CONDITION

Infants coronavirus (COVID-19) in children

COVID-19 in infants and children is a viral infection that usually causes mild respiratory symptoms but can sometimes become serious.

WHAT IT IS
Coronavirus infection affecting infants and children

BODY SYSTEM
Airways and lungs, sometimes multiple organs

MAIN SYMPTOMS
Fever, cough, tiredness, runny nose

WHAT CAUSES IT
Infection with the SARS-CoV-2 virus

HOW IT IS DIAGNOSED
Rapid antigen or laboratory viral testing

MAIN TREATMENT
Supportive care, with antivirals for selected children

CAN IT BE CURED?
Sometimes - most infections resolve; symptoms may persist

IS IT AN EMERGENCY?
Sometimes - breathing difficulty requires urgent care

LONG-TERM OUTLOOK
Most children recover fully within several weeks

Overview

COVID-19 is an infection caused by a coronavirus called SARS-CoV-2. It can affect people of any age, including newborn babies, infants and older children.

Most children have mild symptoms or no symptoms. Their illness may look like a cold, flu, croup or stomach infection. However, some children become seriously unwell, especially babies and children with certain medical conditions.

COVID-19 matters because it can occasionally cause pneumonia, dehydration or other complications. A rare inflammatory condition called multisystem inflammatory syndrome in children, or MIS-C, can develop after infection. Some children also have symptoms that continue for weeks or months, often called long COVID.

Symptoms alone cannot reliably separate COVID-19 from flu, respiratory syncytial virus (RSV) or other infections. Testing may be useful when the result could affect treatment, contact with vulnerable people, or attendance at childcare or school.

Symptoms

Symptoms usually begin after contact with someone carrying the virus. A child can spread the virus before symptoms appear, while unwell and sometimes after feeling better.

Common symptoms include:

Babies cannot describe headache, loss of smell or other symptoms. Signs in an infant may include poor feeding, unusual sleepiness, irritability or fewer wet nappies. Fever may be the only obvious symptom.

Some children have no symptoms. Others become more unwell after several days, so pay attention to changes in breathing, alertness, drinking and urine output.

Long COVID refers to symptoms that continue or develop after the initial infection. Possible symptoms include tiredness, headache, poor concentration, sleep problems, shortness of breath, altered smell or taste, and difficulty returning to usual activity. These symptoms can have other causes, so persistent problems need a medical assessment rather than being assumed to be long COVID.

MIS-C usually appears several weeks after infection. It often causes a persistent fever with symptoms such as stomach pain, vomiting, diarrhoea, rash, red eyes or dizziness. It needs prompt medical evaluation.

- Fever or chills
- Cough, sore throat or a runny nose
- Tiredness, headache or muscle aches
- Reduced appetite
- Nausea, vomiting, diarrhoea or stomach pain
- A change in smell or taste
- Wheezing, noisy breathing or a hoarse, barking cough

Causes and risk factors

COVID-19 spreads mainly through virus-containing particles released when an infected person

breathes, speaks, coughs or sneezes. Infection is more likely during close or prolonged contact, particularly in crowded indoor places with poor airflow.

Children may catch COVID-19 from family members, other children or adults in childcare, school and community settings. A person can spread the virus even if their symptoms are mild.

Any child can become infected. Factors linked with a greater chance of severe illness include:

A risk factor does not mean a child will become seriously ill. Most children, including many with underlying conditions, recover without hospital treatment.

Previous infection does not provide complete or permanent protection. Reinfection can occur because immune protection reduces over time and the virus continues to change.

- Being a young infant, particularly during the first months of life
- Premature birth
- Significant heart, lung or nervous system conditions
- A weakened immune system
- Obesity in older children
- Having more than one long-term medical condition

Diagnosis

A healthcare professional may suspect COVID-19 from symptoms, recent exposure and local infection levels. A viral test is needed to confirm that SARS-CoV-2 is present.

