

Mis C

A plain-English guide for you and your family

WHAT IS HAPPENING

MIS-C stands for Multisystem Inflammatory Syndrome in Children. It happens when a child's immune system, which normally fights germs, keeps firing even after COVID-19 is gone. Instead of calming down, the immune cells attack the child's own blood vessels, heart, gut, and skin. Think of it like a fire alarm that won't turn off even after the smoke clears. Most kids get MIS-C two to six weeks after a COVID infection—sometimes so mild the family didn't even know the child had it. The main signs are high fever that won't quit, belly pain, vomiting, diarrhea, red eyes, a rash, and swollen hands or feet. The real danger is that the immune attack weakens the heart so it can't pump well, leaks fluid out of blood vessels so pressure drops, and the body goes into shock. Some children also develop bulges in the heart's fuel lines—the coronary arteries—that can lead to clots or heart attacks later. The good news: catching it early and cooling the immune fire with intravenous immunoglobulin (IVIG, a medicine made from antibodies) and steroids can stop the damage and most kids recover fully.

What you might feel

- Fever lasting 24 hours or longer (100.4°F / 38°C or higher)
- Belly pain, diarrhea, or throwing up
- Red, bloodshot eyes without pus (conjunctivitis)
- Skin rash or bright red, cracked lips and tongue (strawberry tongue)
- Swollen hands and feet
- Fast heart rate (tachycardia) or chest pain
- Swollen lymph nodes in the neck
- Trouble breathing or very low blood pressure (shock)
- Feeling very tired, confused, or extremely irritable
- Recent COVID-19 infection or exposure (usually 2–6 weeks before symptoms start)

Call the doctor right away if...

- Chest pain, trouble breathing, or lips/face turning blue—the heart or lungs may be failing.
- Blood pressure dropping (shock): cold hands and feet, confusion, very fast heart rate, or not peeing—the body is not getting enough blood flow.
- Severe belly pain that will not go away—inflammation may be damaging the intestines or other organs.
- New confusion, seizure, or extreme sleepiness—the brain is not getting enough oxygen or is being affected by the inflammation.
- Swelling or bulging of a blood vessel in the heart (coronary artery aneurysm)—a dangerous complication that can lead to a heart attack even in a child.

What the care team will do

- Check blood pressure, heart rate, capillary refill (how fast skin color returns after pressing a fingernail), and urine output every 1 to 2 hours
- Place the child on continuous cardiac monitoring (heart monitor showing rhythm on screen) and watch for arrhythmias (abnormal heart beats) or ST-segment changes on the ECG (electrical tracing of heart)
- Measure strict intake and output, weighing every diaper or using a urometer (urine measuring chamber), and report urine less than 1 milliliter per kilogram per hour
- Give IVIG slowly over 10 to 12 hours through a dedicated IV line, checking vital signs every 15 minutes for the first hour, and watch for headache, chills, or back pain
- Assess for new chest pain, shortness of breath, or decreased oxygen saturation below 92 percent, and notify the provider immediately if any appear
- Do not give NSAIDs like ibuprofen until after the echocardiogram and cardiology team approves
- Check inflammatory markers (CRP, ESR, ferritin, D-dimer) and cardiac enzymes (troponin, BNP) when ordered, and track if numbers are going down after treatment starts
- Teach family that MIS-C is not contagious now, the child needs 4 to 6 weeks of heart activity restrictions, and cardiology follow-up appointments are required even if the child feels better

Medicines you may be given — and why

Intravenous Immunoglobulin (IVIG)

IVIG is a mix of antibodies (germ-fighting proteins) collected from thousands of healthy donors. When given through an IV, these antibodies flood the bloodstream and calm down the immune

system that has gone haywire. They block the harmful antibodies the child's own body is making, they soak up inflammatory signals like sponges, and they tell white blood cells to stop attacking the body's own tissues. This cools the fierce swelling in blood vessels, the heart, and other organs that MIS-C causes.

Methylprednisolone

Methylprednisolone is a strong steroid medicine that mimics cortisol, the body's own 'calm-down' hormone. It shuts off the genes inside immune cells that make inflammatory proteins (cytokines), and it tells those cells to stop multiplying and releasing their attack chemicals. This cools the runaway inflammation in MIS-C, especially when IVIG alone is not enough or when the child has very severe disease with shock or heart problems.

Aspirin (low-dose)

Low-dose aspirin (typically 3 to 5 mg per kg per day) stops platelets (tiny blood cells that form clots) from sticking together. It does this by blocking an enzyme inside platelets called COX-1, which normally makes a chemical (thromboxane A2) that tells platelets to clump. By preventing clumping, aspirin reduces the risk of dangerous clots forming in inflamed blood vessels, especially the coronary arteries that feed the heart. In MIS-C, inflammation can damage the lining of blood vessels and make clots more likely, so this protection is critical.

Aspirin (high-dose)

High-dose aspirin (typically 30 to 50 mg per kg per day, divided into four doses) works in two ways. First, it blocks the COX enzymes in many cells, which cuts down production of prostaglandins (chemicals that cause fever, pain, and swelling). This cools inflammation throughout the body. Second, it still prevents platelets from clumping, just as low-dose aspirin does. High-dose aspirin is used when MIS-C looks very much like Kawasaki disease (another condition with severe blood vessel inflammation and risk of coronary artery aneurysms) or when inflammation is especially fierce.

Enoxaparin

Enoxaparin is a blood thinner given by injection under the skin. It works by boosting a natural protein in the blood called antithrombin, which then blocks several clotting factors (especially Factor Xa) in the clotting cascade. This stops the blood from forming large, dangerous clots. In MIS-C, if a child has very severe inflammation, thick blood, or already has clots in blood vessels or the heart, enoxaparin provides stronger clot prevention than aspirin alone. It is often used in the ICU when a child has poor heart function or evidence of clots on imaging.

Anakinra

Anakinra is a synthetic copy of a natural protein that blocks the receptor for interleukin-1 (IL-1), a powerful inflammatory messenger chemical (cytokine). In MIS-C, immune cells are

churning out huge amounts of IL-1, which drives fever, swelling, and tissue damage. Anakinra acts like a 'decoy key' that fills up the IL-1 receptors on cells so the real IL-1 cannot plug in. With IL-1 blocked, the inflammatory cascade cools down. Anakinra is used when IVIG and steroids are not enough or when the child is still very sick despite initial treatment.

Infliximab

Infliximab is a laboratory-made antibody that binds to and neutralizes tumor tissue death (necrosis) factor-alpha (TNF-alpha), a key inflammatory messenger chemical (cytokine) that drives swelling, fever, and tissue damage. In MIS-C, immune cells release floods of TNF-alpha, which tells blood vessels to leak, organs to swell, and the heart to struggle. Infliximab acts like a sponge that soaks up TNF-alpha before it can plug into receptors on cells and trigger inflammation. It is used when IVIG and steroids are not enough or when the child is still critically ill despite other treatments.

Where this information comes from

- CDC Health Alert Network (HAN) on MIS-C
- American Academy of Pediatrics (AAP) interim guidance on MIS-C
- American College of Rheumatology (ACR) 2020–2022 clinical guidance for MIS-C
- New England Journal of Medicine (NEJM) case series and reviews on MIS-C

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