

Fact Sheet

Hepatitis B

What causes hepatitis B?

Hepatitis B is caused by the hepatitis B virus (HBV).

How does HBV spread?

HBV is spread by either skin puncture or mucous membrane contact with the blood or other body fluids of an HBV-infected person. The highest concentrations of the virus occur in blood and wound secretions. Moderate concentrations of HBV are found in semen and vaginal fluid. HBV is not spread by air, food, or water.

In the United States, the primary routes of HBV transmission are through sex contact, from an infected mother to her baby during birth (perinatal), and by percutaneous (through the skin) exposures (e.g., injecting illegal drugs with a contaminated needle).

HBV is efficiently transmitted by sex contact and it is estimated that sexual transmission accounts for about 50% of new infections among adults in the United States. The most common risk factors for sexual transmission among heterosexuals include having multiple sexual partners, a history of a sexually transmitted disease, or sex with a known infected person. Men who have sex with men are also at high risk of HBV transmission.

Perinatal transmission from HBV-infected mothers to their infants results from exposures to maternal blood and body fluids at the time of delivery. Breastfeeding has not been associated with transmission of HBV.

HBV transmission during childhood can also occur. Most early childhood transmission occurs in households of persons with chronic HBV infection, but transmission has also been documented in daycare centers and in schools. The most likely mechanisms of early childhood transmission involve contact between an infected person's body fluids (e.g., their blood or secretions from their wounds or skin lesions) and breaks in a child's skin or mucous membranes (e.g., imperceptible punctures in the child's skin or mucous membranes). HBV also can spread through bites, as a consequence of pre-chewing food for infants, and through contact with the virus from sharing personal items such as razors or toothbrushes. HBV remains infectious for at least seven days outside the body and can be found on objects, even in the absence of visible blood.

The risk of HBV infection from HBV-contaminated needlesticks is 50–100 times higher than the risk of HIV transmission. In the United States, injecting illegal drugs accounts for approximately 15% of new HBV infections. Other types of percutaneous (through the skin) exposures, including tattooing and injections in medical settings, have been reported to result in HBV transmission in the United States when good infection control practices have not been used. Unsafe injections in medical settings are a major source of HBV transmission in many developing countries and might be a risk for U.S. residents traveling abroad.

How long does it take to show signs of hepatitis B after being exposed?

The incubation period ranges from six weeks to six months.

What are the symptoms of hepatitis B?

At least 50% of adults with acute hepatitis B show no symptoms. Children under five years of age who become infected rarely show any symptoms. Persons with an acute case of hepatitis B might suffer from nausea, lack of appetite, tiredness, pains in the muscles, joints, or stomach, fever, diarrhea or vomiting, headache, dark urine, light-colored stools, and yellowing of the skin and whites of the eyes.

How serious is hepatitis B?

Hepatitis B is very serious. People who have symptoms with acute hepatitis B generally feel quite ill and might need to be hospitalized. Approximately 200–300 Americans die of fulminant (overwhelming new infection) hepatitis B every year. While 90%–95% of adults eventually recover from an acute HBV infection, a feeling of tiredness and poor health might last for months. In addition, about 90% of infants, 30%–60% of young children, and 5% of adults who are infected with HBV are unable to clear the infection from their bodies and become chronically infected with the virus. This serious consequence is discussed below.

What does it mean to have chronic HBV infection?

Persons with chronic (lifelong) HBV infection are infectious and can transmit HBV to others. Many of these people do not feel sick and do not realize they are infected. They are also at high risk of developing chronic liver disease, including cirrhosis (scarring of the liver), liver failure, and liver cancer.

What are the complications of chronic HBV infection?

An estimated 15%-25% of persons with chronic HBV infection eventually develop serious liver disease. Chronic HBV infection is responsible for most HBV-related sickness and death, including chronic hepatitis (liver inflammation), cirrhosis, liver failure, and liver cancer. When persons are infected at a young age, these forms of liver disease do not appear usually until middle age.

How serious a problem is chronic HBV infection in the world?

In the United States, an estimated 3,000–4,000 persons die each year of HBV-related cirrhosis, and another 1,000-1,500 die each year of HBV-related liver cancer. Worldwide, the medical consequences of chronic HBV infection are a huge problem. Approximately 350 million persons around the world are chronically infected with HBV and 500,000–750,000 of these persons die each year from liver failure or liver cancer.

How common is hepatitis B in the United States?

About 5% of the U.S. population has been infected with HBV at some time in the past. Of these, about 1.25 million persons have chronic HBV infection and many of these persons do not know they are infected.

The number of new cases of hepatitis B in the United States has been decreasing recently, both because of increased vaccination against the disease and because of changes in risk-reduction behaviors among at-risk populations in response to the HIV/AIDS epidemic. In the mid-1980s, there were 26,000 cases reported; in 2001, there were 7,944 cases reported. However, reported cases of hepatitis B represent only a small proportion of all persons infected with the virus; many have no symptoms of disease, and many with disease are not reported to health

department officials. Based on studies that have looked for evidence of infection in people's blood, it is estimated that nearly 80,000 persons became infected with HBV in 2001 in the United States.

How do you know if you have HBV infection?

Hepatitis B can only be diagnosed accurately by blood testing. The blood test can tell whether or not a person is currently infected and whether or not a person has been infected in the past. If the test indicates a person has been infected in the past, testing will also determine whether the person has developed protective antibodies to the virus (meaning they have gotten over the disease and are now immune) or whether they still have virus in their blood, indicating they might have chronic HBV infection.

Is there a treatment for hepatitis B?

There is no treatment for acute hepatitis B. There are three FDA-approved medications (interferon, lamivudine, and adefovir) that may help a person who has chronic HBV infection. Not everyone is a candidate for these medications. Researchers continue to seek additional cures for hepatitis B.

How long is a person with hepatitis B contagious?

A person with acute or chronic hepatitis B is contagious as long as they have the virus in their blood, which can only be determined by blood testing.

People who know they are infected with HBV should be careful to avoid infecting others. Family members and sex contacts of infected persons should be vaccinated against hepatitis B as soon as possible. Infected persons should not donate blood and should not share toothbrushes, razors, or other personal care articles with others. Infected mothers (or family members) should not chew food for infants.

HBV is not spread by sneezing, hugging, coughing, food, or water, sharing eating utensils or drinking glasses, or casual contact. Persons with chronic HBV infection should not be excluded from work, school, play, childcare, or other settings.

What should you do if you have been exposed to HBV?

Contact your doctor or clinic. If an unvaccinated person is exposed to blood or another body fluid known to be HBV infected, it is recommended that they receive treatment with HBIG (a blood product containing protective antibodies to the virus) and also the first dose of hepatitis B vaccine as soon as possible. Following this, they will need additional doses of hepatitis B vaccine.

Can you get hepatitis B more than once?

No; if you get an acute case of hepatitis B and recover you should have antibodies in your blood that will protect you from any further infection with HBV.

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, a person can get hepatitis A from close personal contact (e.g., sex contact, sharing a household) with an infected person. Although it is less common, a person can also become infected by eating or drinking food or water contaminated with hepatitis A virus.

Hepatitis C, formerly known as hepatitis non-A non-B, is a blood-borne virus that is spread in much the same way as hepatitis B. Hepatitis C can cause lifelong liver problems while hepatitis A does not.

Although there are vaccines to prevent hepatitis A and B, there is no vaccine for hepatitis C. If you've had hepatitis A or C in the past, it is still possible to get hepatitis B.

Technically reviewed by the Centers for Disease Control and Prevention, September 2003

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have this infection, consult a health care provider.

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