

C · C Difficile Infection

C. difficile infection is colon swelling caused by a bacterial toxin that gets out of control after antibiotics clear the way.

THE ONE-LINE TRUTH

C. difficile takes over the colon when antibiotics kill the good bacteria that normally keep it in check.

The chain — how it unfolds

1. Antibiotics kill the protective bacterial crowd in the colon — why: Broad-spectrum antibiotics wipe out many species of good bacteria that normally take up all the space and nutrients, leaving the colon open and vulnerable.
2. C. difficile spores wake up and multiply wildly — why: With the competition gone, dormant C. difficile spores sprout into active bacteria, divide rapidly, and form a thick carpet on the colon lining—now there is no one to stop them.
3. The bacteria release toxin A and toxin B into the colon — why: These two toxins are the weapons—they bind to the cells lining the colon, break open the cell skeleton, kill the cells, and rip apart the seals between cells.
4. The colon lining leaks fluid, causing watery diarrhea — why: With the barrier broken, water and salt pour from the blood into the colon and come out as watery, foul-smelling diarrhea—sometimes ten to twenty bowel movements a day.
5. White blood cells flood the colon and bloodstream, causing fever and high WBC count — why: The immune system detects dying cells and toxins, so it sends waves of white blood cells to fight—this triggers fever (the thermostat goes up to help immune cells) and raises the white blood cell count in the blood, sometimes to 20,000 or 30,000 (normal is 4,000–11,000).
6. The belly becomes tender and crampy — why: Inflammation stretches and irritates the colon wall and the lining of the belly cavity (peritoneum), sending sharp pain signals with every wave of muscle contraction.

7. In severe cases, the colon swells huge (toxic megacolon) or tears open (perforation) — why: When toxin damage is overwhelming, the colon muscle stops working (ileus), gas and fluid build up inside, the colon stretches to twice normal size, and the thin, damaged wall may tear—spilling bacteria and stool into the belly cavity and bloodstream.
8. Shock, organ failure, and death can follow if untreated — why: Bacteria and toxins in the bloodstream trigger septic shock (blood pressure drops, organs fail), and the body can no longer compensate—this is the final crash point, often requiring emergency surgery to remove the dying colon.

Spot it — what you see, and why

- Watery diarrhea (three or more loose stools in 24 hours): The toxins made by *C. difficile* damage the lining of the colon (large intestine), making it leak water and unable to hold onto stool.
- Cramping belly pain: The colon gets inflamed and irritated from the toxins, causing it to squeeze and spasm, which creates pain.
- Fever (temperature over 100.4°F or 38°C): The body's immune system turns up its temperature to fight the infection, like turning on an alarm to battle the invading bacteria.
- Loss of appetite or nausea: The inflamed gut sends signals to the brain that something is wrong, making you not want to eat and sometimes feel sick to your stomach.
- Blood or pus in the stool: Severe inflammation and damage to the colon lining causes tiny blood vessels to break and white blood cells (pus) to leak into the stool.
- Very high white blood cell count (over 15,000 cells per microliter): The body makes extra white blood cells (infection-fighting cells) when it detects a serious infection, flooding the bloodstream with these defenders.

Red flags — act now

- White blood cell count over 15,000 (sign of severe infection)
- Kidney injury or creatinine rising to 1.5 times baseline (kidneys shutting down from dehydration or toxins)
- Lactate over 2.2 mmol/L (sign the body's tissues aren't getting enough oxygen)
- Severe belly pain, rigid abdomen, or signs the colon might be tearing or bursting
- Low blood pressure or signs of shock (body can't keep blood flowing properly)

Treat it — in this order

1. Stop the offending antibiotic immediately (if still being given) → Removes the trigger that killed the good bacteria. Without antibiotics continuing to suppress them, the good bacteria can start growing back and compete with *C. difficile*, helping push it out.
2. Give oral vancomycin 125 mg four times daily for 10 days (first-line for non-severe to severe infection) → Vancomycin stays in the colon and kills *C. difficile* bacteria directly where they live, stopping new toxin production. The colon lining can then begin to heal.
3. Give oral fidaxomicin 200 mg twice daily for 10 days (alternative first-line; lower recurrence rate) → Kills *C. difficile* like vancomycin but spares more good bacteria, leading to fewer recurrences (15% vs 25% with vancomycin). It is narrow-spectrum, so it does less collateral damage.
4. Add IV metronidazole 500 mg every 8 hours if fulminant disease (ileus, megacolon, low blood pressure (hypotension), or WBC > 25,000) → Reaches the bloodstream and colon wall when the colon is so damaged it cannot move oral medicine through. This provides coverage from the inside out, preventing toxin from entering the bloodstream and causing septic shock.
5. Give IV fluids (normal saline or lactated Ringer's) and replace electrolytes (potassium, magnesium) → Restores blood volume lost in watery diarrhea, keeping blood pressure stable, the heart pumping, and the kidneys filtering. Replaces electrolytes so muscles and nerves can work properly.

Your top priorities at the bedside

1. Place patient on contact precautions with gown and gloves for all room entry, and use soap and water hand hygiene instead of alcohol gel — why: Alcohol hand sanitizer does not kill *C. difficile* spores (dormant bacteria forms); only soap and water physically removes spores from hands and prevents spread to other patients
2. Monitor vital signs every 4 hours and watch for fever over 100.4°F, heart rate over 100, or blood pressure dropping below 90 systolic — why: Fever and fast heart rate signal worsening infection; low blood pressure means the body is going into septic shock from toxins and needs immediate IV fluids and possible ICU transfer
3. Track and document every bowel movement including consistency, amount, and presence of blood or mucus — why: Stool frequency and character show if treatment is working; sudden decrease in diarrhea with worsening belly pain may mean a stalled gut (ileus) (paralyzed bowel) or toxic megacolon, not improvement