

# Foodborne illnesses essay sample

[Environment](#), [Animals](#)



## **Foodborne Illnesses**

The Centers for Disease Control and Prevention estimates there are about 48 million foodborne illnesses reported in the United States every year. Of these, at least 128, 000 people are hospitalized and 3, 000 die after eating food contaminated by a variety of pathogens (CDC, 2011). Each pathogen lives in a medium specific to it and is transmitted in its own way. According to the CDC, the top five pathogens that contribute to foodborne illnesses in the United States are Norovirus, Salmonella, Clostridium perfringens, Campylobacter spp., and Staphylococcus aureus.

Norovirus is highly contagious, and it is the leading cause of foodborne illness. It causes approximately 21 million cases of infections, leading to 70, 000 hospitalizations and about 800 deaths. It is transmitted from an infected person to another through contaminated food or water, or by a non-infected person touching surfaces that are contaminated. The virus causes inflammation of the stomach and/or the intestines, also known as acute gastroenteritis. Symptoms include diarrhea, stomach pain, nausea, and vomiting. Antibiotics are useless, as the source is viral, not bacterial, and in intense cases, dehydration is a serious side effect because of the large amount of watery diarrhea.

The second most common foodborne illness (1 million cases and about 400 deaths each year) is caused by Salmonella, a rod-shaped bacterium that inhabits the intestinal tracts of both people and animals and can cause severe diarrhea in humans, a condition known as salmonellosis (Marler, Salmonella Food Poisoning, 2012). The bacterium passes from one body to

another through fecal contamination. Any raw food derived from animals, such as meat, poultry, milk, eggs, and even some fruits and vegetables may carry *Salmonella* bacteria, which can survive and remain infectious if the food is not cooked to a high enough temperature. Many people remain asymptomatic, but of those who do show symptoms, they are usually diarrhea, cramping, and a high fever that occurs between 8 and 72 hours after the consumption of contaminated food. Other symptoms may include nausea and vomiting, a headache, and shaking chills. These symptoms usually disappear within four days to a week after onset (USDA, 2012).

*Clostridium perfringens* (*C. perfringens*) is a spore-forming bacterium found in the intestines of both humans and animals, as well as in many environmental sources. The spores can live at temperatures as high as 140 degrees. The bacterium is most commonly found on raw meat and poultry, and it requires little to no oxygen to survive. Symptoms include watery diarrhea and abdominal cramps that appear from 6 to 24 hours (although usually 8-12) after consumption of the contaminated food source, beginning suddenly, but lasting for usually less than 24 hours (CDC, 2011). Unlike Norovirus and *Salmonella*, illness from *C. perfringens* is not passed from one person to another.

*Campylobacter* is a spiral-shaped bacterium that is the fourth largest cause of food poisoning, known, in this case, as campylobacteriosis. This infectious disease is estimated to affect over 2.4 million persons each year, with about 124 deaths (CDC, 2011), and most cases are the result of eating raw or undercooked poultry. While some people remain asymptomatic, most people

who contract campylobacteriosis get watery, bloody diarrhea, abdominal pain and cramping, and a fever that starts two to five days after exposure to the organism. It usually runs its course within a week, but it occasionally spreads to the bloodstream, where it is responsible for a serious life-threatening infection.

Staphylococcus aureus (Staph) is also a common bacterium, and it infects approximately 25% of healthy people and animals, usually on the skin or up the nose (CDC, 2011). It rarely causes illness in healthy people unless it is transmitted to and then from food products. It primarily spreads by food workers who naturally have the Staph bacterium in their systems, but who handle food without washing their hands first. Staphylococcus aureus is important because it can produce several types of toxins, and these toxins are what cause the gastrointestinal distress of the food poisoning.

Unfortunately, Staph toxins are resistant to heat and therefore can't be destroyed by cooking. Foods that cause the highest risk of harboring Staph toxins are those that are made by hand and require no cooking, as well as unpasteurized milk and cheese products, and salty foods, such as ham. Staph toxins are fast acting, sometimes causing distress only 30 minutes after eating, but symptoms usually develop within one to six hours. Common effects are nausea and vomiting, stomach cramps, and diarrhea. The symptoms typically last for one day.

As you can see, although these organisms are vastly different and transmit themselves by different mechanisms, all cause approximately the same type of symptoms in the organism they infect. As a result, although each type of

infection has its own name, they are collectively said to cause food poisoning.

## References

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