

# **Childhood Contagious Diseases(5)**

Children have maturing immune systems and are often in close proximity to one another, such as in day-care centers, classrooms, and on school busses. This makes the transmission of contagious diseases particularly easy and explains, in part, why these diseases are so common in children. Contagious diseases are often caused by the spread of bacteria (such as in scarlet fever) or viruses (such as in chickenpox, measles) in droplets of saliva and mucus, when coughing or sneezing.

Contagious diseases may also occur by coming •  
in close personal contact with another  
infected person or even by sharing personal  
items of an infected person, as in the case  
with infestation caused by insects (such as  
with lice and scabies) or a fungal infection  
(such as in tinea infections)

- Fortunately, many childhood diseases, once contracted, result in lifelong immunity in the infected child. However, this is not always the case. Vaccinations also provide immunity to some of the below diseases.

# Erythema Infectiosum

also called slapped-cheek disease, is a common illness in young children due to infection with parvovirus . The disease is spread by contact with infected children by exposure to respiratory secretions . The illness lasts approximately 5 days, but the rash may keep coming back for a few weeks, particularly with exercise, heat, fever, or stress. •

The first stage of erythema infectiosum includes firm, red cheeks that feel warm, appearing like "slapped cheeks." •



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- Who's At Risk

occurs all over the world. Lab studies show •  
that about half of adults have been infected,  
although they may never remember being ill.  
The disease is common in pre-school and  
school-age children.



- Signs and Symptoms

Bright redness of the cheeks is the classic • initial sign, without affecting the areas around the mouth. About a day later, the rash shows up as a faint red, rash on the trunk, arms, and legs. There may also be a fever or joint pain

- Self-Care Guidelines
- If your child has the disease, it is not necessary to keep him or her away from other people because the infection is contagious before the rash appears, not after.  
Notify any pregnant women who have been around your child that they have been exposed so they can notify their doctor.  
You may give your child acetaminophen or ibuprofen for fever or joint pain as needed.
- No treatment is required, as this illness will go away on its own.

# Roseola

Also known as roseola infantum, is a mild • illness that mainly affects children that will go away on its own. Roseola is caused by viruses of the herpes type. Infected children have a few days of high fever followed by a rash as the fever goes down. The rash usually lasts 1–2 days, or it may go away more quickly.



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- Who's At Risk
- Roseola commonly occurs in children under 3. Substances from the mother's immune system (maternal antibodies) protect the child from getting roseola before the age of 6 months; however, it can occur in children between the ages of 3 months to 4 years.

- Signs and Symptoms
- If your child is otherwise well but has a high fever for 4 days, followed by a rash on the trunk, he or she likely has roseola.

The fever that accompanies roseola is followed immediately by the appearance of rose-pink, flat or slightly raised bumps 2–3 mm in diameter that begin on the trunk and may spread to the neck as well as the arms and legs .

- Self-Care Guidelines
- Roseola goes away without any treatment. However, you might:
- Control the child's fever with acetaminophen or ibuprofen and cool sponge baths.
- Encourage the child to drink fluids to avoid dehydration.
- There is no way to prevent roseola from spreading because it is contagious before any symptoms appear.
- When to Seek Medical Care
- Call the doctor if the fever does not go down with acetaminophen, if the child is difficult to wake up, or if the child is very irritable or appears very ill.
- If the child has convulsions due to fever, call the doctor or emergency room immediately.
- There is no specific treatment for roseola other than measures to control fever.

# Measles

Measles is a highly contagious infection • of the respiratory system that is caused by a virus. The incubation period is about 10 days. This child then has 3 or 4 days of cold-like symptoms, followed by a rash . Child usually is well after 2 weeks of illness and then has life-long resistance



Complications from measles more commonly • occur in children aged younger than 5 and adults older than 20. Serious complications of measles include blindness, inflammation of the brain caused by infection (encephalitis), severe diarrhea that may lead to dehydration , ear infections, and severe respiratory infections. The most common cause of death associated with measles is from pneumonia. The majority of deaths from measles occur in developing countries



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- Who's At Risk

it occurs all over the world, primarily in late winter and spring.

- Signs and Symptoms
- The first signs of infection are a bad cough, runny nose, fever, and red, watery eyes.
- Sometimes, at this stage, small red spots with blue-white centers appear inside the mouth ("Koplik spots").
- After 3–4 days, a rash begins with red spots, first appearing behind the ears and at the forehead, spreading down the neck, arms, trunk, and finally the legs. The red spots can merge together on the face.
- Measles does not usually itch.

- Self-Care Guidelines
- Make sure everyone in contact with the ill child has been vaccinated against measles or had measles in the past.
- Treat fever with acetaminophen or ibuprofen.
- Encourage the child to drink fluid and to rest.

