

Hepatitis B

COALITION
Immunization Action Coalition

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QUESTIONS FREQUENTLY ASKED ABOUT HEPATITIS B

What is hepatitis B?

Hepatitis B is a serious public health problem that affects people of all ages in the United States and around the world. In 2001, an estimated 78,000 people contracted hepatitis B virus (HBV) infection in the United States. Hepatitis B is caused by a highly infectious virus that attacks the liver and can lead to severe illness, liver damage, and in some cases, death.

The best way to be protected from hepatitis B is to be vaccinated with hepatitis B vaccine, a vaccine used in the U.S. for more than two decades and proven safe and effective.

Who is at risk for HBV infection?

About 5% of people in the U.S. will get infected with HBV sometime during their lives. If you engage in certain behaviors, your risk may be much higher. You may be at risk if you:

- have a job that exposes you to human blood
- share a household with someone who has lifelong HBV infection
- inject drugs
- have sex with a person infected with HBV
- have sex with more than one partner during a six-month period
- received blood transfusions in the past before excellent blood testing was available (1975)
- are a person whose parents were born in Asia, Africa, the Amazon Basin in South America, the Pacific Islands, Eastern Europe, or the Middle East
- were born in an area listed above
- were adopted from an area listed above
- are an Alaska native

- have hemophilia
- are a patient or worker in an institution for the developmentally disabled
- are an inmate of a long-term correctional facility
- travel internationally to areas with a high prevalence of hepatitis B

The largest outbreak of hepatitis B in the U.S. occurred in 1942 in military personnel who were given vaccine to protect them from yellow fever. It was unknown at the time that this vaccine contained a human blood component that was contaminated with HBV. The outbreak caused 28,585 cases of hepatitis B with jaundice.

How is HBV spread?

HBV is found in blood and certain body fluids—such as serum, semen, and vaginal secretions—of people infected with HBV. HBV is *not* found in sweat, tears, urine, or respiratory secretions. Contact with even small amounts of infected blood can cause infection.

Hepatitis B virus can be spread by:

- unprotected sex
- injecting drug use
- an infected mother to her child during birth
- contact with the blood or open sores of an infected person
- human bites
- sharing a household with a chronically infected person
- sharing items such as razors, toothbrushes, or washcloths
- pre-chewing food for babies or sharing chewing gum
- using unsterilized needles in ear or body piercing, tattooing, or acupuncture

- using the same immunization needle on more than one person

Hepatitis B virus IS NOT spread by:

- casual contact like holding hands
- eating food prepared by an infected person
- kissing or hugging
- sharing silverware, plates, or cups
- visiting an infected person's home
- sneezing or coughing

What are the symptoms of hepatitis B?

Most people who get HBV infection as babies or children don't look or feel sick at all. Similarly, almost half of adults who get infected don't have any symptoms or signs of the disease. If people do have signs or symptoms, they may experience any or all of the following:

- loss of appetite
- yellowing of skin and eyes (jaundice)
- nausea, vomiting
- fever
- weakness, tiredness, inability to work for weeks or months
- abdominal pain and/or joint pain
- dark urine

I'm not in a risk group. How did I get HBV infection?

Many people don't know when or how they acquired the infection. When they get the blood test results indicating they've been infected with HBV, they are taken by surprise. Studies have demonstrated that 30–40% of people who acquire HBV infection are unable to identify

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tify their own risk factors explaining why they have the disease.

Do people usually recover from HBV infection?

Nearly 95% of adults recover after several months. They clear the infection from their bodies and become *immune*. This means they won't get infected with HBV again. They are no longer contagious and cannot pass HBV on to others.

Unfortunately, of those who become newly infected with HBV, about 5% of adults and up to 90% of children under age five are unable to clear the infection from their bodies; they become chronically infected.

How do I know if I have or have had HBV infection?

The only way to know if you are currently infected with HBV, have recovered, are chronically infected, or are susceptible, is by having blood tests. The three standard blood tests are the following:

HBsAg (hepatitis B surface antigen): when this is "positive" or "reactive," it means the person is currently infected with HBV and is able to pass the infection on to others.

Anti-HBc [or HBc-Ab] (antibody to hepatitis B core antigen): when this is "positive" or "reactive," it *may* mean the person has had contact with HBV. This is a very complicated test to explain because the "anti-HBc" could possibly be a "false-positive" test result. The interpretation of this positive test usually depends on the results of the other two blood tests (see Interpretation table at right). Blood banks routinely run an "anti-HBc," but they do not routinely run an "anti-HBs."

Anti-HBs [or HBs-Ab] (antibody to hepatitis B surface antigen): when this is "positive" or "reactive," it means the person is *immune* to HBV infection, either from vaccination or from past infection. If the person was previously infected, s/he cannot pass the disease on to others. (To repeat, this test is not routinely done by blood banks.)

Interpretation of the Hepatitis B Blood Test Results

Tests	Results	Interpretation
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible
HBsAg anti-HBc anti-HBs	negative negative positive with ≥10mIU/mL*	immune due to vaccination
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	newly infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible†

*Postvaccination testing, when it is recommended, should be done 1–2 months after the final dose.

