

Hepatitis B Fact Sheet

A Publication of the Hepatitis C Support Project

a series of fact sheets written by experts in the field of liver disease



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HBV:

What Is Acute Hepatitis B?

When someone is exposed to the hepatitis B virus (HBV), there are two types of infections that can result – acute (short-lived) or chronic (long-term).

After exposure to the virus, it can take weeks or months for the virus to multiply and for an infection to develop. Most young children and fewer than half of adults who have acute hepatitis B never experience any symptoms. Those who do have symptoms generally develop them about two to five months after exposure to the virus.

The 30 to 50 percent of patients who develop symptoms may experience fatigue, flu-like malaise, loss of appetite, nausea, and abdominal pain over the region of the liver. Jaundice (yellowing of the skin and eyes) can accompany these symptoms.

A very small number of people (about 0.5 percent) with acute hepatitis B may develop liver failure, which is called fulminant hepatitis. About 80 percent of people with fulminant hepatitis die within days to weeks.

When a person's immune system is healthy, it will resolve the infection (naturally eliminate or clear the virus) within a few weeks and he or she will recover fully from acute hepatitis B. To overcome the infection, the immune system produces antibodies to attack and eliminate each of the three antigens or foreign proteins that make up the hepatitis B virus. These antigens are the surface antigen (which covers the outer layer of the virus), the core antigen, and the "e" antigen. Once there are enough antibodies to effectively fight each of these antigens, a person is considered

to have cleared the infection. The body's immune system also attacks liver cells that are infected with the hepatitis B virus. This two-fold immune response eradicates the virus and viral antigens in the body and bloodstream, and clears the liver of infected cells. The stronger the immune response, the greater the chance of eliminating the virus and recovering.

A weak immune response, which fails to eradicate all the antigens and the infected liver cells, can lead to chronic hepatitis B. Chronic hepatitis B infection occurs in 90% of infants, 20 - 50% of children between the ages of 1 and 5, and 6% of persons older than age 5 who are infected with HBV. Young children are



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especially vulnerable because their immune systems do not recognize and effectively fight the virus. Adults with a compromised immune system can also develop chronic hepatitis B.

To determine if an infection is chronic or acute, a blood sample is taken and analyzed for the three antigens and their antibodies. If the hepatitis B surface antigen (HBsAg) is present for more than six months, a person is considered to be chronically infected.

Here is the sequence of the hepatitis B antigens and antibodies that appear (and disappear) in your blood during an acute hepatitis B infection.

1. A person is infected with HBV through exposure to HBV-contaminated blood or body fluids.
2. Hepatitis B surface antigen (HBsAg) appears in the blood.
 - This antigen is the first antigen or viral marker that appears in a blood test after initial infection.
 - In acute hepatitis B, it usually disappears about one to two months after it appears.
3. Hepatitis B “e” antigen (HBeAg) appears. This antigen is secreted by HBV-infected liver cells.
 - This antigen appears for only a short period of time, about the same time that the surface antigen appears, during an acute infection.
 - It disappears once the immune system has eradicated the infected liver cells.
4. Hepatitis B core antibody (Anti-HBc) appears. The core antibody is usually detected within one to two weeks of the appearance of hepatitis B surface antigen.
 - The core antigen is only found in the liver, so it doesn't show up on a blood test, but the core antibody does appear in a blood sample.
 - *Only people who have been infected with HBV have core antibodies in their blood.*
 - People who are immunized against hepatitis B will not

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have core antibodies; they will only have surface antibodies because the hepatitis B vaccine contains only the surface antigen.

5. Hepatitis B surface antibody (Anti-HBs) appears. When surface antibodies appear in a blood test, it means that the body has eliminated hepatitis B infection from the body.

- Both surface antibodies and core antibodies will remain indefinitely in the blood after a person has cleared the infection.
- Surface antibodies are found in the blood of those who have been vaccinated, as well as in those who have been infected and recovered from hepatitis B.

When a person has acute hepatitis B, a doctor may also test a patient's blood for a certain liver enzyme (alanine aminotransferase or ALT) that is released by liver cells when they

are inflamed, damaged or die. When this enzyme is present at high levels, it means that liver damage is occurring as the immune system is trying to kill infected liver cells.

Until a person has cleared the virus and produced surface antibodies, a doctor will monitor a patient's health by testing blood samples for liver enzymes and other compounds. Acute hepatitis B usually subsides two to three weeks after symptoms appear, and the liver function usually returns to normal within 16 weeks.

People acutely infected with HBV can spread the virus to others through sexual contact, or contact with their blood or bodily fluids. Please see other fact sheets that explain how to avoid transmitting HBV to partners or newborns. Hepatitis B immunization provides the best protection against infection.



For more information about hepatitis B immunization, visit the following websites

Centers for Disease Control and Prevention website on hepatitis B immunization:

<http://www.cdc.gov/vaccines/vpd-vac/hepb/default.htm>

Immunization Action Coalition provides extensive information on all childhood immunizations, including hepatitis B.

<http://www.immunize.org>

National Network for Immunization Safety provides up-to-date, science-based information about immunization.

<http://www.immunizationinfo.org>

American Academy of Pediatrics, an organization of 57,000 pediatricians, issues recommendations to ensure childhood health and safety.

<http://www.aap.org>

For more information about hepatitis B, visit the following websites.

Hepatitis B Foundation:

<http://www.hepb.org>

HIVandHepatitis.com

<http://hivandhepatitis.com>

HCSP • VERSION 3.2 • December 2011

The information in this fact sheet is designed to help you understand and manage HBV and is not intended as medical advice. All persons with HBV should consult a medical practitioner for diagnosis and treatment of HBV.

For more information about hepatitis B, visit the following websites.

Hepatitis B Foundation: www.hepb.org • HIVandHepatitis.com

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