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infections
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FOOD-BORNE INFECTIONS IN SEPTEMBER

Three outbreaks of food-borne infections occurred in September in different parts of the country. The first one occurred in the middle of September among guests at a small dinner party in the Suðurnes Peninsula. Seven out of eight guests became ill with vomiting about 1–1,5 hours after consuming the contaminated food. The symptoms passed quickly. Local public health inspectors were responsible for investigating the origin of the contamination, which was suspected to be caused by *Bacillus cereus* contamination of a mayonnaise-based sauce.



The second outbreak occurred in several workplaces in the Southwest receiving food from the same catering service with the result that altogether 32 individuals fell ill. The main symptom was diarrhea that started 7–20 hours after the consumption of the allegedly contaminated food. The symptoms subsided in most cases in less than 24 hours. A thorough investigation was conducted into the food consumption

of those afflicted and samples were taken from whatever food could be obtained. However, it proved impossible to trace the origin of the illness, although poisoning from *Clostridium perfringens* or *Bacillus cereus* is a likely cause of the infection. A specialist from the State Epidemiologist conducted an epidemiological investigation and a public health inspector for the Southwest of Iceland was in charge of the on-site investigation.

The third occurrence of food poisoning was in the East of Iceland, in a school kitchen, where 6, out of 11 individuals consuming the same food, fell severely ill, while three others experienced milder symptoms. The symptoms appeared almost immediately after the common meal but were over in a very short while. The main symptoms were severe abdominal cramps together with nausea and occasional instances of diarrhea. The origin of the poisoning could not be traced; however the most likely explanation is food contamination due to *Bacillus cereus* or *Staphylococcus aureus*. The case was investigated by the public health inspectors for the East of Iceland in cooperation with local physicians treating the patients.

Main causes of food-borne infections

Clostridium perfringens

Clostridium perfringens has been found in condiments, meat, meat dishes and various prepared dishes. The pathogen produces spores that are resistant to the high temperatures used for cooking and the bacteria multiply and produce toxins during slow cooling. Often, an infection can be traced to insufficient chilling of warm meat dishes. Symptoms occur 6–24 hours after

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It is often difficult to trace the origin of food poisonings with certainty.

Botulism is very serious and in some cases even lethal.

the consumption of contaminated food. They include diarrhea and abdominal pain lasting approximately one day.

Staphylococcus aureus

Staphylococcus aureus has been found in meat and fish products as well as in sandwiches. Usually, the bacteria have entered the food via food handlers. The most common sources are finger infections (e.g. a boil or inflammation) or aerosol infection from the nostrils. Insufficient refrigeration is often the cause of bacteria multiplication. A heat-resistant toxin does not form at under 7°C, which means that refrigeration is a good protection against this disease.

Symptoms occur 2–4 hours after the consumption of food containing the bacteria and the resultant toxins. The toxins cause nausea, vomiting, abdominal pains and diarrhea that may last 1–2 days.

Bacillus cereus

The bacterium *Bacillus cereus*, has been found in grain, rice, condiments, meat dishes, milk, ice cream and various prepared dishes. The pathogen can form spores. Infections are often traced to poor refrigeration of prepared food. The spores survive the warming up and transform into toxin-producing pathogens. The symptoms can be caused by direct toxin consumption or by ingestion of the bacteria with toxin production in the intestines. The main symptoms after direct toxin consumption are acute nausea, vomiting and abdominal pains 1–5 hours after the consumption of contaminated food. When the bacteria are ingested the symptoms appear later, with diarrhea as a main symptom. In both cases the symptoms are over in 24–36 hours.

Clostridium botulinum

Clostridium botulinum is a spore-forming bacterium that is ubiquitous in the soil worldwide. Most poisonings are associated with home-canned food products. The pathogen can form spores resistant to high temperatures. Often, an infection can be traced to insufficient amounts of salt or acid in pickled vegetables, or fish. The bacteria grow under anaerobic conditions and there are varieties which can multiply at 3°C. Cans of food that seem to bulge from internal pressure should not be opened since the germ can sometimes create gas inside the cans.

The incubation period is 6–36 hours after the consumption of contaminated food. The



bacterium creates a toxin which causes respiratory difficulties, visual disturbances and paralysis. The initial symptoms include diplopia, difficulty in swallowing, nausea, a dry mouth and constipation, but sometimes diarrhea.

Poisoning from the botulinum pathogen (botulism) is very serious and in some cases even lethal. Children can get botulism and become seriously ill from eating honey, which is why parents are warned not to give honey to babies under 12 months of age. A child showing symptoms of botulism must receive medical treatment immediately. Botulism, however, is very rare in Iceland.