CONDITION

Bacterial gastroenteritis

Learn about bacterial gastroenteritis, including symptoms, causes, testing, hydration, treatment, complications, and when to seek medical care.

WHAT IT IS
Bacterial infection of the digestive tract

BODY SYSTEM
Digestive

MAIN SYMPTOMS
Diarrhea, abdominal cramps, nausea or vomiting, fever

WHAT CAUSES IT
Bacterial infection or bacterial toxins

HOW IT IS DIAGNOSED
Stool culture or molecular stool tests

MAIN TREATMENT
Fluid and electrolyte replacement

CAN IT BE CURED?
Sometimes - many infections clear without treatment

IS IT AN EMERGENCY?
Sometimes - severe dehydration or fainting

LONG-TERM OUTLOOK
Most improve but some develop ongoing complications

Overview

Bacterial gastroenteritis is an infection of the digestive tract caused by bacteria or toxins made by bacteria. It can inflame the stomach, small intestine, or colon. The most common symptoms are diarrhea, abdominal cramps, nausea, vomiting, and fever.

People sometimes use the term "food poisoning" for bacterial gastroenteritis. However, contaminated food is only one possible source. Bacteria can also spread through water, contact with animals, travel, or close contact with an infected person.

Some illnesses begin when live bacteria enter and multiply in the intestines. Others are caused by toxins already present in food. Toxin-related illness may begin within hours, while infections can take longer to cause symptoms.

Many cases improve with fluids and time. The main short-term concern is dehydration, which means the body has lost too much water and salt. Certain infections can also cause bloody diarrhea, bloodstream infection, or complications affecting the kidneys, joints, or nervous system. Testing and treatment depend on the symptoms, possible exposure, and the person's overall health.

Symptoms

Symptoms vary with the type of bacteria and the part of the digestive tract affected. They may begin within hours or several days after exposure.

Common symptoms include:

Vomiting may be the main symptom when illness is caused by a toxin in contaminated food. Infections that inflame the colon are more likely to cause fever, painful bowel movements, or bloody diarrhea.

Diarrhea and vomiting can cause dehydration. Early signs include thirst, dry mouth, darker urine, urinating less often, headache, and lightheadedness. Babies may have fewer wet diapers or no tears when crying. Older adults may develop unusual weakness or confusion.

Contact a healthcare professional promptly if you have bloody diarrhea, a high or persistent fever, worsening abdominal pain, repeated vomiting, signs of dehydration, or diarrhea that is not improving. Earlier advice is also appropriate for infants, pregnant people, older adults, and people with a weakened immune system or significant kidney, heart, or bowel disease.

Seek emergency care for severe dehydration, fainting, confusion, inability to stay awake, little or no urine, severe or constant abdominal pain, or an inability to keep down fluids. Black, tar-like stool or a large amount of blood also needs urgent assessment.

- Loose or watery diarrhea
- Abdominal pain or cramping
- Nausea or vomiting
- Fever or chills
- Reduced appetite
- Headache, tiredness, or body aches
- Blood or mucus in the stool
- A frequent, urgent feeling of needing to pass stool

Causes and risk factors

Bacterial gastroenteritis often results from swallowing bacteria in contaminated food or water. It may also spread when germs from stool reach another person's mouth because of inadequate handwashing or contaminated surfaces.

Important causes include:

Risk increases when food is undercooked, left at an unsafe temperature, or prepared with contaminated equipment. Unpasteurized milk or juice, untreated water, raw shellfish, and raw sprouts are other possible sources.

Travel can increase exposure to unfamiliar bacteria, especially where sanitation or safe water access is limited. Childcare settings, nursing facilities, crowded housing, and close contact with someone who has diarrhea can also allow infection to spread.

The chance of severe illness is higher in very young children, older adults, pregnant people, and those with weakened immune systems. Reduced stomach acid, recent antibiotic use, and certain long-term digestive conditions can also affect susceptibility.

- Salmonella: Associated with poultry, eggs, meat, sprouts, some produce, reptiles, and backyard poultry.
- Campylobacter: Often linked to undercooked poultry, unpasteurized milk, untreated water, or infected animals.
- Shigella: Spreads easily through close personal contact, contaminated food or water, and sexual contact involving stool exposure.
- * Shiga toxin-producing Escherichia coli : * Also called STEC. It can come from undercooked ground beef, unpasteurized products, leafy greens, sprouts, contaminated water, or animal contact.
- Yersinia enterocolitica: Often linked to raw or undercooked pork. It can cause pain that resembles appendicitis.
- Vibrio species: Associated with raw or undercooked shellfish, especially oysters, and exposure of wounds to coastal water.
- Clostridioides difficile: Often develops during or after antibiotic use and can inflame the colon.
- Toxin-producing bacteria: Staphylococcus aureus , Bacillus cereus , and Clostridium perfringens can produce toxins in improperly stored food.

