

Chickenpox (Varicella)

FactSheet For Parents and Caregivers



What is chickenpox?

Chickenpox, also known as varicella, is a highly infectious disease caused by the varicella zoster virus. After recovery from chickenpox the virus stays dormant (inactive) in the nerves near the spine. Years later the virus can become active again and cause herpes zoster, which is also known as shingles.

How common is it? How do you catch it?

Chickenpox is more commonly seen in children. In countries where chickenpox is common, very few people avoid getting the disease because more than 85% of people susceptible to chickenpox will become infected after exposure to the virus.¹ Although rare, some people get chickenpox more than once.² Shingles is more common in older adults and people of any age with an immune system weakness.

The virus is transferred person to person through contact with infected droplets of saliva in the air from coughing, sneezing or laughing, or the liquid from the rash blisters.

A person with chickenpox can pass the virus on from 1–2 days before they get the rash until after the rash blisters have dried up, which usually takes 5–7 days. It is possible for a person with shingles to pass the chickenpox virus on to someone not immune to chickenpox through contact with liquid from the rash blisters.

What are the symptoms of chickenpox?

The early symptoms of chickenpox may include a mild fever, loss of appetite, headache and feeling tired, followed by the appearance of a red rash that becomes itchy and blisters, mostly on the trunk and face with some on the arms and legs. Blisters can occur in the eyes, mouth/throat, vagina and urinary tract. The blisters release liquid containing the virus, then form crusts/scabs that fall off after 1–2 weeks.

How serious is it? Who is at risk from chickenpox?

Chickenpox is usually less severe in healthy children than in adolescents and adults. Most healthy children will only need relief from itching and to continue drinking, however some will develop serious complications as listed below. Adolescents and adults are more likely to develop complications than children.^{1,2}

Complications of chickenpox include:

- Difficulty drinking and eating.
- Changes in skin colour after the crusts fall off that may last for months. Permanent scarring may also occur.¹
- Around one in 20 healthy children develop a bacterial skin infection, usually from scratching, which needs to be treated with antibiotic medicine.^{1,3}
- Bacterial skin infections can lead to bacterial infection in other parts of the body, including the blood (septicaemia).³
- Pneumonia is more likely to occur as a complication in adults, particularly women in the last trimester of pregnancy.^{1,2}
- Although rare, chickenpox infection can cause inflammation of the central nervous system (cerebellar ataxia), joints (arthritis), bones (osteomyelitis), liver (hepatitis), blood vessels supplying the brain with blood (intracranial vasculitis), and brain (encephalitis).^{1,3}

- Maternal chickenpox during pregnancy can infect the fetus. The highest risk period is during the first 20 weeks of pregnancy when up to two in 100 infants will be born with congenital varicella syndrome^{1,4} and may have skin scarring, eye, limb and brain abnormalities, developmental delay and a poor outcome.¹
- Maternal chickenpox within the five days before to two days after delivery can infect the newborn infant. Up to 30 in 100 newborns with chickenpox develop severe disease that can result in death.^{1,4}

How do you prevent infection?

Children with chickenpox are advised not to attend early childhood services, school or public places for at least one week from the appearance of the rash, until all the blisters are dry and crusted. Adults are advised not to attend work or public places for the same period of time.

Chickenpox vaccine can be given from nine months of age, ideally before but if necessary after exposure to the disease. Studies have shown that giving the vaccine to children aged 12 years or younger within 72–96 hours of exposure to chickenpox may prevent the disease developing or reduce the severity of the disease.^{1,4} The vaccine can also be given to older children and adults after exposure to chickenpox. However, a single dose after exposure in this age group may not prevent or reduce the severity of disease.⁴ Receiving the vaccine after exposure to the disease will not make the disease more severe at any age.

Zoster immunoglobulin (ZIG), a human blood product that provides protection against the disease, can be given to people with a known risk for developing serious complications from chickenpox such as anyone with severe weakness of their immune system. Administration of ZIG is recommended for all newborn infants exposed to chickenpox around the time of delivery, hospitalised infants born before 28 weeks of pregnancy or with a birth weight less than 1000 grams, and children and adults with a weakened immune system as soon as possible, up to 10 days after exposure to the disease.⁵

Pregnant women with no reliable history of chickenpox should have an urgent blood test to check for immunity after exposure to chickenpox. If the blood test suggests no immunity against chickenpox, they can receive ZIG or wait for the onset of symptoms and begin antiviral medicine immediately.⁵

How do you treat it?