- When to Seek Medical Care
- Call your child's doctor if you think he or she has measles, particularly if the child is an infant or has any medication or condition that weakens the immune system.
- Call the doctor immediately if the child has problems breathing, confusion, vision problems, or pain in the chest or belly.
- There are no medications to cure measles, but the doctor can recommend ways to reduce symptoms such as fever, cough, or itching.

# Chickenpox

Chickenpox (varicella) is an infectious disease • caused by the varicella-zoster virus that goes away on its own. Infection spreads among humans through fluids from the airways, such as from coughing and sneezing, with non-infected household members at high risk of becoming infected as well. The incubation period is 14–16 days, and the first sign of disease is a rash. People are considered contagious for 2–5 days before the onset of skin lesions and for 6 days after the last series of rashes have appeared.



- The most common complication is infection of lesions with bacteria. Children who have weak immune systems, eczema, or recent sunburns have more severe symptoms. Because the virus remains resting (latent) in the parts of nerves that are near the spinal cord (nerve roots) for life, about 1 in 10 adults will get shingles (zoster) when the virus reappears, usually under conditions of stress to the body.
- After having chickenpox, a person is usually immune for life, although reinfection is possible.

- Who's At Risk
- Chickenpox occurs most commonly in children under 10. Those under 1 year of age (whose mothers have had chickenpox before) are not usually infected, as they still have some immunity from their mother's antibodies, which were transferred to them before birth.

The chickenpox vaccine has been part of routine childhood vaccinations (at age 12–18 months) since 1995, but many children have still not been vaccinated. About 85% of children who have been vaccinated avoid infection, but even if they do show symptoms, they are generally mild. Most infections occur from March to May

- Signs and Symptoms
- Most children act sick with fever and vague symptoms (loss of appetite, headache, belly ache) for 1–2 days before they start to break out with a rash. These symptoms last for 2–4 days after the rash appears.

An early pink-to-red, flat, small spot rapidly becomes bumpy and then blisters with a surrounding halo of redness. The spots usually appear first on the trunk or scalp. Linings of body cavities, such as the mouth or nose (mucous membranes), palms, and soles, can have a few lesions. The average child develops a few hundred blisters, most of which heal without leaving scars. A child who has had the chickenpox vaccine will have far fewer lesions.

The blister is usually described as looking like a dewdrop on a rose petal. The blister area (vesicle) is thin-walled and easily broken. Blisters become cloudy and then crust over, with healing completed within 1–3 weeks. Lesions often occur in 3 or more successive series (crops). Lesions in different stages of development may occur at the same time. •

- Self-Care Guidelines
- Since the illness resolves on its own after 1–3 weeks, it is most important to keep the child comfortable and to discourage scratching, which can cause infection and scars.

For itching:

- Oatmeal baths in lukewarm water
- Oral antihistamines (diphenhydramine, chlorpheniramine)
- Clip the child's fingernails
- Apply calamine lotion
- DO NOT USE lotions containing antihistamines or lidocaine, as they are no more effective than the previous measures and might cause allergic reactions later on.

- For pain and fever:
- DO NOT USE aspirin. Use acetaminophen or ibuprofen instead.
- Because chickenpox is highly contagious, keep the child at home and resting until symptoms are gone and all blisters are dried up. Avoid any contact between your child and pregnant women who have never had chickenpox, newborns, or people who have a weak immune system or eczema. Once all the blisters have dried up into scabs, the child is not considered contagious to others.
- When to Seek Medical Care

Most infections do not require treatment. •

If there are adults or teens in the household who have never had chickenpox or people with eczema, asthma, or a weakened immune system, have them contact their doctor, as they may require antiviral medication. This usually needs to be done early (during the first day of the rash).

- Call your child's doctor if:
- He or she has eczema, asthma, or a weakened immune system.
- The fever lasts more than 4 days or exceeds 102 degrees Fahrenheit.
- Any rash areas look red, swollen, and leak pus.
- He or she has a severe cough, vomiting, headache, drowsiness, confusion, stiff neck, trouble looking at bright lights, or difficulty walking or breathing.
- Treatments :
- Antiviral medication may be given if the child is seen early (during the first day of the rash) for children at higher risk for more severe chickenpox infection (those with asthma, eczema, recent sunburn, children taking aspirin or corticosteroids on a regular basis, and those with weak immune systems).



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# Scarlet Fever

Scarlet fever is an infection with a type of • bacteria called *Streptococcus*, which not only causes a throat infection , but also produces a poison (toxin) causing the distinctive rash of scarlet fever. Some people are more sensitive to the toxin than others, so not everyone in a family who is infected will have the rash, even if they have the throat infection. Sometimes the area of infection is the skin rather than the throat, a condition called impetigo.