Diagnosis

A healthcare professional usually begins by asking when the illness started, how often diarrhea or vomiting is occurring, and whether the stool contains blood. Questions about recent food, travel, untreated water, animal contact, sick contacts, antibiotics like amoxicillin or doxycycline , hospitalization, and sexual exposure can help identify possible causes.

An examination may look for dehydration, abdominal tenderness, fever, and signs that the illness has spread beyond the intestines.

Many mild, short-lived cases do not require laboratory testing. Stool testing is more likely when there is bloody diarrhea, fever, severe abdominal cramping, signs of sepsis, a weakened immune system, prolonged symptoms, or a possible outbreak. Sepsis is a dangerous whole-body response to infection.

A stool culture can grow certain bacteria. Molecular tests, sometimes called PCR panels, detect genetic material from several germs at once. If STEC is possible, testing should look for Shiga toxin and identify the specific type of E. coli when possible. A positive molecular result does not always prove that a detected germ is causing every symptom, so results must be interpreted with the clinical picture.

Blood tests may be used to check kidney function, blood cell counts, salt levels, or the effects of dehydration. Blood cultures may be needed if a bloodstream infection is suspected. Imaging is not routine but may be used when severe or localized pain suggests another condition.

Treatment and management

Replacing lost fluids and salts is the main treatment for most cases. Oral rehydration solution contains water, sugar, and electrolytes in proportions designed to improve absorption. Commercial solutions are generally more suitable for significant diarrhea than soft drinks, juice, or sports drinks, which may contain too much sugar and too little sodium.

Take small, frequent sips if nausea makes drinking difficult. Infants should continue breastfeeding. People who cannot drink enough or who have severe dehydration may need intravenous fluids in a medical setting.

Eating can usually resume as tolerated. Small portions of familiar foods may be easier at first. There is generally no need for prolonged fasting. Very sugary drinks, alcohol, large fatty meals, and caffeine may worsen symptoms in some people.

Antibiotics are not automatically needed. Many bacterial infections improve without them, and unnecessary antibiotic use can cause side effects, disrupt normal intestinal bacteria, and promote antibiotic resistance.

A clinician may consider antibiotics when a specific infection is likely or confirmed, symptoms are severe, or the person has a higher risk of complications. The choice depends on the bacterium, local resistance patterns, travel history, allergies, age, pregnancy status, and overall health.

Antibiotics are generally avoided when STEC is suspected because they may increase the risk of hemolytic uremic syndrome, a complication involving the blood and kidneys. This is one reason to seek medical advice before using leftover or borrowed antibiotics.

Medicines that slow bowel movement may provide short-term relief in selected adults with watery diarrhea. They should not be used without professional advice when there is bloody diarrhea, fever, suspected inflammatory infection, or possible C. difficile . Children require age-specific guidance. Anti-nausea medicine may be considered by a clinician when vomiting prevents adequate hydration.

To reduce spread, wash hands with soap and water after using the toilet, changing diapers, touching animals, and before preparing food. Hand sanitizer may not work equally well against every diarrheal germ and should not replace handwashing when hands are visibly dirty.

Avoid preparing food for other people while ill. Do not share towels or eating utensils, and clean contaminated bathroom surfaces. Rules for returning to work, school, childcare, healthcare, or food handling vary by infection and local public health policy.

Complications

Dehydration is the most common complication. Severe fluid loss can disturb blood pressure, kidney function, and the body's balance of salts.

Some bacteria can enter the bloodstream and cause infection outside the digestive tract. This is more likely in people with weakened immune systems and may require hospital treatment.

STEC can lead to hemolytic uremic syndrome. This condition damages red blood cells and may cause low platelets and kidney injury. Warning signs after diarrheal illness can include reduced urination, unusual bruising, marked tiredness, or pale skin.

Other possible complications include:

These complications are not expected in most people, but new symptoms after the diarrhea improves should be discussed with a healthcare professional.

- Reactive arthritis, which causes joint pain after some intestinal infections
- Guillain-Barré syndrome, a rare nerve disorder associated with some Campylobacter infections

- Post-infectious irritable bowel syndrome, with ongoing bowel changes after the infection clears
- Temporary difficulty digesting lactose
- Severe inflammation or widening of the colon, particularly with serious C. difficile infection

Follow up

Routine follow-up may not be necessary when symptoms are mild, hydration is adequate, and the illness steadily improves. Continue drinking fluids and return to normal food and activity gradually.

Arrange follow-up if diarrhea persists, returns after improving, or is accompanied by weight loss, continuing fever, blood in the stool, or ongoing abdominal pain. Follow-up is also important if a stool test identifies a bacterium that may require treatment, public health reporting, or confirmation that the infection has cleared.

Contact a clinician if urination decreases, weakness or dizziness worsens, or vomiting prevents hydration. After suspected STEC infection, reduced urination, easy bruising, unusual paleness, or severe tiredness requires prompt assessment.

A healthcare professional or public health department can advise when it is safe to return to food handling, healthcare, childcare, school, or group living. Some roles and infections require additional precautions or follow-up testing even after symptoms have stopped.

Sources

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