

### **What is hepatitis B?**

Hepatitis B (formerly known as serum hepatitis) is a liver disease caused by the hepatitis B virus (HBV). The disease is fairly common; about 50 acute cases and 600 chronic/unspecified cases are reported in Wisconsin each year.

### **Who is most likely to get hepatitis B?**

- Injection drug users
- Healthcare workers
- Men who have sex with men
- Heterosexuals with multiple partners
- Hemodialysis patients
- Sexual/household contacts of infected people
- Infants born to infected mothers
- Infants/children of immigrants from HBV-endemic countries

### **How is the virus spread?**

HBV is spread by contact with blood, serum, semen, vaginal fluids and, rarely, saliva. Direct contact with infected body fluids; usually by needle stick injury, sharing needles, or sexual contact, is necessary for spread. HBV is not spread by casual contact or by respiratory droplets.

### **What are the signs and symptoms of hepatitis B?**

The signs and symptoms of hepatitis B include fatigue, poor appetite, nausea, vomiting, abdominal discomfort and sometimes joint pain or rash. Later, urine may become dark and jaundice (a yellowing of the skin and whites of the eyes) may appear. Many people do not have typical signs and symptoms of hepatitis; only 10% of children and 30-50% of adults develop jaundice.

### **When do symptoms appear?**

Symptoms usually appear 2-3 months after exposure (range: 1½-6 months).

### **How long can a person spread the virus?**

HBV is present in blood and other body fluids several weeks before symptoms appear and usually persists for about 3 months. However, the likelihood of complete recovery with elimination of the virus from the body depends on the age when infection occurs.

Chronic infection occurs in 80-90% of infants infected during the first year of life, in 30-50% of children infected between 1-4 years of age and in 5-10% of people infected after 6 years of age. People with chronic hepatitis B may infect others and 15-25% may die prematurely of either cirrhosis or liver cancer.

### **What is the treatment for hepatitis B?**

Hepatitis B infected persons should be evaluated by their doctor for liver disease. There are no medications available for recently acquired (acute) HBV infection. Hepatitis B vaccine is available for the prevention of HBV infection. There are antiviral drugs available for the treatment of chronic HBV infection. Currently five drugs are used for the treatment of persons with chronic hepatitis B. These drugs include adefovir dipivoxil, interferon alfa-2b, pegylated interferon alfa 2-a, lamivudine and entecavir. Additional anti-virals are under development.

### **What precautions should a person with acute or chronic hepatitis B take?**

The person should follow standard hygienic practices to protect close contacts from blood and other body fluids. The infected person must not share razors, toothbrushes, needles, or any other object that may have become contaminated with blood. Use of latex condoms during sexual activity may reduce transmission of HBV among homosexuals and heterosexuals. The infected person must not donate blood and should inform dental and medical care providers so that proper precautions can be followed.

### **How can hepatitis B be prevented?**

Hepatitis B can be prevented either before or right after exposure to the virus. To prevent disease before exposure, hepatitis B vaccine is recommended for all infants and children <19 years of age, people in high risk occupations (e.g., healthcare workers) and people with a high risk behavior (e.g., injection drug use or multiple sexual partners). Susceptible sexual and household contacts of people with chronic hepatitis B should also be immunized and the sexual partners should be tested for immunity after they complete the 3-dose series.

To prevent disease after exposure, hepatitis B immune globulin (HBIG) is given along with hepatitis B vaccine.

- Infants of infected mothers. Because these infants are exposed to the virus during labor and delivery, all pregnant women should be screened for hepatitis B prenatally. Infants of women who test positive should receive HBIG and the first dose of hepatitis B vaccine within 12 hours of birth. The infant should receive the remaining doses of hepatitis B vaccine at 1-2 months and 6 months of age.
- Sex partners of a person with acute hepatitis B should be given HBIG within 2 weeks of the last sexual contact.
- Household contacts of a person with acute hepatitis B do not need HBIG unless they have had a blood exposure to the case within the past 2 weeks. Questions about preventing hepatitis B after other types of exposures should be directed to your physician or local health department.

