



# Questions and Answers about Hepatitis B and the Vaccine that Protects You

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## Questions and Answers about hepatitis B and and The Vaccine That Protects You

### Q. What is hepatitis B?

A. Hepatitis B is a serious disease caused by the hepatitis B virus (HBV) which is present in the blood and body fluids of an infected individual. The virus can be transmitted from mother to baby at birth as well as through unprotected sexual intercourse, and unsterilized needles. Transmission is also possible with household contacts and from child to child. HBV infection can cause acute illness that leads to loss of appetite; tiredness; pain in muscles, joints, or stomach; diarrhea or vomiting; and yellow skin or eyes (jaundice). HBV can also cause chronic infection, especially in infants and children, that leads to liver damage (cirrhosis), liver cancer, and death. Each year in the United States, an estimated 200,000 people have new HBV infections, of whom more than 11,000 people are hospitalized and 20,000 remain chronically infected. Overall, an estimated 1.25 million people in the United States have chronic HBV infection, and 4,000 to 5,000 people die each year from hepatitis B related chronic liver disease or liver cancer (*Centers for Disease Control and Prevention (CDC), 1990; Margolis, 1991; West, 1992*).

### Q. How is hepatitis B vaccine used to prevent hepatitis B and its related complications?

A. Hepatitis B vaccine prevents both HBV infection and those diseases related to HBV infection. It has been available since 1982. Hepatitis B vaccines currently available in the United States are made using recombinant DNA technology, and contain only a portion of the outer protein of HBV or hepatitis B surface antigen [HBsAg] (*Emini, 1986; Stephenne, 1990*). The vaccine does not contain any live components. The vaccine is given as a series of three intramuscular doses. More than 95 percent of children and adolescents, and more than 90 percent of young, healthy adults develop adequate antibody to the recommended series of three doses (*Szmuness, 1980; Zajac, 1986; Andre, 1989*). Persons who respond to hepatitis B vaccine are protected against acute hepatitis B as well as the chronic consequences of HBV infection, including cirrhosis and liver cancer (*CDC, 1991 a; Hadler, 1992*).

### Q. For whom is hepatitis B vaccine recommended?

A. The Advisory Committee on Immunization Practices (ACIP) recommends hepatitis B vaccine for everyone 18 years of age and younger, and for adults over 18 years of age who are at risk for HBV infection (*CDC, 1991 a,b; CDC, 1996; CDC, 1997; ACIP, 1998; Humiston, 1998*). Hepatitis B vaccine has been recommended as a routine infant vaccination since 1991, and as a routine adolescent vaccination since 1995 (*CDC, 1991, CDC 1996*). Adults who are at increased risk of HBV infection and who should receive the vaccine include: sexually active heterosexual adults with more than one sex partner in the prior 6 months or a history of a sexually transmitted disease; homosexual and bisexual men; illicit injection drug users, persons at occupational risk of infection; hemodialysis patients; and household and sex contacts of persons with chronic HBV infection; clients and staff of institutions for the developmentally disabled (*CDC, 1991 b*).



# TB Questions and Answers



## Introduction



### Q What is TB?

**A** TB, or tuberculosis, is a disease caused by bacteria called *Mycobacterium tuberculosis*. The bacteria can attack any part of your body, but they usually attack the lungs. TB disease was once the leading cause of death in the United States.

In the 1940s, scientists discovered the first of several drugs now used to treat TB. As a result, TB slowly began to disappear in the United States. But TB has come back. After 1984, the number of TB cases reported in the United States began to increase. More than 25,000 cases were reported in 1993.

TB is spread through the air from one person to another. The bacteria are put into the air when a person with TB disease of the lungs or throat coughs or sneezes. People nearby may breathe in these bacteria and become infected.

People who are infected with TB do not feel sick, do not have any symptoms, and cannot spread TB. But they may develop TB disease at some time in the future. People with TB disease can be treated and cured if they seek medical help. Even better, people who have TB infection but are not yet sick can take medicine so that they will never develop TB disease.

### Q How is TB spread?

**A** TB is spread through the air from one person to another. The bacteria are put into the air when a person with TB disease of the lungs or throat coughs or sneezes. People nearby may breathe in these bacteria and become infected.

When a person breathes in TB bacteria, the bacteria can settle in the lungs and begin to grow. From there, they move through the blood to other parts of the body, such as the kidney, spine, and brain.

TB in the lungs or throat can be infectious. This means that the bacteria can be spread to other people. TB in other parts of the body, such as the kidney or spine, is usually not infectious.

People with TB disease are most likely to spread it to people they spend time with every day. This includes family members, friends, and coworkers.

