NORTH DAKOTA DEPARTMENT of HEALTH

# *Clostridium perfringens*

## What is *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. It prefers to grow in conditions with very little or no oxygen, and can multiply very rapidly under ideal conditions. Some strains of *C. perfringens* produce a toxin in the intestine that causes illness.

## Who is at risk for *Clostridium perfringens*?

Everyone is susceptible to food poisoning from *C. perfringens*. The very young and the elderly are most at risk of *C. perfringens* infection, and can experience more severe symptoms that may last 1 to 2 weeks.

## What are the symptoms of *Clostridium perfringens*?

Symptoms of *C. perfringens* begin suddenly, and include watery diarrhea and moderate to severe abdominal cramping or pain. People infected with *C. perfringens* may experience nausea, but usually do not have a fever or vomiting. Most people recover within 24 hours.

## How soon do symptoms appear?

Symptoms usually begin within 8 to 12 hours, but the incubation period can range from 6 to 24 hours.

## How is *Clostridium perfringens* spread?

*C. perfringens* is caused by eating food contaminated with large numbers of *C. perfringens* bacteria that produce enough toxin in the intestine to cause illness. *C. perfringens* spores can survive high temperatures. During cooling and holding of food at temperatures from 54°F-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. The bacteria produce a toxin inside the intestine that causes illness. Beef, poultry, gravies, and dried or precooked foods are common sources of *C. perfringens* infections.

## When and for how long is a person able to spread the disease?

*C. perfringens* is not spread person-to-person.

## How is a person diagnosed?

Laboratory tests can detect the bacterial toxin or determine the number of bacteria in a stool sample.

## What is the treatment?

There is no specific treatment for *C. perfringens* infections. Dehydration can be prevented or treated via oral rehydration or, in severe cases, intravenous fluids and electrolyte replacement. Antibiotics are not recommended.

## Does past infection make a person immune?

No. The illness may recur if the person is exposed again.

**Should children or others be excluded from child care, school, work or other activities if they have *Clostridium perfringens* infections?**

A child should be excluded from child care if he/she has:

- Diarrhea, if stool is not contained in the diaper or if diarrhea frequency exceeds two or more stools above normal for that child
- A fever or is unable to participate and the staff determines that they cannot care for the child without compromising their ability to care for the health and safety of the other children in the group

A child or an adult should be excluded from school or work if diarrhea cannot be contained. An adult who prepares or handles food should be excluded from work until 24 hours after diarrhea resolves or they provide written medical documentation from a health practitioner that they are not contagious.

**What can be done to prevent the spread of *Clostridium perfringens* infections?**

- To prevent the growth of *C. perfringens* spores that might be in food after cooking, foods such as beef, poultry, gravies, and other foods commonly associated with *C. perfringens* infections should be cooked thoroughly to recommended temperatures, then kept at a temperature that is either warmer than 140°F or cooler than 40°F; these temperatures prevent the growth of *C. perfringens* spores that may have survived the initial cooking process.
- Meat dishes should be served hot right after cooking.
- Foods never should be held at room temperature to cool; they should be refrigerated after removal from warming devices or serving tables.
- Roasts, stews and other similar large dishes should be divided into small quantities for refrigeration.
- Leftovers should be reheated to at least 165°F before serving.

## Additional Information

For additional information, call the North Dakota Department of Health at 800.472.2180.

**This disease is a reportable condition. As mandated by North Dakota law, any incidence of this disease shall be reported to the North Dakota Department of Health.**

Resources:


1. *Red Book: 2015 Report of the Committee on Infectious Diseases.* 30th ed. [Children in Out-Of-Home Care]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 132-151.
2. *Red Book: 2015 Report of the Committee on Infectious Diseases.* 30th ed. [Clostridium perfringens Food Poisoning]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 301-302.
3. Heymann, D. L. (2015). *Control of Communicable Diseases Manual, 20th Edition*. Foodborne Clostridium perfringens Intoxication. American Public Health Association. 2015: 220-221.
4. Centers for Disease Control and Prevention. (2015). Clostridium perfringens. www.cdc.gov/foodsafety/diseases/clostridium-perfringens.html.
5. North Dakota Administrative Code. (2016). 33-33-04-28.9-11. www.legis.nd.gov/information/acdata/pdf/33-33-04.pdf.