Reducing pain, discomfort and itching associated with the blisters, preventing dehydration and skin infection, and providing early antibiotic medicine when skin infection occurs are the main treatment measures for healthy children.⁶

For healthy adolescents and adults, the use of antiviral medicine should be considered in addition to comfort measures. Antiviral medicine started within 24 hours of the rash appearing may reduce the severity of the disease.^{3,4}

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Tips for managing chickenpox symptoms

- Drink plenty of water.
- Trim nails short and consider using mittens or clean socks to decrease the risk of infection from scratching, especially overnight.
- Have a cool or lukewarm bath every 3–4 hours but do not use soap. Try adding oatmeal, baking soda or moisturising bath lotion to the water. Pat skin dry, do not rub, after bathing.
- Moisturise with non-irritating skin lotion. Calamine lotion is not recommended.
- Dress in loose fitting clothing and change the bed linen daily.
- Use paracetamol to relieve discomfort and pain, following the dosage instructions on the bottle or packet.
- When blisters in the mouth and throat affect drinking and eating, offer clear cool drinks and soft bland foods, avoid acidic drinks such as fruit juices.
- Aspirin or any medicine with an ingredient name including the words 'salicylate' or 'salicylic acid' **MUST NOT** be given to children with chickenpox because of the risk of a rare condition called Reye's Syndrome.

What vaccines protect against chickenpox?

Varilrix® and Varivax® are the two chickenpox vaccine brands available for purchase through your general practice. Varilrix® is the brand used for people eligible to receive free chickenpox vaccine from 1 July 2014.

Both vaccines contain live-weakened varicella zoster virus. The combination measles, mumps, rubella and chickenpox vaccine is available in other countries but not available in New Zealand at this time.

How safe are the vaccines?

Varicella vaccines have an excellent safety profile. The most common vaccine side effects occur around the site of injection and include redness, swelling and/or pain. Headache, mild fever and tiredness after immunisation are also common. Around five in 100 healthy vaccine recipients develop a mild vaccine-related rash² sometime between 6–43 days after immunisation.⁷

It is possible but extremely rare for a person with a vaccine-related rash to transfer the vaccine virus to another person, only 10 cases have been reported from around 60 million vaccine doses in the U.S.² There is no risk of the vaccine virus being transferred to another person if there is no vaccine-related rash.

Vaccine recipients who develop a rash should avoid contact with women who are pregnant and not immune to chickenpox, newborn babies and people known to have a weakened immune system until the rash has gone. If this is not possible, close contacts with a known risk for developing serious complications from chickenpox should contact their doctor.

Although there is no evidence that the vaccine affects fetal development, women should delay pregnancy for one month after being immunised.

How protective are the vaccines?

Immunisation against chickenpox may not protect every person completely.

- After a single chickenpox vaccine dose, 70–90% of children are expected to be fully protected against all chickenpox and more than 95% protected from moderate to severe chickenpox.⁸

- After two chickenpox vaccine doses, 97–99% of children are protected against all chickenpox and 100% protected from moderate to severe chickenpox.⁸
- After two chickenpox vaccine doses, 79–91% of adults are protected against moderate to severe chickenpox.⁹

For the very few people immunised against chickenpox who still get the disease, it is less severe than the disease in an unimmunised person. Available information suggests that chickenpox immunisation may reduce the risk of developing shingles later in life in comparison with those who had wild-type disease.¹⁰

How long does vaccine protection last?

Protection after two doses of vaccine appears to be very long term for most people immunised, however, it is not known if it is lifelong at this stage. Countries that have been using the vaccine for a long time have not identified a need for booster doses.

Who should have the chickenpox vaccine?

Special groups (immunisation is free)

From 1 July 2014 two doses of Varilrix® are free for the following groups:

Non-immune children and adults:

- Before receiving a solid organ transplantation, e.g. a liver or kidney.
- Before starting long-term* medication that weakens their immune system. (*more than 28 days)
- Who have a healthy immune system and are exposed to chickenpox during a stay in hospital.
- Who have HIV infection and their immune system is working reasonably well and their specialist agrees to the immunisation.
- Who are household contacts of children who have a weakened immune system, or about to start treatment that will weaken their immune system.

Children and adults:

- At least 6 months after finishing chemotherapy and their specialist agrees to the immunisation.
- At least 2 years after bone marrow transplantation and their specialist agrees to the immunisation.

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Who should have the chickenpox vaccine?(continued)

Healthy children and adults (immunisation is not free)

- Children and adults who live in the same house as women who are pregnant and not immune to chickenpox, newborn babies, or people known to have a weakened immune system, e.g. from some cancer treatments and some autoimmune diseases.

Immunisation is recommended to protect from giving varicella to the high risk household member who is unable themselves to receive the vaccine.

◇ Those in the house in contact with a known risk for developing serious complications from chickenpox should contact their doctor if the vaccine recipient develops a vaccine-related rash.

- All children, adolescents and adults^a up to 50 years of age^{b,11} at risk of getting chickenpox, i.e. they have not previously had the disease or vaccine.

a. Adults who have grown up in tropical countries are much less likely to have had chickenpox.

b. The herpes zoster vaccine Zostavax[®] is available for adults aged 50 years or older, and particularly worth considering for older adults.

Do healthy New Zealand children need two vaccine doses?

