

# University Health Services

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## HEPATITIS B

*Hepatitis B is a form of viral hepatitis, or inflammation of the liver, that is caused by an infectious agent called the hepatitis B virus (HBV). This infection causes liver cell damage, which can lead to scarring of the liver (cirrhosis) and an increased risk of liver cancer. Each year in the United States more than 250,000 people contract HBV. Approximately 90 to 98% of adults will recover within six months and develop immunity. However, blood tests will always show that the virus has infected them, and they will never be able to donate blood. Approximately 2 to 10% of adults and 25 to 80% of children under the age of five that are infected with HBV are unable to clear the virus within six months and are considered to be chronically infected carriers of HBV.*

### Symptoms

Many people with acute hepatitis B have no symptoms at all, or they may be very mild and flu-like: loss of appetite, nausea, vomiting, diarrhea, fatigue, muscle or joint aches and mild fever. About 25 to 35% of the patients may notice dark urine, yellowing of the skin and eyes (jaundice), or light colored stools. A few patients have a more severe course of illness and may die within a short period of time of fulminant (overwhelming) hepatic failure.

### HBV Transmission

HBV can survive outside the body for at least 10 days on a dry surface and is 100 times more contagious than the AIDS virus. It may be transmitted through contact with infected body fluids including blood, saliva, seminal fluid, vaginal secretions and breast milk. Thus, anyone who is exposed to blood or body fluids of an infected person is at risk. The disease can be acquired through sexual contact, exposure to sharp instruments contaminated with blood, receipt of blood or blood products many years ago (rare source of infection today), tattooing, or through sharing of razors or toothbrushes. In approximately 30 to 40% of the cases, the method of transmission is unknown.

### People at Risk

People at risk include:

- health care workers, first aid workers, funeral directors, police, and firefighters
- those who share a household with an infected person
- those having sexual contact with an infected person
- those with more than one sexual partner within six months
- residents or workers in a long-term facility
- travelers to developing countries
- hemophiliacs
- blood transfusion recipients before 1975
- injection drug abusers
- prisoners
- racial/ethnic groups with a high rate of infection: Asians, Pacific Islanders, Hispanics, Alaskan Natives, and Blacks

### Diagnosing Hepatitis B

The only way to know if you are currently infected with HBV or are a carrier of the virus is to have your blood examined. Ask the clinician for these tests because they are not usually included in routine blood tests.

There are three standard blood tests for HBV:

- **HBsAg** (hepatitis B surface antigen): when this test is positive, the person is infected with HBV and is infectious.
- **Anti-HBc** (antibody to hepatitis B core antigen): when this test is positive it usually means that the person has previously been infected with HBV or is currently infected with the virus. Occasionally, the anti-HBc test is erroneously positive, and the interpretation will depend upon the result of other blood tests.

- **Anti-HBs** (antibody to HBsAg): when this test is positive it may mean that the person is immune to hepatitis B, i.e., the person has had the virus in the past, can't get it again, and won't pass it on to others. This test becomes positive after a person has received the hepatitis B vaccine.

### **Will Hepatitis B always become chronic?**

People who have not cleared the virus within six months are called carriers of HBV and those who continue to have elevated liver enzymes are considered to have chronic hepatitis B. There are one million carriers of HBV in the U.S. today. Babies born to infected mothers are at high risk of becoming carriers while adults have a lower risk of becoming a carrier (2-10%). Usually a carrier has no signs or symptoms of infection and can unknowingly pass the virus on to others for years or even a lifetime.

In some patients, but not all, the virus continues to silently attack the liver, eventually causing scarring or cirrhosis. Cirrhosis retards the blood flow through the liver and causes greatly increased pressure (portal hypertension) in the portal vein that carries nutrients from the stomach and intestines to the liver. Due to this back pressure, enlarged and tortuous veins (varices) develop in the stomach and esophagus. Without any previous warning signs, these veins can rupture, causing a hemorrhage that results in vomiting blood or passing black, tarry stools. Approximately 4,000 people die each year in the U.S. due to chronic liver disease and primary liver cancer (hepatocellular carcinoma) related to HBV.

