



Foodborne Illness: What Consumers Need to Know

September 1999

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 in 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. Most cases of foodborne illness can be prevented. Proper cooking or processing of food destroys 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 pathogen. Some persons may become ill after ingesting only a few harmful bacteria; others may remain symptom free after ingesting thousands.

How Bacteria Get in Food

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.

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

The “Danger Zone”

Bacteria multiply rapidly between 40 °F 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 °F or below) or freezer (0 °F or below).
- Cook food to 160 °F (145 °F for roasts, steaks and chops of beef, veal and lamb).
- Maintain hot cooked food at 140 °F or above.
- 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 freeze 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), call your doctor.
3. **Call the local health department** if the suspect food was served at a large gathering, from a restaurant or other foodservice facility, or if it is a commercial product.
4. **Call the USDA Meat and Poultry Hotline** if the suspect food is a USDA-inspected product and you have all the packaging.

Bacteria That Cause Foodborne Illness

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.

Listeria monocytogenes

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

TRANSMISSION: ready-to-eat foods such as hot dogs, luncheon meats, cold cuts, fermented or dry sausage, and other deli-style meat and poultry, soft cheeses and unpasteurized milk. Illness is caused by bacteria which do not produce toxin.

SYMPTOMS: fever, chills, headache, backache, sometimes upset stomach, abdominal pain and diarrhea; may take up to 3 weeks to become ill; may later develop more serious illness in at-risk patients (pregnant women and newborns, older adults, and people with weakened immune systems).

Salmonella (over 2300 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 and food handlers.

SYMPTOMS: stomach pain, diarrhea, nausea, chills, fever, and headache usually appear 8 to 72 hours after eating; may last 1 to 2 days.

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.

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.

For More Information

USDA Meat and Poultry Hotline:

1 (800) 535-4555

Washington, DC:

(202) 720-3333

TTY: 1 (800) 256-7072

FSIS Web site: www.fsis.usda.gov

FDA Food Information Line:

1 (888) SAFE FOOD

FDA Web site: www.cfsan.fda.gov