The current recommendations of the Immunisation Advisory Centre for healthy children are:

- For an infant is less than 12 months of age at increased risk of coming into contact with wild-type chickenpox, e.g. they attend day care, playgroup, and/or have older siblings who are not immune to chickenpox, is that they have one chickenpox immunisation before 12 months of age and a second immunisation at 12 months of age.
- For an infant less than 12 months of age at low risk of coming into contact with wild-type chickenpox, their parent can consider delaying chickenpox immunisation until 12 months of age and choose whether to give either one or two doses. One dose gives good protection, two doses give optimal protection.
- All adolescents over 12 years of age (and adults) need two doses.

Who should seek further advice before having the vaccine?

- People known to have a weakened immune system or who are recovering from chemotherapy or bone marrow transplantation.
- People receiving high-dose corticosteroid medicine, e.g. prednisone, for more than 14 days: They should wait for at least four weeks after their treatment has finished before receiving the vaccine.
- People taking antiviral medication, e.g. tablets for cold sores: These should be stopped for 24 hours prior to immunisation and not restarted for 14 days afterwards.
- Children taking aspirin: Whilst there has been no association between chickenpox immunisation and Reye's Syndrome, avoidance of aspirin around the time of immunisation and for six weeks afterward is advised as a precaution.
- People who have received a blood product in the year before immunisation.
- People expecting to receive a blood product in the two months after immunisation: These should not be given for two months after immunisation unless their use outweighs the benefits of the immunisation.

Who should not have the vaccine?

- Anyone who has a severe weakness of the immune system
- Anyone who had a severe allergic response (anaphylaxis) to a previous dose of this vaccine or a component of this vaccine.
- Women who are currently pregnant.
- People who have received another live injected vaccine within the previous four weeks.
- Immunisation should be postponed in individuals suffering from a fever over 38°C. However, the presence of a minor infection is not a reason to delay immunisation.

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| Disease | Effects of disease | Side effects of the vaccine |
|---|--|---|
| <p>A highly contagious viral illness causing fever and a rash that becomes itchy blisters.</p> <p>Years later the virus can become active again and cause herpes zoster, which is also known as shingles.</p> | <ul style="list-style-type: none"> • Difficulty drinking and eating. • Occasionally changes in skin colour and/or permanent scarring at site of blisters.¹ • Around 1 in 20 develop a bacterial skin infection that needs to be treated with antibiotic medicine.^{1,3} • Bacterial skin infections can cause bacterial infection in other parts of the body including the blood (septicaemia).³ • Pneumonia is more likely to occur as a complication in adults, particularly women in the last trimester of pregnancy.^{1,2} • Around 1 in 4,000 develops inflammation of the central nervous system causing uncoordinated movements (cerebellar ataxia) that gradually improve.^{3,6} • Inflammation of the joints (arthritis), bone (osteomyelitis), liver (hepatitis) and blood vessels supplying the brain with blood (intracranial vasculitis).^{1,3} • Around 4 in 10,000 develop brain inflammation (encephalitis). Infants less than one year of age and adults have the highest risk.³ • In developed countries: <ul style="list-style-type: none"> ◊ Between 2–6 individuals in 100,000 require hospitalisation.¹ ◊ Overall death rate is 2–4 individuals in 100,000.¹ • Maternal chickenpox during pregnancy can infect the fetus. <ul style="list-style-type: none"> ◊ Up to two in 100 infants exposed to the disease during the first 20 weeks of pregnancy will be born with congenital varicella syndrome and may have skin scarring, eye, limb and brain abnormalities, developmental delay and a poor outcome.^{1,4} • Maternal chickenpox within five days before to two days after delivery can infect the newborn infants.^{1,4} <ul style="list-style-type: none"> ◊ Up to 30 in 100 newborns with chickenpox develop severe disease that can result in death.^{1,4} • Reye's Syndrome may occur in children if aspirin (salicylate or salicylic acid) is given after a viral infection in children, including chickenpox. This is very rare.³ • Shingles in later life, which can cause prolonged and disabling pain.⁸ | <p>Common</p> <ul style="list-style-type: none"> • Around 1–2 in 10 experience soreness/pain, redness and/or swelling around the injection site.¹ • Around 5 in 100 experience a fever over 37.5°C.⁷ • Around 5 in 100 develop a vaccine-related rash within 6-43 days of immunisation.^{1,7} <p>Uncommon</p> <ul style="list-style-type: none"> • Headache and tiredness. • Herpes zoster (shingles) later in life.*¹⁰ <p>Rare/Very rare</p> <ul style="list-style-type: none"> • Anaphylaxis (severe allergic reaction), around 28 cases in 1,410,000 doses.¹² • Transfer of the vaccine virus from a vaccine rash to another person, only 10 reported cases from around 60 million vaccine doses in the U.S.² <p>*Available information suggests that shingles may occur less frequently after chickenpox immunisation than after wild-type disease.¹⁰</p> |

Vaccines are prescription medicines. Talk to your doctor or nurse about the benefits or any risks.

References

The list of references is available in a separate document on the Varicella (chickenpox) disease page on our website www.immune.org.nz.