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# Chickenpox (Varicella): Questions and Answers

## *Information about the disease and vaccines*

### **What causes chickenpox?**

Chickenpox is caused by a virus, the varicella-zoster virus.

### **How does chickenpox spread?**

Chickenpox spreads from person to person by direct contact or through the air by coughing or sneezing. It is highly contagious. It can also be spread through direct contact with the fluid from a blister of a person infected with chickenpox, or from direct contact with a sore from a person with shingles.

### **How long does it take to show signs of chickenpox after being exposed?**

It takes from 10 to 21 days to develop symptoms after being exposed to a person infected with chickenpox. The usual time period is 14–16 days.

### **What are the symptoms of chickenpox?**

The most common symptoms of chickenpox are rash, fever, coughing, fussiness, headache, and loss of appetite. The rash usually develops on the scalp and body, and then spreads to the face, arms, and legs. The rash usually forms 200–500 itchy blisters in several successive crops. The illness lasts about 5–10 days.

### **How serious is chickenpox?**

Many cases of chickenpox are mild, but deaths from this disease can occur. Before vaccine became available, about 100 people died every year in the United States from chickenpox. Most of these people were previously healthy. Chickenpox also accounted for about 11,000 hospitalizations each year. Even children with average cases of chickenpox are uncomfortable and need to be kept out of daycare or school for a week or more.

### **What are possible complications from chickenpox?**

The most common complication is bacterial infection of the skin or other parts of the body including the bones, lungs, joints, and blood. The virus can also lead to pneumonia or infection of the brain. These complications are rare but serious. Complications are more common in infants, adults, and people with weakened immune systems.

### **How do I know if my child has chickenpox?**

Usually chickenpox can be diagnosed by disease history and appearance alone. Adults who need to

know if they've had chickenpox in the past can have this determined by a laboratory test. Chickenpox is much less common now than it was before a vaccine became available, so parents, doctors, and nurses are less familiar with it. It may be necessary to perform laboratory testing for children to confirm chickenpox.

### **How long is a person with chickenpox contagious?**

Patients with chickenpox are contagious for 1–2 days before the rash appears and continue to be contagious through the first 4–5 days or until all the blisters are crusted over.

### **Is there a treatment for chickenpox?**

Most cases of chickenpox in otherwise healthy children are treated with bed rest, fluids, and control of fever. Children with chickenpox should NOT receive aspirin because of possible subsequent risk of Reye's syndrome. Acetaminophen may be given for fever control.

Chickenpox may be treated with an antiviral drug in serious cases, depending on the patient's age and health, the extent of the infection, and the timing of the treatment.

### **How common is chickenpox in the U.S.?**

Because it is so easy to catch chickenpox, almost every adult in the United States has been infected. Until a vaccine became available, there were an estimated four million cases/year. Since the vaccine was licensed in 1995, the number of cases of chickenpox had fallen more than 90%.

### **Can you get chickenpox more than once?**

Most people are immune to chickenpox after having the disease. However, although it is not common, second cases of chickenpox can occur, particularly in immunocompromised people.

### **If I think my child has been exposed to chickenpox, what should I do?**

If the child has had chickenpox or has been vaccinated, nothing needs to be done. It is recommended that a susceptible person (one who has never had chickenpox) receive the chickenpox vaccine as soon as possible after being exposed to the virus. There is evidence that the vaccine may prevent illness or

reduce the seriousness of the disease, if given within 3 to 5 days following exposure. Even if the person was not infected with the chickenpox virus from the exposure, receiving the vaccination will prevent future disease.

#### **How are chickenpox and shingles related?**

Both chickenpox and shingles are caused by the same virus. After a person has had chickenpox, the virus remains in the body permanently, but silently. About one-third of all people who have been infected with chickenpox later develop the disease known as herpes zoster, or shingles. Symptoms of shingles are pain, itching, blisters, and loss of feeling along a nerve. Most cases occur in people older than 50, and the risk of developing shingles increases with age. In May 2006, the FDA approved a zoster vaccine to prevent shingles. Currently, the zoster vaccine is recommended by CDC's Advisory Committee on Immunization Practices for people age 60 years and older. (See the shingles section for more information about shingles disease and zoster vaccine.)

#### **When did the chickenpox vaccine become available?**

The chickenpox (varicella) vaccine was licensed in the United States in 1995. Since that time, the number of hospitalizations and deaths from varicella has declined more than 90%. In 2005, a combination vaccine containing live attenuated measles-mumps-rubella and varicella (MMRV) vaccine was licensed for use in people age 12 months through age 12 years.

#### **What kind of vaccine is it?**

The chickenpox vaccine is a live attenuated vaccine. This means the live, disease-producing virus was modified, or weakened, in the laboratory to produce an organism that can grow and produce immunity in the body without causing illness.

