

# CONSUMER INFORMATION FROM USDA

Food Safety and Inspection Service, Food Safety & Consumer Education Office  
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## Bacteria That Cause Foodborne Illness

### What Is Foodborne Illness?

Foodborne illness often shows itself as flu-like symptoms such as nausea, vomiting, diarrhea, or fever, so many people may not recognize the illness is caused by bacteria or other pathogens on food.

Thousands of types of bacteria are naturally present in our environment. Not all bacteria cause disease in humans. For example, some bacteria are used beneficially in making cheese and yogurt.

Bacteria that cause disease are called "pathogens." When certain pathogens enter the food supply, they can cause foodborne illness. Only a few types cause millions of cases of foodborne illness each year.

Ironically, most cases of foodborne illness can be prevented. Proper cooking or processing of food destroys bacteria. They can grow in just about any food, but are fond of protein foods, such as meat, poultry, seafood, eggs, and dairy products in particular, as well as high protein vegetables such as beans and grains.

### How Bacteria Get in Food

1. Bacteria may be present on products when you purchase them. Plastic-wrapped boneless chicken breasts and ground meat, for example, were once part of live chickens or cattle. Raw meat, poultry, seafood, and eggs are not sterile. Neither is produce such as lettuce, tomatoes, sprouts, and melons.

2. Foods, including safely cooked, ready-to-eat foods, can become cross-contaminated with bacteria introduced on raw products, meat juices or other contaminated products, or poor personal hygiene.

### Which Bacteria Are Responsible for Most Foodborne Illness?

Some bacteria cause more serious illness than others, but only a few are responsible for the majority of cases. See page 2 for information about nine prominent bacteria.

Age and physical condition place some persons at higher risk than others, no matter what type of bacteria is implicated. Infants, pregnant women, the elderly and people with compromised immune systems are at greatest risk from any bacteria. Some persons may become ill after ingesting only a few bacteria; others may remain symptom free after ingesting thousands.

### Call Toll-free for More Information:

**USDA Meat and Poultry  
Hotline  
1 (800) 535-4555  
Washington DC (202) 720-  
3333  
TTY: 1 (800) 256-7072  
Web site: <http://www.usda.gov/fsis>  
Fast Fax: 1 (800) 238-8281**

### The "Danger Zone"

Bacteria multiply rapidly between 40° and 140 °F. To keep food out of this "danger zone," keep cold food cold and hot food hot.

- Store food in the refrigerator (40° or below) or freezer (0 °F or below).
- Cook food to 160 °F (145° for roasts, steaks and chops of beef, veal and lamb).
- Maintain hot cooked food at 140°.
- Reheat cooked food to 165 °F.

### In Case of Suspected Foodborne Illness

Follow these general guidelines:

1. **Preserve the evidence.** If a portion of the suspect food is available, wrap it securely, mark "DANGER" and refrigerate it. Save all the packaging materials, such as cans or cartons. Write down the food type, the date and time consumed, and when the onset of symptoms occurred. Save any identical unopened products.
2. **Seek treatment as necessary.** If the victim is in an "at risk" group, seek medical care immediately. Likewise, if symptoms persist or are severe (such as bloody diarrhea, excessive nausea and vomiting, or high temperature).
3. **Call the local health department** if the suspect food was served at a large gathering, from a restaurant or other food service facility, or if it is a commercial product.
4. **Call the USDA Meat and Poultry Hotline** (number at left) if the suspect food is a USDA-inspected product and you have all the packaging.

***Campylobacter jejuni***

FOUND: intestinal tracts of animals and birds, raw milk, untreated water, and sewage sludge.

TRANSMISSION: contaminated water, raw milk, and raw or undercooked meat, poultry, or shellfish.

SYMPTOMS: fever, headache and muscle pain followed by diarrhea (sometimes bloody), abdominal pain and nausea that appear 2 to 5 days after eating; may last 7 to 10 days.

***Clostridium botulinum***

FOUND: widely distributed in nature; soil, water, on plants, and intestinal tracts of animals and fish. Grows only in little or no oxygen.