- †1. May be recovering from acute HBV infection.
2. May be distantly immune, and the test is not sensitive enough to detect a very low level of anti-HBs in serum.
3. May be susceptible with a "false positive" anti-HBc.
4. May be chronically infected and have an undetectable level of HBsAg present in the serum.

What does it mean if my blood bank said I tested positive for hepatitis B and can no longer donate blood?

If the blood bank told you your test was "positive," it is important to find out *which* test was positive. If the "HBsAg" was positive, this means that you are either *chronically infected* with HBV or were recently infected. If *only* the "anti-HBc" was positive, it is most likely that you either had a "false-positive" test or are *immune* to hepatitis B. It is important that you understand the full meaning of your test results. If you are not sure how to interpret these test results, call your blood bank for an explanation or have the blood bank send the test results to your physician. You may need to provide written permission for the blood

bank to release these results to your physician. Your physician may want to repeat the blood tests or perform additional tests such as an "anti-HBs." Bring this information sheet along with you to your doctor visit.

And remember, you cannot contract HBV from donating blood because the equipment used during blood donation is sterile.

CHRONIC HEPATITIS B VIRUS INFECTION

What does it mean to be chronically infected with hepatitis B virus?

People who do not recover from HBV infection are chronically infected, and there are over one million chronically infected people in the United States today. A chronically infected person is someone who has had

HBV in her/his blood for more than six months. While approximately 5% of adults who acquire HBV infection become chronically infected, children less than five years of age have a greater risk. The younger the child is at the time of infection, the greater the risk that the child will have a lifelong infection. Many babies born to chronically infected mothers will also become chronically infected with HBV unless the babies are given two shots in the hospital and at least two more during the 6 months after birth to protect them from the infection.

A chronically infected person usually has no signs or symptoms of HBV infection but remains infected for years or for a lifetime and is capable of passing HBV on to others. Sometimes chronically infected people will spontaneously clear the infection from their bodies, but most will not. Although most chronically infected people have no serious problems with hepatitis B and lead normal, healthy lives, some develop liver problems later. Chronically infected people are at significantly higher risk than the general population for liver failure or liver cancer.

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How can I take care of myself if I am chronically infected with HBV?

A person with HBV infection should see a physician knowledgeable about the management of liver disease every 6–12 months. The physician will do blood tests to check the health of the liver as well as test for evidence of liver cancer. It is best for chronically infected people to avoid alcohol because alcohol can injure the liver. Additionally, your physician should know about all the medicines you are taking, even over-the-counter drugs, because some medicines can hurt the liver. If there are any liver test abnormalities, consultation with a liver specialist regarding your need for further testing and treatment is important.

If your liver disease has progressed...

If your physician tells you your liver disease has progressed, here are some extra precautions you should take:

- Get a yearly influenza vaccination. Patients with severe liver disease (cirrhosis) should also receive pneumococcal vaccine.
- Get vaccinated against hepatitis A. Hepatitis A can further damage your liver.
- Don't eat raw oysters. They may carry the bacteria *Vibrio vulnificus*, which can cause serious blood infections in people with liver disease. Approximately 40% of people with this blood infection die.

What can I do to protect others from HBV infection?

People with HBV infection might feel healthy but are still capable of passing the infection on to other people. To protect others from getting HBV infection, it is important to protect them from contact with your infected blood and other infectious body fluids, including semen and vaginal secretions. Sweat, tears, urine, and respiratory secretions do not contain hepatitis B virus. Hepatitis B virus transmission via saliva has only been documented through biting.

Important DOs and DON'Ts for people with chronic HBV infection

DO:

- Cover all cuts and open sores with a bandage.
- Discard used items such as band-aids and menstrual pads carefully so no one is accidentally exposed to your blood.
- Wash your hands well after touching your blood or infectious body fluids.
- Clean up blood spills. Then reclean the area with a bleach solution (one part household chlorine bleach to 10 parts water).
- Tell your sex partner(s) you have hepatitis B so they can be tested and vaccinated (if not already infected). Partners should be tested after the three doses are completed to be sure the vaccine worked.
- Use condoms (rubbers) during sex unless your sex partner has had hepatitis B or has been immunized and has had a blood test demonstrating immunity. (Condoms may also protect you from other sexually transmitted diseases.)
- Tell household members to see their doctors for testing and vaccination for hepatitis B.
- Tell your doctors that you are chronically infected with HBV.
- See your doctor every 6–12 months to check your liver for abnormalities including cancer.
- If you are pregnant, tell your doctor that you have HBV infection. It is critical that your baby is started on the hepatitis B shots within a few hours of birth.

DON'T:

- Share chewing gum, toothbrushes, razors, washcloths, needles for ear or body piercing, or anything that may have come in contact with your blood or infectious body fluids
- Pre-chew food for babies
- Share syringes and needles
- Donate blood, plasma, body organs, tissue, or sperm

What are the long-term effects of HBV infection?

