

Gastroenteritis and Dehydration

A plain-English guide for you and your family

WHAT IS HAPPENING

Gastroenteritis means the stomach and intestines get inflamed by a germ—usually a virus like rotavirus or norovirus, sometimes bacteria like Salmonella, Shigella, Campylobacter, E. coli, or C. difficile, and rarely a parasite like Giardia. The inflamed gut lining leaks extra water and salt into the intestines and squeezes them hard, pushing everything out as vomiting and watery diarrhea. This pours fluid out of the body fast. When too much water leaves, the blood volume drops—that is dehydration. The heart then struggles to pump enough blood to the brain, kidneys, and other organs. Young children dehydrate faster than adults because their bodies hold less water to start with. The body fights back by speeding up the heart, tightening blood vessels to send blood to the brain and heart first, and slowing down pee to save water—so you see dry lips, sunken eyes, fast pulse, cold hands and feet, and dark or no urine. Most cases clear in three to seven days as the immune system kills the germ and gut swelling goes down. The treatment is simple: replace lost water and salt by mouth with oral rehydration solution, or through an IV if the child cannot drink. Antibiotics do not help viruses and can make some bacterial infections (like E. coli O157) worse, so they are used only for specific bacteria confirmed by stool tests. The danger is missing severe dehydration before it tips into shock—when blood pressure falls, organs fail, and the window to save the child closes fast.

What you might feel

- Watery diarrhea (loose, runny poop)
- Vomiting (throwing up)
- Belly cramps or pain
- Dry mouth and lips
- Sunken eyes
- Decreased urination (less pee or no wet diapers)
- Slow capillary refill (skin color takes longer than 2 seconds to come back after you press it)
- Fever (body temperature above normal)
- Blood or mucus in stool (slimy or bloody poop)

Call the doctor right away if...

- Blood in the stool or black, tarry poop
- No tears when crying, no urine for 6-8 hours, or sunken soft spot on baby's head
- Extreme sleepiness, confusion, or the child is too weak to stand or drink
- Severe belly pain that does not go away or gets worse
- High fever (over 102°F or 39°C in infants under 3 months, or over 104°F or 40°C in older children)

What the care team will do

- Assess dehydration status using the WHO or CDC clinical dehydration scale: check capillary refill (how fast blood comes back when you press skin), skin turgor (skin elasticity), mucous membranes (wet or dry inside mouth), tears, and urine output
- Obtain accurate weight in kilograms on the same scale before and after rehydration
- Start oral rehydration therapy with WHO ORS solution: give 50-100 mL/kg over 2-4 hours for mild-to-moderate dehydration, offering small frequent sips every 5 minutes
- Monitor intake and output strictly: record every episode of vomiting and diarrhea, all oral fluids given, IV fluids infused, and urine output every void
- Check vital signs every 2-4 hours: heart rate, blood pressure, temperature, and respiratory rate; watch for a fast heart rate (tachycardia) (fast heart) and low blood pressure (hypotension) (low blood pressure)
- Inspect every stool for blood, mucus, color, and consistency; save a sample if blood is present or if the child appears septic
- Watch for signs of destroying red blood cells (hemolytic) uremic syndrome (HUS): decreased urine output, pale skin (pallor) (pale skin), pinpoint bleeding spots (petechiae) (tiny red dots on skin), or sudden worsening after initial improvement, especially after E. coli O157 infection
- Teach caregivers strict hand hygiene with soap and water for 20 seconds after diaper changes and before food preparation; isolate the child from other children and immunocompromised family members

Medicines you may be given — and why

Oral rehydration solution (ORS)

ORS is special salt water that fixes dehydration (when the body runs too low on water and minerals). It gives back the exact mix of sodium (salt), potassium (a mineral that keeps the heart steady), glucose (sugar), and chloride (another salt) that the intestine can grab quickly.

The glucose in ORS helps the gut absorb sodium faster — they work like a team — so water follows them into the bloodstream instead of staying in the toilet bowl.

Intravenous (IV) fluids — normal saline or lactated Ringer's solution

IV fluids are salt water given directly into a vein when the gut cannot handle ORS (because of severe vomiting, extreme dehydration, or the child being too weak to drink). The fluid goes straight into the bloodstream and fills the tank back up fast. Normal saline is salt water that matches blood salt levels. Lactated Ringer's also has potassium, calcium, and lactate (a chemical the liver turns into energy and uses to balance acid levels).

Ondansetron

Ondansetron stops vomiting by blocking serotonin (a chemical messenger) from triggering the vomit center in the brainstem (the bottom part of the brain that runs automatic body jobs like breathing and throwing up). When the gut is irritated by infection, it releases serotonin, which sends a signal to the brainstem saying 'throw up now.' Ondansetron sits on the serotonin doors (5-HT₃ receptors) and blocks the signal, so the vomit reflex does not fire.

Azithromycin

Azithromycin kills certain bacteria by sneaking into the bacterial cell and jamming the ribosome (the bacteria's protein factory). Without new proteins, the bacteria cannot grow, repair itself, or multiply, so it dies. Azithromycin is used **ONLY** when a specific harmful bacterium is proven or very likely — for example, Shigella (causes bloody diarrhea and fever), severe Campylobacter (another bloody-diarrhea germ), or traveler's diarrhea from toxigenic E. coli in a sick child. Most gastroenteritis is viral and does **NOT** need antibiotics.

Loperamide (in adults only)

Loperamide slows down the gut by activating opioid receptors (tiny docking stations) in the intestine wall. When these receptors turn on, the muscles in the gut relax and squeeze less often, so food and water sit longer and more water gets absorbed back into the body. Stool becomes firmer and you go to the bathroom less. Loperamide is used **ONLY** in adults with watery (not bloody) diarrhea and **NO** fever, because slowing the gut when bacteria are invading can trap the germs inside and make infection worse.

Zinc supplementation (in children 6 months and older)

Zinc is a mineral that helps the gut lining repair itself faster after an infection damages it. It also boosts the immune system (the body's germ-fighting team) and may reduce how much water leaks out into the stool. Giving zinc for 10–14 days during and after diarrhea has been shown in studies (especially in low-resource countries) to shorten how long diarrhea lasts and lower the chance of another episode in the next few months. Zinc does **NOT** kill the germ; it helps the body heal and defend itself.

Where this information comes from

- CDC Guidelines for Acute Gastroenteritis
- IDSA Clinical Practice Guidelines for Infectious Diarrhea 2017
- WHO Guidelines for Diarrhea Management in Children
- AAP (American Academy of Pediatrics) Dehydration and Diarrhea Recommendations

Last reviewed: 2026-07-07