

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

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What is Hepatitis B

Christine Kukka, HBV Project Manager

What is hepatitis B?

Hepatitis B is an infection that attacks the liver. It is caused by the hepatitis B virus (HBV). About 4.9% (one in 20) of all Americans have been infected with HBV.

When most healthy adults and older children are infected with HBV, their immune systems are able to fight off the infection. They experience a brief or “acute” hepatitis B infection. Many of those infected feel no symptoms and don’t even know they were infected.

But about 5% of adults and 90% of babies exposed to HBV can’t get rid of the infection. Their immune systems either aren’t strong enough to repel the infection, or, in the case of young children, they fail to recognize HBV as an enemy virus. That is why about 90% of babies born to infected mothers get hepatitis B.

When people are infected for six months or longer with HBV, they have a long-term or “chronic” infection. According to the U.S. Centers for Disease Control and Prevention (CDC), about 20 to 30% of the 1.25 million Americans who have chronic hepatitis B were infected during childhood.

How does hepatitis B affect me?

Many of the estimated 2 million people in the United States with chronic hepatitis B have no symptoms and lead normal lives. But some people experience liver damage from hepatitis B, especially if they have been infected for many years or decades. About one in four people with hepatitis B may experience serious liver damage. In the most serious cases, hepatitis B can lead to liver cancer and liver failure.

Your liver is your largest internal organ, and performs many vital functions. It processes food, filters out drugs and poisons, and stores vitamins, minerals, and sugars. There are other viruses that cause hepatitis or “inflammation of the liver.” Hepatitis A is the most common hepatitis virus. Children commonly get this type of hepatitis through hepatitis A-contaminated food or water. There is no treatment for hepatitis A, but the body usually clears the virus, and it does not cause chronic infection. Hepatitis A can be prevented with a vaccine, and anyone with hepatitis B should be vaccinated against hepatitis A. The last thing you want is another virus infecting your liver.

There is another virus that attacks the liver, called hepatitis C. There is no vaccine to prevent hepatitis C.

How does hepatitis B spread?

Hepatitis B is a bloodborne infection, which means that the virus is found in the blood and body fluids of infected people. If HBV-infected blood or body fluids enter your body through a cut or other opening, you are at high risk for infection.

HBV is a very sturdy virus, it can even live in dried blood for several days! That is why it’s easy to become infected with HBV if you have unprotected sex with an infected partner or if HBV-infected blood or secretions have contact with an open wound or even chapped skin. That is why babies born to infected

mothers have a high risk of infection because they come into contact with their mother's body fluids during birth. HBV is also transmitted easily when medical equipment, such as needles and syringes are re-used or not sterilized properly.

HBV can also be spread by small amounts of blood in cookers, cottons, and other equipment used to inject drugs. Other items that come into contact with blood and can spread the virus include razors, earrings or toothbrushes, and tools for tattooing and body piercing.

How to prevent hepatitis B

There is a very safe and effective vaccine that can protect people from hepatitis B. It is administered through a series of three injections. Health officials recommend that all babies receive this vaccine at birth, and that all children and teens get immunized. They also recommend that adults, who may be at risk of hepatitis B due to their jobs or possible exposure to infected partners or family members, get immunized.

As a result of immunizations, the rate of acute hepatitis B in the United States has declined 78% over the past 15 years. However, HBV infection remains highest among unvaccinated adults, including recent immigrants to the United States, who make up 95% of the of the estimated 51,000 new HBV infections that occurred in 2005.¹ That is why immunization among adults is so important.

In addition to immunization, people can prevent HBV infection by doing the following:

- Always use safer sex practices to prevent the exchange of body fluids during oral, vaginal or anal sex.
- Never share toothbrushes, razors, earrings or other equipment that can come into contact with blood or body fluids.
- Immediately bandage cuts or bruises to prevent contact with blood.
- Never touch anyone's blood or body fluids without having a barrier between you and the potentially infectious substance.

- Make sure a baby born to an infected mother is immediately vaccinated, and also treated with hepatitis B immune globulin (HBIG), which contains hepatitis B antibodies to help fight infection.