TRANSMISSION: bacteria produce a toxin that causes illness. Improperly canned foods, garlic in oil, vacuum-packaged and tightly wrapped food.

SYMPTOMS: Toxin affects the nervous system. Symptoms usually appear 18 to 36 hours, but can sometimes appear as few as 4 hours or as many as 8 days after eating; double vision, droopy eyelids, trouble speaking and swallowing, and difficulty breathing. Fatal in 3 to 10 days if not treated.

***Clostridium perfringens***

FOUND: soil, dust, sewage, and intestinal tracts of animals and humans. Grows only in little or no oxygen.

TRANSMISSION: called "the cafeteria germ" because many outbreaks result from food left for long periods in steam tables or at room temperature. Bacteria destroyed by cooking, but some toxin-producing spores may survive.

SYMPTOMS: diarrhea and gas pains may appear 8 to 24 hours after eating; usually last about 1 day, but less severe symptoms may persist for 1 to 2 weeks.

***Escherichia coli* O157:H7**

FOUND: intestinal tracts of some mammals, raw milk, unchlorinated water; one of several strains of *E. coli* that can cause human illness.

TRANSMISSION: contaminated water, raw milk, raw or rare ground beef, unpasteurized apple juice or cider, uncooked fruits and vegetables; person-to-person.

SYMPTOMS: diarrhea or bloody diarrhea, abdominal cramps, nausea, and malaise; can begin 2 to 5 days after food is eaten, lasting about 8 days. Some, especially the very young, have developed Hemolytic Uremic Syndrome (HUS) that causes acute kidney failure. A similar illness, thrombotic thrombocytopenic purpura (TTP), may occur in older adults.

***Salmonella*** (over 1600 types)

FOUND: intestinal tract and feces of animals; *Salmonella enteritidis* in raw shell eggs.

TRANSMISSION: raw or undercooked eggs, poultry, and meat; raw milk and dairy products; seafood.

SYMPTOMS: stomach pain, diarrhea, nausea, chills, fever, and headache usually appear 6 to 48 hours after eating; may last 1 to 2 days.

***Streptococcus A***

FOUND: noses, throats, pus, sputum, blood, and stool of humans.

TRANSMISSION: people to food from poor hygiene, ill food handlers or improper food handling. Outbreaks from raw milk, ice cream, eggs, lobster, salads, custard, and pudding allowed to stand at room temperature for several hours between preparation and eating.

SYMPTOMS: sore throat, painful swallowing, tonsillitis, high fever, headache, nausea, vomiting, malaise; occurs 1 to 3 days after eating, lasting a few days to about a week.

***Listeria monocytogenes***

FOUND: intestinal tracts of humans and animals, milk, soil, leaf vegetables, and processed foods; can grow slowly at refrigerator temperatures.

TRANSMISSION: soft cheese, raw milk, improperly processed ice cream, raw leafy vegetables, meat, and poultry. Illness caused by bacteria which do not produce toxin.

SYMPTOMS: fever, chills, headache, backache, sometimes abdominal pain and diarrhea; 12 hours to 3 weeks; may later develop more serious illness (meningitis or spontaneous abortion in pregnant women); sometimes just fatigue.

***Shigella*** (over 30 types)

FOUND: human intestinal tract; rarely found in other animals.

TRANSMISSION: person-to-person by fecal-oral route; fecal contamination of food and water. Most outbreaks result from food, especially salads, prepared and handled by workers using poor personal hygiene.

SYMPTOMS: disease referred to as "shigellosis" or bacillary dysentery. Diarrhea containing blood and mucus, fever, abdominal cramps, chills, and vomiting; 12 to 50 hours from ingestion of bacteria; can last a few days to 2 weeks. Sometimes, no symptoms seen.

***Staphylococcus aureus***

FOUND: on humans (skin, infected cuts, pimples, noses, and throats).

TRANSMISSION: people to food through improper food handling. Multiply rapidly at room temperature to produce a toxin that causes illness.

SYMPTOMS: severe nausea, abdominal cramps, vomiting, and diarrhea occur 1 to 6 hours after eating; recovery within 2 to 3 days -- longer if severe dehydration occurs.