- Who's At Risk
- Scarlet fever is rare in children under the age of 2, because substances from the mother's immune system (antibodies) protect the child up to that age.
- The peak ages for infection are 4–8 years. By age 10, most children have developed their own immunity to the toxin.
- Because infection is spread by fluids from the airways (respiratory secretions), infection rates are higher in crowded situations.
- Scarlet fever is contagious to people who come into close contact with an infected child.

Complications are rare but can include deeper tissue infections, rheumatic fever, and kidney disease.

- Signs and Symptoms
- Scarlet fever is accompanied by a sandpaper-like rash of 1–2 mm red bumps, which merge together, starting on the neck, then moving to the trunk, and finally to the arms and legs . It is sometimes a bit itchy. If scarlet fever develops on body creases (armpits, elbow folds), red streaks may appear.  
Fever, chills, body aches, nausea, vomiting, and loss of appetite may occur.

When the throat is the main area of infection, the tonsils may become enlarged, red, and tender. Other areas (lymph nodes) in the neck may become swollen. At first, the tongue has a white coating, giving a "white strawberry" tongue appearance, which then falls off (sheds) to reveal a bright red strawberry tongue. The rash does not affect the palms and soles at first, but later on, these areas may peel. The rash usually lasts for 4–5 days, and as it fades, skin on the neck and face start to peel, and eventually the hands and feet start to peel as well.

- Self-Care Guidelines
- It is difficult to avoid infection of others who are not immune in the household. However, you might try to:
- Keep eating and clothing items used by an ill child away from other people, and wash them in hot soapy water.
- The child's caregivers should wash their hands frequently.
- Keep the child comfortable with acetaminophen or ibuprofen for fever relief.
- Have your child eat soft foods, drink plenty of liquids, and apply lotions such as calamine for itching, if needed.

- When to Seek Medical Care
- Call your child's doctor if you suspect that the child may have scarlet fever.
- The doctor will usually do a throat or skin culture or a rapid-strep test to confirm the diagnosis. If *Streptococcus* infection is confirmed, prescription antibiotics are will be prescribed, to be taken for about 10 days.



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# German Measles

German measles (rubella) is caused by the rubella virus and spreads among humans through contact with fluids in the respiratory tract. The development (incubation) period of German measles is 14–21 days before starting to feel ill, and a rash accompanied by fever appears 1–7 days later. German measles occurs more commonly in the spring and summer months. Even in a person with a weak immune system, German measles is usually a mild illness. However, if a pregnant woman becomes infected, German measles can cause severe damage to the unborn baby •

- Who's At Risk
- There is a higher incidence of German measles in people who are in confined situations such as military bases and schools. Most infections seen in the US occur in young adults who have not been vaccinated.

- Signs and Symptoms
- Your child may develop irritability, fatigue, headache, fever, and minor respiratory symptoms 1–7 days before the rash appears. Areas in the neck and other areas (lymph nodes) may become swollen.
- Children may have pain when trying to move their eyes side to side (lateral movement) or upward.
- Pink, flat spots begin to appear on the face. Within one day, the rash fades from the face and spreads to the trunk and extremities.

- The pink, flat spots (macules) merge together on the trunk but remain separated (discrete) on the extremities.
- Peeling often occurs later in the rash areas.
- The rash may itch, and it is usually gone in about 3 days. As many as 25% of outbreaks may have no rash.
- The affected child is contagious to others from a week before to a week after the rash appears.

- Self-Care Guidelines
- German measles is generally mild, and an affected child can be cared for at home.
- To relieve discomfort and fever, give the child acetaminophen or ibuprofen.
- Avoid contact between the child and any woman who might be pregnant. If there is contact, tell the woman to call her doctor for advice.

- When to Seek Medical Care
- If your child has a fever over 102 degrees Fahrenheit or if the child appears very ill, call the doctor.



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# Scabies

Scabies is an itchy skin condition caused by a tiny mite called *Sarcoptes scabiei* that can live and multiply on skin. Scabies is passed between people by prolonged skin-to-skin contact. Scabies is extremely contagious and spreads rapidly in crowded conditions such as hospitals, nursing homes, child-care facilities .

The itchy rash of scabies develops when a pregnant female mite burrows into the outer surface (superficial) skin and lays eggs. The human immune system is highly sensitive to the presence of the mite and produces a massive allergic response, which causes intense itching. Although a typical infection includes only 10–20 mites, people are so sensitive to the mite that hundreds of itchy skin lesions are created. Without treatment, the condition will not usually improve.

