
- Find out if abnormal liver function tests are being caused by hepatitis B.
- Monitor how well treatment of chronic hepatitis B is working.

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How to Prepare

No special preparation is needed before having hepatitis virus testing.

Talk to your doctor about any concerns you have regarding the need for the test, its risks, or how it will be done.

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How It Is Done

The health professional drawing blood will:

- Wrap an elastic band around your upper arm to stop the flow of blood. This makes the veins below the band larger so it is easier to put a needle into the vein.
 - Clean the needle site with alcohol.
 - Put the needle into the vein. More than one needle stick may be needed.
 - Attach a tube to the needle to fill it with blood.
 - Remove the band from your arm when enough blood is collected.
 - Apply a gauze pad or cotton ball over the needle site as the needle is removed.
 - Apply pressure to the site and then a bandage.
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Results

Hepatitis B virus tests check for substances in the blood that show a hepatitis infection is active or has occurred in the past. The tests look for antigens or genetic material (DNA) of the virus that causes hepatitis. Some tests also look for antibodies that the body makes against the virus. Normal results of hepatitis virus testing are called negative. This means that no antigens, antibodies, or genetic material related to the hepatitis B virus was found.

Abnormal (positive)

Hepatitis B and D virus tests	
Hepatitis B (HBV)	<p>Hepatitis B (HBV) antibodies and/or antigens are detected. Additional tests may be needed to determine whether you have an acute or chronic HBV infection.</p> <ul style="list-style-type: none">• Hepatitis B surface antigen (HBsAg) shows an active infection. If the test remains positive for longer than 6 months, this means you are a chronic carrier. You can spread the HBV infection to others.• Hepatitis B surface antibody (HBsAb) shows the end of active infection and means you are protected against HBV for life. It also can indicate that you received the HBV vaccine. Occasionally the test shows that you have both the HBsAb and HBsAg antibodies. In this case, you are still contagious.• Hepatitis B e-antigen (HBeAg) shows an active contagious state.• HBV DNA testing finds genetic material (DNA) from the hepatitis B virus and means that you have a current infection.• Hepatitis B core antibody (HBcAb) shows that you have been infected with HBV. It does not tell the difference between a past or present infection.• Hepatitis B core antibody IgM (HBcAbIgM) shows an HBV infection that has occurred within the last 6 months.• Hepatitis B e-antibody (HBeAb) shows a less active HBV infection. You are less contagious but can still infect others.

What Affects the Test?

Your doctor will talk with you about anything that may stop you from having the test or that may change the test results.



IMAGE: showing Hepatitis B Virus affecting LIVER (SWOLLEN)