#### **How is this vaccine administered?**

The chickenpox vaccine is a shot, given in the fatty tissue. It should be given at the same visit as all other recommended vaccines.

#### **Who should get this vaccine?**

Chickenpox vaccine is recommended for the following:

- All children younger than age 13 years (one dose at 12–15 months and a second dose at age 4–6 years);
- Everyone age 13 years and older who has never had chickenpox (two doses, given 4–8 weeks apart);

Anyone who is overdue for receiving a dose should get the missed dose at their next visit to their doctor or clinic.

#### **Who recommends this vaccine?**

The Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP) have all recommended that children receive this vaccine.

#### **Should adults be tested before vaccination to see if they are already immune to chickenpox?**

Currently, 90% of adults are immune to chickenpox because of having had the disease as children. If you have a history of chickenpox disease, you don't need testing or vaccination, unless you are working in an environment where your immune status must be documented (such as in a hospital). If you are uncertain of your medical history, blood testing can be done to see if immunization is appropriate.

#### **How safe is chickenpox (varicella) vaccine?**

Tens of millions of doses of varicella vaccine have been given in the United States, and studies continue to show that the vaccine is safe. Serious side effects are very rare.

#### **What side effects have been reported with this vaccine?**

Possible side effects are generally mild and include redness, stiffness, and soreness at the injection site; such localized reactions occur in 19% of children immunized and 24% of adolescents and adults (slightly more following the second dose). A small percentage of people develop a mild rash, usually around the spot where the shot was given.

In the several years following the licensure of the combined measles-mumps-rubella (MMR) and varicella vaccines in 2005, surveillance of side effects showed that children who got their first dose as the combined product (MMRV) had more fevers and fever-related seizures (about 1 in 1,250) than children who got the first dose as separate shots of MMR and varicella on the same day. Consequently, in May 2010, the CDC recommended that parents and doctors discuss the risks and benefits of both vaccination options and, unless a clear preference is expressed, the shots should be given separately for the first dose in children age 12 through 47 months. The use of the combination vaccine (MMRV) is generally preferred over separate injections for children who are receiv-

ing their second dose or their first dose when age 4 through 12 years.

**How effective is this vaccine?**

Almost all (more than 99%) children develop immunity to the disease after two doses of vaccine. For older children and adults, an average of 78% develop immunity after one dose and 99% develop immunity after the recommended two doses.

Although some vaccinated children (about 2%) will still get chickenpox, they generally will have a much milder form of the disease, with fewer blisters (typically fewer than 50), lower fever, and a more rapid recovery.

The vaccine almost always prevents against severe disease. Getting chickenpox vaccine is much safer than getting chickenpox disease.

**Isn't it better for a child to get chickenpox naturally?**

Some parents purposely seek to get their children infected with varicella virus, even promoting "chickenpox parties" for this purpose. The belief is that it's better to be infected when young, a time when the infection is ordinarily less severe. Some parents also believe that something "natural" (the disease) is better than something "artificial" (the vaccine), or that immunity derived from the disease will be more permanent than that from the vaccine.

However, when a safe vaccine is available, parents need to weigh the supposed benefits of infection against its potential risks, including severe disease with complications such as infection with flesh-eating bacteria. No one can predict which child will develop a life-threatening case of chickenpox; in fact, most serious cases occur in previously healthy children.

In addition, in a recent study, 7 out of 10 children said given the choice, they'd rather have the shot than have the natural disease.

**Can the vaccine protect you if you've already been exposed to chickenpox?**

Yes, it is 70% to 100% effective if given within 72 hours of exposure.

**Who should not receive the chickenpox vaccine?**

People with weakened immune systems and those with life-threatening allergies to gelatin or the antibiotic neomycin should not receive this vaccine.

People who had a severe allergic reaction to a prior dose of this vaccine should not receive a second dose.

Pregnant women and women attempting to become pregnant should not receive this vaccine, as the pos-

sible effects on fetal development are unknown. However, non-pregnant women of childbearing age who have never had the disease may be immunized against chickenpox to avoid contracting the disease while pregnant.

**Can the vaccine cause chickenpox?**

Because this vaccine is made from a live, but weakened, virus, about 1% of recipients develop a mild form of the disease, consisting of a limited rash, most often with only 5–6 blisters. Usually there is no fever. These people are then safe from the more serious, naturally occurring form of the virus.

**Can the varicella vaccine virus be transmitted (caught) from a person who was vaccinated?**

Yes; however, transmission of the varicella vaccine virus is extremely rare. It has only been documented in healthy people on five occasions out of more than 55 million doses of vaccine distributed. All five cases resulted in mild disease without complications.

**Can the vaccine cause herpes zoster (shingles)?**

Yes, this is possible. The risk of zoster following vaccination appears to be less than that following infection with the varicella virus. The majority of cases of shingles following vaccine have been mild and have not been associated with serious complications.