## **Q** What is TB infection?

**A** In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called TB infection. People with TB infection:

- have no symptoms
- don't feel sick
- can't spread TB to others
- usually have a positive skin test reaction
- can develop TB disease later in life if they do not receive preventive therapy

Many people who have TB infection never develop TB disease. In these people, the TB bacteria remain inactive for a lifetime without causing disease. But in other people, especially people who have weak immune systems, the bacteria become active and cause TB disease.

## **Q** What is TB disease?

**A** TB bacteria become active if the immune system can't stop them from growing. The active bacteria begin to multiply in the body and cause TB disease. Some people develop TB disease soon after becoming infected, before their immune system can fight the TB bacteria. Other people may get sick later, when their immune system becomes weak for some reason.

Babies and young children often have weak immune systems. People infected with HIV, the virus that causes AIDS, have very weak immune systems. Other people can have weak immune systems, too, especially people with any of these conditions:

- substance abuse
- diabetes mellitus
- silicosis
- cancer of the head or neck
- leukemia or Hodgkin's disease
- severe kidney disease
- low body weight
- certain medical treatments (such as corticosteroid treatment or organ transplants)

Symptoms of TB depend on where in the body the TB bacteria are growing. TB bacteria usually grow in the lungs. TB in the lungs may cause:

- a bad cough that lasts longer than 2 weeks
- pain in the chest
- coughing up blood or sputum (phlegm from deep inside the lungs)

Other symptoms of TB disease are:

- weakness or fatigue
- weight loss

## **Chickenpox Fact Sheet**

### **Chickenpox (varicella)**

Chickenpox (varicella) is a highly contagious disease caused by the varicella-zoster virus (VSV). The disease is usually mild in children but can be severe in adults and those with impaired immune systems. Each year, approximately 11,000 people are hospitalized and 100 die due to chickenpox. College students who have not had chickenpox should be vaccinated against this potentially serious disease.

### **Vaccination Recommendations for College Students**

The U.S. Centers for Disease Control and Prevention (CDC) and the American College Health Association (ACHA) recommend that all college students without a history of chickenpox receive the vaccine. Symptoms of the disease chickenpox has a characteristic itchy rash, which then forms blisters that dry and scab in four to five days. The rash can be the first sign of illness, sometimes accompanied by fever and tiredness. An infected person can have skin lesions that can be few in number to more than 500. Complications that may require hospitalization increase with age. Adults are 10 times more likely than children to be hospitalized with severe consequences of chickenpox. These consequences include pneumonia and encephalitis (inflammation of the brain).

### **Transmission of the Disease**

Chickenpox is highly contagious. About 90 percent of individuals who have not had chickenpox will get the disease if they are exposed to an infected person. The virus can be spread from person to person through the air or by contact with fluid from chickenpox blisters. The disease remains contagious from a day or two before the rash appears until all the blisters form scabs.

### **Incidence of Chickenpox**

In the United States, chickenpox is very common. Virtually all individuals who have not been vaccinated contract chickenpox by adulthood. Approximately 90 percent of chickenpox cases occur in children 1 to 14 years of age, and most people will have had chickenpox by their early 20s. About four million Americans develop chickenpox each year. Nearly 11,000 have complications that require hospitalization, and about 100 people die. The highest incidence of chickenpox occurs between March and May.

### **Risk for College Students**

Adults are more likely to die from chickenpox and its complications, which increase with age. Chickenpox can spread more easily in a college living environment, including dormitories, classrooms, libraries, and other close quarters where students spend a lot of time, which increases the likelihood for college students to contract the disease. Health sciences students (e.g., nursing and medical) are at particular risk of exposure and may transmit the disease to persons at high risk of complications; therefore, health sciences students should be vaccinated against varicella if susceptible.

### **The Chickenpox Vaccine**

The chickenpox vaccine is safe and effective. The vaccine is approximately 80-90 percent effective in preventing disease. The most common side effect is soreness at the site of injection. People over age 13 require two doses at least one month apart. Most people who get vaccinated will not get chickenpox; and if they do get chickenpox, it's usually very mild.

### **Shingles**

Some people who have had chickenpox may develop shingles later in life. Shingles, or herpes zoster, is caused by a reactivation of the same varicella virus that causes chickenpox. Shingles is a painful infection, which may include a blistering rash and severe burning pain, tingling, or extreme sensitivity to the skin. Symptoms last about a month. Approximately one in five people in the United States develops shingles. Studies are underway to determine if the chickenpox vaccine can help prevent or reduce the severity of shingles later in life.