Rapid antigen tests can be used at home or in healthcare settings. They provide quick results but may miss an infection, especially early in the illness. A negative result does not always rule out COVID-19. Follow the test instructions about whether and when to repeat it.

Laboratory tests called nucleic acid amplification tests, including PCR tests, detect genetic material from the virus. They are generally more sensitive than rapid antigen tests. A sample is usually collected from the nose or throat.

Chest X-rays and blood tests are not routinely needed for a child with mild illness. They may be used in hospital to assess breathing problems, inflammation, dehydration or possible complications.

MIS-C is diagnosed from the overall pattern of fever, examination findings, blood tests and evidence of current or recent SARS-CoV-2 infection. Doctors also check for other conditions that could explain the symptoms.

Treatment and management

Most children can recover at home with rest, fluids and observation. Offer babies regular breast or formula feeds. Older children can take frequent small drinks if they do not feel able to drink a full cup at once.

Medicines for pain or fever may make a child more comfortable. Use only a product suitable for the child's age and weight, and follow its label or advice from a pharmacist or healthcare professional. Do not give aspirin to a child unless it has been specifically prescribed.

Check before giving an infant or young child an over-the-counter cough or cold medicine. Many products have age restrictions, and some contain several ingredients that can accidentally be duplicated.

Antibiotics like amoxicillin or doxycycline do not treat COVID-19 because antibiotics work against bacteria, not viruses. They may be prescribed if a separate bacterial infection is found.

Antiviral medicines may be considered for some children at increased risk of severe illness. Eligibility depends on factors such as age, weight, medical history, current medicines and how recently symptoms began. Some treatments are given by mouth and others through a vein. They are not needed by most children.

Children admitted to hospital may receive oxygen, fluids or other support. Medicines that reduce inflammation may be used for severe COVID-19 or MIS-C under specialist supervision. Steroids like prednisone or hydrocortisone are not a routine home treatment for mild COVID-19.

Do not use unapproved or veterinary products to treat COVID-19. Products promoted online may be ineffective, interact with other medicines or cause harm.

Complications

Possible complications during the infection include dehydration, pneumonia, worsening asthma, croup and low blood oxygen. Febrile seizures can occur in some young children with fever. Although frightening to witness, many are brief, but a first seizure or a seizure lasting several minutes needs emergency assessment.

Severe COVID-19 can affect the heart, brain, kidneys or blood-clotting system, but this is uncommon in children.

MIS-C is a rare but serious complication involving widespread inflammation. It can affect the heart and circulation as well as the digestive system, skin and eyes. Most children improve with hospital treatment, but early assessment is important.

Long COVID can affect sleep, school attendance, physical activity and concentration. The symptoms may improve gradually, fluctuate or occasionally last for many months. Other explanations, including anaemia, asthma, sleep difficulties and the effects of another infection, may need to be considered.

Prevention

COVID-19 cannot always be prevented. People can spread it without knowing they are infected, and protection from vaccination or previous infection is not complete.

Vaccination can reduce the chance of severe illness. COVID-19 vaccine schedules differ by country and may change as updated vaccines become available. Where vaccination is offered, follow the current advice for your child's age and medical history. Vaccination during pregnancy may also provide a young baby with some temporary protection through transferred antibodies.

Practical ways to reduce spread include:

A well-fitting mask may reduce spread when an older child can wear it safely. Do not put a mask on a child younger than 2 years because of suffocation risk.

Breastfeeding can usually continue if a parent has COVID-19. Hand hygiene and other reasonable precautions can reduce transmission. Breast milk itself provides nutrition and immune protection.

- Keeping a child away from others while they are acutely unwell
- Improving indoor airflow by opening windows when practical
- Washing hands after coughing, sneezing or wiping a child's nose
- Covering coughs and sneezes with a tissue or elbow
- Avoiding close contact with people at high risk while symptoms continue
- Following local advice about testing, masks, childcare and school attendance

Living with it and what to expect

Most children improve over several days and recover within a few weeks. Fever often settles before cough or tiredness. A mild cough may continue after the child is otherwise well.