Each year, approximately 5,000 people in the U.S. die of HBV-related liver failure and another 1,500 die from HBV-related liver cancer. HBV infection is the most common cause of liver cancer worldwide and ranks second only to cigarettes as the world's leading cause of cancer.

Is there a cure for hepatitis B?

As of this writing, there are three FDA-approved medications (interferon, lamivudine, and adefovir) that can help a person who is already infected with HBV. Their use is reserved for people who have certain blood test abnormalities. Be sure to ask your doctor if you are a candidate for treatment or if you might benefit from enrolling in a clinical trial. Researchers continue to seek additional cures for hepatitis B.

Why is hepatitis B so serious in pregnant women?

Pregnant women who are infected with HBV can transmit the disease to their babies. Many of these babies develop life-long HBV infections, and up to 25% will develop liver failure or liver cancer later in life. All pregnant women should be tested early in pregnancy to determine if they are infected with HBV. If the blood test is positive, the baby should be vaccinated at birth with two shots, one of hepatitis B immune globulin (HBIG) and one of hepatitis B vaccine. The infant will need at least two additional doses of hepatitis B vaccine by 6 months of age.

How can hepatitis B be prevented?

The vaccine can provide protection in 90–95% of healthy young adults. The vaccine can be given safely to infants, children, and adults usually in three doses over an approximate 6-month period. Even pregnant women can be safely given these shots if their risk factors warrant it. Hepatitis B shots are very safe, and side effects are rare. Hepatitis B vaccine is our first vaccine that prevents cancer—liver cancer.

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At what age are hepatitis B shots routinely given?

In the U.S., hepatitis B shots are routinely recommended for all children 0–18 years of age. For babies, the first hepatitis B shot is recommended to be given in the hospital at birth. Older children and teens should be vaccinated at the earliest opportunity. Any adult who is at risk for HBV infection should start the vaccine series immediately.

Where can I get hepatitis B shots?

Check with your clinic first. Children's health insurance usually covers the cost of this vaccine since it is routinely recommended for all U.S. children. If your child is uninsured, ask your local health department for assistance. For adults, contact your health provider first to find out if the vaccine is covered under your health plan. If you are uninsured, call your local health department for advice.

How many shots are needed?

Usually three shots are needed for the best protection against HBV, but some protection is provided from receiving as little as one dose. The shots are usually given on a schedule of 0, 1, and 6 months, but there is great flexibility in the timing of these injections. As with all other vaccines, if you fall behind on the schedule, you just continue from where you left off. Hepatitis B shots will not help or cure a person who is already infected with the hepatitis B virus.

What should I do if I'm in a risk group?

If you are in a risk group for hepatitis B (risk groups are listed on page 1), get vaccinated! All people in risk groups should protect themselves from HBV

infection. Every day you delay getting vaccinated increases your chances of getting this highly contagious liver disease. The problems caused by hepatitis B—liver cancer and liver failure—are too great. See your doctor or visit your health department.

How does hepatitis B differ from hepatitis A and C?

Hepatitis A, B, and C are all viruses that attack and injure the liver, and all can cause similar symptoms. Usually, people get hepatitis A from household or sexual contact with a person who has hepatitis A. Hepatitis C, formerly known as hepatitis non-A non-B, is caused by the hepatitis C virus and is spread in much the same way as HBV. Both hepatitis B and C can cause lifelong liver problems while hepatitis A does not. Vaccines to prevent hepatitis A are now available. There is no vaccine yet for hepatitis C. If you've had hepatitis A or C in the past, it is still possible to get hepatitis B.

Where can I receive more information about hepatitis B?

Contact your local and state health departments for more information. You can also contact the following organizations:

Immunization Action Coalition Hepatitis B Coalition

(651) 647-9009
www.immunize.org
www.vaccineinformation.org

American Liver Foundation

(800) 465-4837
www.liverfoundation.org

Centers for Disease Control and Prevention

(888) 443-7232 Hepatitis Hotline, automated
(800) 232-2522 Immunization Hotline
www.cdc.gov/hepatitis
www.cdc.gov/nip

Hepatitis B Foundation

(215) 489-4900
www.hepb.org

Hepatitis Foundation International

(800) 891-0707
www.hepfi.org

Parents of Kids with Infectious Diseases (PKIDS)

(877) 557-5437
www.pkids.org

What is the Immunization Action Coalition (IAC)?

The Immunization Action Coalition is a nonprofit organization that works to prevent hepatitis B and all other vaccine-preventable diseases in people of all ages. The Hepatitis B Coalition, a program of IAC, promotes vaccination for children 0–18 years of age, screening for all pregnant women, testing and vaccination for risk groups, and education and treatment for chronically infected people.

IAC relies on financial support from the Centers for Disease Control and Prevention, corporations, foundations, health professionals, and other private citizens to maintain its activities. Financial contributions are always needed, greatly appreciated, and tax-deductible. You can send your check to IAC at the address below or donate online at www.immunize.org/join

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This article was written in response to more than 5,000 letters sent to Dr. Wexler after she wrote a letter to "Dear Abby" about hepatitis B in 1993. It was updated in September 2003.

