

Clostridium perfringens

Clostridium perfringens is a spore-forming bacteria that is found in many environmental sources, as well as in the intestines of humans and animals. *C. perfringens* is often found in raw meat and poultry, and is one of the most common causes of foodborne illness in the United States. CDC estimates that *C. perfringens* causes about 1 million foodborne illnesses in the United States. It prefers to grow in certain conditions such as when food is kept at unsafe temperatures and in environments with very little or no oxygen. It can multiply very rapidly under these conditions.

Transmission

Everyone is susceptible to becoming ill from Infection with *C. perfringens*. Infection with *C. perfringens* is caused by

- **Eating food contaminated** with large numbers of *C. perfringens* bacteria which produce enough toxin in the intestine to cause illness.
 - ***C. perfringens* bacteria grow in food.**
 - During cooling and holding of food at temperatures between 40°F and 140°F, the spores germinate, and the bacteria grow.
 - If the food is served without reheating to kill the bacteria, live bacteria may be eaten.
 - Beef, poultry, gravies, and dried or precooked foods are common sources of *C. perfringens* infections.

Outbreaks of *C. perfringens* food poisoning can happen in **settings where large groups of people are served and keeping food at an adequate temperature can be difficult**, such as

- **Hospitals**
- **Schools**
- **Prisons**
- **Nursing homes**
- **Social gatherings**

Past infection does not make a person immune to *C. Perfringens*.

Symptoms

Symptoms begin six to 24 hours after the bacteria is ingested and usually lasts less than 24 hours. Symptoms will start suddenly and may consist of:

- **Diarrhea**
- **Stomach cramps**
- **Dehydration**
- **Can be accompanied by nausea**

Young children and elderly individuals can experience more severe symptoms that may last one to two weeks.

Diagnosis

C. perfringens is diagnosed when a laboratory test detects the bacteria or toxin in an individual's stool (poop). The bacteria can also be found in the food(s) linked to the illness. Generally, people infected with *C. perfringens* do not receive a laboratory diagnosis.

Prevention

- **Cook food to a safe internal temperature**
- **Keep cooked food at 140°F or hotter and 40°F or colder** if it is not going to be eaten right away
- **Refrigerate leftovers at 40°F or colder** within two hours after cooking or if it is not being heated by an appliance. Refrigerate within an hour if the food is exposed to temperatures above 90°F, like a hot car or picnic
 - Hot food can be put directly into the refrigerator
 - Divide large pots with soups or stews, and large cuts of meat into smaller quantities so they can cool quicker
- **Reheat leftovers to 165°F or hotter** before serving

Treatment

- **No specific treatment**
- Dehydration can be treated by oral rehydration, or in more severe cases, intravenous fluids, and electrolyte replacement
- Most people can recover **without antibiotic treatment**

For more information about the treatment of *C. perfringens* visit [C. perfringens | CDC](https://www.cdc.gov/foodsafety/diseases/clostridium-perfringens). If you have further questions about the treatment of *C. perfringens*, contact your health care provider.

Exclusion Guidance

Individuals with *C. perfringens* should not be excluded from work, school, or child care unless the [general exclusions apply](#) or

For additional information about *C. perfringens*, contact the North Dakota Department of Health and Human Services', Division of Public Health, at 800.472.2180.

Resources:

1. Kimberlin, D. W., Barnett, E. D., Lynfield, R., Sawyer, M. H. (2021) Red Book: 2021- Report of the Committee on Infectious Diseases. 31st ed. American Academy of Pediatrics. [Management and Prevention of Infectious Diseases] [276-277].
2. Centers for Disease Control and Prevention. (2023, March 24). *CDC – Clostridium perfringens*. Centers for Disease Control and Prevention. Retrieved May 12, 2023, from <https://www.cdc.gov/foodsafety/diseases/clostridium-perfringens>.

 **Possible Bioterrorism Agents (CDC classified A, B or C Agent)**

08/23/24