- Who's At Risk
- Scabies is seen in people of all races, of all ages, and of both sexes.

Scabies is not caused by lack of personal hygiene, though it is more frequently seen in people who live in crowded conditions.

Other individuals at risk include:

- Children
- Mothers of young children
- Sexually active young adults
- People living in nursing homes
- Nursing home staff

- Signs and Symptoms
- Although the entire body may itch, the most common locations for the lesions of scabies in older children and adults include:
  - The areas between the fingers (finger webs)
  - Inner wrists, inner elbows, and armpits
  - Breasts of females and genitalia of males
  - Navel (umbilicus)
  - Lower abdomen
  - Buttocks
  - Backs of knees
- In young children, the lesions of scabies are most commonly seen on the:
  - Trunk, arms, and legs
  - Head and neck
  - Palms of the hands and soles of the feet

- The most obvious signs of scabies are pink-to-red bumps, which can look like pimples or bug bites; because of scratching, they may be scabbed. However, the tell-tale lesion of scabies is the burrow, which is small, subtle, and difficult to detect. Typically, a burrow appears as a fine, thread-like, scaly line (3–10 mm long), sometimes with a tiny black speck (the burrowing mite) at one end. A 2- or 3-power magnifying glass can help when looking for burrows.

Scabies is intensely itchy, especially at night. •  
Scratching the itchy lesions can create breaks in the skin, and these breaks can become infected with bacteria.

People who are exposed to scabies may not develop itchy lesions for up to 6 weeks after becoming infested, as the immune system takes some time to recognize the mites and develop an allergic response to them. However, individuals who have had scabies before may develop the rash within several days of re-exposure.

- Self-Care Guidelines
- Though scabies is extremely contagious, it usually requires prolonged skin-to-skin contact with a person already infested. A quick handshake or hug will not normally spread the infection. However, scabies is easily spread to sexual partners and to other members of the household. Less commonly, it may be spread by sharing towels, clothing, or bedding.

Scabies requires prescription medication in order to stop the infestation. Once your child is under a doctor's care, there are steps you can take to prevent scabies from coming back:

- Mites cannot survive off the human body for more than 48–71 hours. Therefore, wash all clothing, bedding, and towels used by the infested person in the previous 72 hours in hot water and dry these items in a hot dryer.
- Vacuum all carpets, rugs, and upholstered furniture, and discard the vacuum bags.



- When to Seek Medical Care

See your child's doctor for evaluation if he or she develops an extremely itchy rash. If other members of the household or your child's close contacts have similar itchy rashes, make sure they are also evaluated by a physician •

- Treatments :
- The physician may be able to diagnose scabies simply by examining your child's skin for typical lesions such as burrows. A skin scraping, called a scabies preparation, may be examined under the microscope for mites, eggs, or mite droppings (feces).

In most cases of scabies, the doctor may recommend a topical cream or lotion, such as:

- Permethrin cream – Apply at night, and rinse off in the morning. Use the permethrin cream again in 1 week.
- Crotamiton cream – Apply once daily for 2 consecutive days, and rinse off 48 hours after last application.
- Sulfur ointment – Apply nightly for 3 consecutive nights, and rinse off 24 hours after last application. This is often the best choice for babies and for pregnant and nursing women because it is very safe to use.

- When using a topical cream, lotion, or ointment, be sure to follow these steps :
- Apply to the entire body from the neck down.
- Smear the product beneath your child's fingernails and toenails.
- Apply to body folds, including inside the navel, in the buttock crease, and between the toes.

- For more severe scabies, your child's doctor may prescribe oral medications:
- Ivermectin pills – Take once and then repeat 1–2 weeks later. Ivermectin should not be used for children aged younger than 5 years or who weigh less than 15 kg , or pregnant or lactating women.
- Antihistamine pill.
- Antibiotic pills – If any scratched areas appear to be infected with bacteria, your physician may prescribe oral antibiotics.
- Itching may take up to 3 weeks to go away, as your child's immune system continues to react to dead mites. However, new burrows and rashes should stop appearing 48 hours after effective treatment.

Your doctor should remind you to launder towels, bed linens, and clothes used by your child in the previous 72 hours and to vacuum carpets, rugs, and upholstered furniture. •

Household members, sexual partners, and anyone else with prolonged skin-to-skin contact with an infested person should also seek treatment from their doctors. Since the initial development (incubation time) for scabies infestations can be from 6–8 weeks, people may be infected with scabies, but since they do not yet feel itchy, they are unaware that they have infestation. If untreated, these close contacts could pass the mites back to your child. Ideally, everyone should be treated at the same time in order to prevent re-infestation.



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