Treatment for hepatitis B

When you are infected with hepatitis B, your doctor will regularly test a sample of your blood for signs of liver disease. Two things they will look at closely are viral load, the amount of HBV DNA circulating in your blood, and an enzyme called alanine aminotransferase or ALT. When your liver is damaged from HBV infection, your liver cells release ALT. Your doctors want to keep your viral load low, your ALT levels normal, and they want to strengthen your immune system so it will effectively fight infection. Today, there are two types of drugs available to treat hepatitis B: interferons and antivirals.

Interferon

Interferons, a natural protein found in your body, boost the immune system to fight infection. Researchers have developed synthetic interferons that help your immune system fight the infection in your liver and increase the antibodies that fight the virus. Interferon can potentially improve the health of your liver and lower viral load.

Interferon treatment is for a limited period of time, usually several months, and it can produce permanent improvement without causing any viral resistance, which is why interferon may be the best first choice of treatment. Interferon can cause depression, so your doctor may prescribe an antidepressant during treatment to decrease this side effect.

Experts say interferon treatment is most effective when your immune system is actively fighting the infection, indicated by above normal ALT levels, and your viral load is moderately low. There are two interferon medications approved by the U.S. Food and Drug Administration (FDA) to treat hepatitis B. Conventional interferon was the first interferon treatment approved by the FDA for adults and children. This interferon requires three injections each week. About 30% of those treated with interferon alpha are able to lower their viral loads and improve the health of their livers over the long term.

The newest interferon approved by the FDA is called pegylated interferon. It has been used with great success against hepatitis C and it requires only one injection each week. Pegylated interferon has a time-release formula so it stays in your liver to help your immune system fight the infection. This interferon appears to be better at lowering viral load and improving the health of your liver than conventional interferon, so today most doctors are using pegylated interferon to treat hepatitis B. To date, pegylated interferon has been approved only for adults.

Antivirals

Antivirals, which are either pills or liquid medications, interfere with the HBV's reproduction process so new HBV can't be created. There are four antivirals approved by the FDA. What makes them different is that each antiviral targets a different part of the virus. But over time, HBV can develop mutations that allows it to keep reproducing despite treatment with an antiviral pill. This is called viral "resistance," because the virus can "resist" the antiviral.

Antivirals can work for a while to lower viral load and ALT levels, but when resistance occurs those levels can start to rise again. Researchers have not yet developed a perfect antiviral or combination treatment that would eradicate all HBV at once. Antivirals rarely produce any side effect symptoms.

Staying Healthy

In addition to medical treatments, there are other things you can do to manage hepatitis B and improve the health of your liver. Good nutrition is important to keep the liver functioning properly. A well-balanced diet that is low in fat, salt and sugar is important. High doses of vitamin supplements that contain iron, vitamin A, or vitamin D can harm the liver and should be avoided. Also, try to steer clear of alcohol, certain drugs, chemicals, and smoking. Moderate exercise can help to control stress and fatigue unless you are feeling ill.

Conclusion

Many people chronically infected with HBV lead normal lives and never experience any serious liver damage. However, some do develop serious liver disease. If you are infected with HBV, one of the best strategies you can take is to become actively involved in your medical care. Talk to your doctor and find out if treatment is right for you. Additionally, make lifestyle changes that will enhance your health and slow disease progression, including good nutrition, exercise, and stress management. Each year, researchers are learning more about hepatitis B and discovering new treatments that will one day eradicate this infection in everyone.

¹CDC

Be sure to check out these new and updated HBV factsheets

- Hepatitis B: What You Need to Know
- HBV: Drugs in Current Clinical Development
- What's New in Hepatitis B Treatment
- Which Antiviral to Use First

For more information about hepatitis C, hepatitis B and HCV coinfections, please visit www.hcvadvocate.org.

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| <p>HBV Project Manager Christine Kukka</p> | |
| <p>Design Paula Fener</p> | <p>This information is provided by the Hepatitis C Support Project • a nonprofit organization for HCV, HBV and HCV/HIV coinfection education, support and advocacy • © 2008 Hepatitis C Support Project • Reprint permission is granted and encouraged with credit to the Hepatitis C Support Project.</p> |
| <p>Production C.D. Mazoff, PhD</p> | |
| <p>Contact information: Hepatitis C Support Project PO Box 427037 San Francisco, CA 94142-7037 alanfranciscus@hcvadvocate.org</p> | |