During recovery, encourage sleep, fluids and a gradual return to normal activity. A child does not need strict bed rest if they feel able to play quietly. Older children may need a slower return

to sport if they have been very tired, had breathing symptoms or were admitted to hospital.

Follow local rules for returning to childcare or school. In general, a child should be well enough to participate, have improving symptoms and no longer have a fever without fever-reducing medicine. Extra precautions may be appropriate around medically vulnerable people.

COVID-19 can happen more than once. Later infections may be milder or more severe, so previous illness should not be used to predict exactly what will happen next.

Arrange routine follow-up if tiredness, breathlessness, headaches, altered smell, poor concentration or other symptoms continue for several weeks. Follow-up may include checking sleep, nutrition, school participation, breathing and emotional wellbeing. Recovery from persistent symptoms is not always steady; better and worse days can occur.

When to get medical help

Call emergency services if a child has:

Seek urgent same-day medical advice if a baby younger than 3 months has a temperature of 38°C or higher. Young babies can become unwell quickly, even when the cause is not COVID-19.

Also seek prompt advice if a child is breathing faster or working harder to breathe, is drinking much less, has fewer wet nappies, repeatedly vomits, has a persistent fever, or is getting worse rather than better. Contact the child's medical team early if they have a condition that increases their risk of severe illness.

Persistent fever with stomach pain, vomiting, rash, red eyes, dizziness or unusual sleepiness in the weeks after COVID-19 could suggest MIS-C. Seek urgent assessment. Severe breathing difficulty, confusion or collapse remains an emergency.

Routine medical follow-up is appropriate when symptoms continue beyond several weeks, interfere with school or activity, or repeatedly return.

- Severe difficulty breathing, gasping or pauses in breathing
- Blue, grey or very pale lips, skin or tongue
- Severe chest pain
- A seizure that lasts several minutes or repeated seizures
- Extreme drowsiness, confusion or difficulty waking
- Signs of shock, such as cold mottled skin with marked weakness

- A collapse or loss of consciousness

Common questions

Is COVID-19 dangerous for babies?

Most babies recover, but infants have a higher risk of hospital care than older children. Seek advice promptly for fever in a baby younger than 3 months, poor feeding, reduced urine, unusual sleepiness or breathing difficulty.

How can I tell COVID-19 from RSV, flu or a cold?

You usually cannot tell from symptoms alone. These infections can all cause fever, cough, congestion and poor feeding. A viral test may identify COVID-19, while medical assessment may be needed if the child has breathing or hydration problems.

How long is a child contagious?

A child is usually most infectious around the start of symptoms and during the first few days of illness, but the exact period is not the same for everyone. Follow current local guidance and avoid close contact with vulnerable people while the child has fever or worsening respiratory symptoms.

Can my child get COVID-19 again?

Yes. Reinfection can happen because immunity reduces over time and new virus variants appear. Previous infection may provide some protection against severe illness, but it does not guarantee that later infections will be mild.

Can I breastfeed if I have COVID-19?

Breastfeeding can usually continue. Wash your hands before touching the baby or feeding equipment, and follow local advice about reducing respiratory spread. Ask for help if illness makes feeding difficult or the baby is not feeding normally.

Should my child be vaccinated after having COVID-19?

Previous infection does not provide complete long-term protection. Vaccination may still be recommended, but the schedule and timing depend on current national guidance, age and medical history.

Sources



- Centers for Disease Control and Prevention. Information for Pediatric Healthcare Providers: COVID-19 Clinical Care
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- National Institute for Health and Care Excellence. COVID-19 Rapid Guideline: Managing COVID-19 (NG191)
- World Health Organization. Clinical Management of COVID-19: Living Guideline
- US Food and Drug Administration. COVID-19 Treatment Basics