### **What is hepatitis C?**

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV), which is found in the blood of persons who have this disease.

### **How is the virus spread?**

HCV is spread primarily by exposure to human blood from an infected person. It can also be spread sexually or perinatally from an infected mother to her infant. Blood products, organs, tissues, semen and vaginal secretions from an infected person are sources for potential HCV infection transmission. HCV is not spread by casual contact such as hugging, sneezing, coughing or sharing food. However, sharing razors or toothbrushes with an infected person could spread HCV.

### **Who should be tested for hepatitis C?**

- Persons who ever injected illegal drugs, including those who injected once or a few times many years ago.
- Persons who were treated for clotting problems with a blood product made before 1987.
- Persons who were notified that they received blood from a donor who later tested positive for hepatitis C.
- Persons who received a blood transfusion or solid organ transplant before July 1992.
- Long-term hemodialysis patients.
- Persons who have signs or symptoms of liver disease (e.g., abnormal liver enzyme tests).
- Healthcare workers and others (e.g., family members) after significant exposures (e.g., needle sticks or splashes to the eye) while caring for or assisting an HCV-infected person.
- Children born to HCV-positive women.
- Sexual partners of HCV infected persons, although the risk of transmission is low.

### **What are the signs and symptoms of HCV infection?**

Most (90%) HCV infections are not symptomatic. A few individuals experience elevated (seven times the normal range) or fluctuating levels of the liver enzyme alanine aminotransferase, loss of appetite, fatigue, nausea and vomiting, vague abdominal pain and jaundice. Of persons infected with HCV, 15% may develop cirrhosis over a period of 20 to 30 years, and 5% may die from the consequences of long term infection (liver cancer or cirrhosis).

### **How soon do signs or symptoms occur?**

Persons with acute illness usually develop symptoms 6-7 weeks after exposure. Hepatitis C antibody (anti-HCV) can be found in 7 out of 10 persons when symptoms begin and in about 9 out of 10 persons within 3 months after symptoms begin.

### **When and for how long is a person able to transmit HCV?**

Some persons carry the virus in their blood and may remain contagious for years. A chronic carrier state may develop in as many as 75-85% of infected persons.

### **Are there treatments for hepatitis C?**

The FDA has approved three drugs to treat HCV infection. Patients are advised to consult their medical providers about treatment options. Immune globulin (IG) is **not** effective for post-exposure prophylaxis of hepatitis C.

### **Are there sensitive and specific tests for diagnosing hepatitis C?**

There are several blood tests that can be done to diagnose HCV infection. The enzyme immunoassay (EIA) is usually done first. The recombinant immunoblot assay (RIBA) is a supplemental test used to confirm a positive EIA test. Both the EIA and the RIBA detect anti-HCV in serum or plasma. Anti-HCV does not tell whether the infection is new (acute), chronic (long-term) or is no longer present.

The presence or absence of virus (HCV RNA) in the blood is detected with qualitative reverse transcriptase polymerase chain reaction test (RT-PCR). PCR and other tests to directly detect virus are not yet licensed but are widely used in clinical practice. A single positive PCR test indicates infection with HCV. A single negative PCR test does not prove that a person is not infected. Virus may be present in the blood and not found by PCR. Also, a person infected in the past who has recovered may have a negative test. When hepatitis C is suspected and the PCR is negative, the PCR should be repeated 6 months later.

### **How can the spread of HCV be prevented?**

Persons who are infected with HCV should take the following precautions to prevent transmitting hepatitis C:

- Do not donate blood, body organs, semen (sperm), ova, or other tissue.
- Do not share toothbrushes, razors or other sharp personal care articles.
- Cover cuts and open sores.
- Do not share needles or works with others and use only clean needles and works. Staff in a public health department can provide information on how to obtain clean needles, e.g., through needle exchange or a local pharmacy, and how to enter a drug treatment program.
- The rate of transmission of HCV between regular sexual partners is low. Partners who want to lower the chance of transmitting HCV should use latex condoms.

Persons having sex with multiple partners should use a latex condom correctly every time to prevent the transmission of sexually transmitted diseases to susceptible partners.