### **What should a carrier do?**

Carriers must remember that their body fluids can transmit disease even though they may not be ill. A carrier should never have unprotected sex unless the other person is immune to HBV or has received the vaccine. Any surfaces contaminated with blood or body fluids should be cleaned with one part household bleach to 10 parts water.

An HBV carrier should see a clinician every six to twelve months to have liver function tests. Alcohol may cause additional damage to the liver and should be avoided. Some medications, even over-the-counter medicines, may injure the liver. Speak with your clinician before taking any new medicines.

### **Vaccination**

There are safe and effective vaccines against hepatitis B. Three injections are required for full protection. The second injection of the vaccine is given one month after the first, and third is given five months later. In over 90% of the individuals, the vaccine will provide long-term protection against infection with HBV (at least 10 years), but will not "cure" a person who is already infected with the virus. Your clinician should be able to provide you with the vaccine; however, call first to find out.

Currently, the Centers for Disease Control and Prevention recommend that all newborns, young children, and adolescents be vaccinated against hepatitis B. Infants born to mothers who are infected with HBV should also receive hepatitis B immune globulin (HBIG) shortly after delivery. This combination of HBIG and vaccine should prove effective in 95% of these infants.

### **Treatment**

Currently, the only FDA approved treatment for hepatitis B is interferon alfa-2b. Less than 50% of patients with chronic HBV are candidates for interferon therapy. Initially, 40% of HBV patients found eligible for treatment will respond; however, a few of these will relapse when the treatment is stopped. In the long term, approximately 35% of the eligible patients will benefit.

The treatment, given by injection, may have a number of side effects including: flu-like symptoms, headaches, nausea, loss of appetite, depression, diarrhea and fatigue. Interferon may lower the production of white blood cells and platelets by depressing the bone marrow. Thus, blood tests are needed to monitor blood cells, platelets and liver enzymes.

Some patients with advanced cirrhosis of the liver due to HBV might be considered for a liver transplant; however, the virus remains active in the body where it can attack the new liver. Other treatments to control the virus are under investigation, and reports on advances in therapy will be discussed in the Hepatitis Foundation International's newsletter HEPATITIS ALERT.

### **What can I do if I have been exposed to HBV?**

Anyone who has been exposed to an HBV infected individual through intimate contact or contact with infected blood or body fluids should receive an intramuscular injection of 0.06 ml/kg HBIG within 14 days of exposure. Vaccination also should be considered if a continuous source of exposure is anticipated. Newborns exposed to HBV at birth should receive 0.5 ml of HBIG plus the hepatitis B vaccine within 12 hours of birth and two or three additional doses of vaccine within six to twelve months.

### **How can I protect others?**

Anyone living in the same household with a carrier of HBV should be vaccinated unless they are found to be immune as a result of a prior infection. Always practice safer sex if your partner is not immune, and be careful not to expose your partner to any body fluids during other types of intimate contact. Cover sores and rashes with bandages and clean up blood from an infected person with household bleach. Don't let anyone use toothbrushes, razors, or other sharp instruments you have used. Encourage others to be vaccinated against hepatitis B, especially sexually active teenagers.

### **Please note:**

If you develop new, prolonged, or more severe symptoms of this problem, call the advice nurse at 863-4463 (available 24 hours a day, 7 days a week) or consult your personal clinician. In an emergency, go to Mt. Nittany Medical Center Emergency Department or call 911 for an ambulance.

### **Test Results and Advice Nurse**

Please call the nurse for test results and advice: 863-4463

### **Appointments**

Appointments can be made in person or by phone. If you are unable to keep your appointment, please call and cancel. Otherwise you will be charged for the visit.

To schedule or cancel appointments, call: 863-0774

**For more information about health care issues, visit the UHS Web site at [www.sa.psu.edu/uhs](http://www.sa.psu.edu/uhs)**

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