



Food Poisoning: A Primer

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Abstract Food poisoning, or foodborne illness, occurs when a person becomes ill from eating food or drinking water that is contaminated with bacteria, toxins, parasites, chemicals, or viruses. Food poisoning is serious and potentially life-threatening for young children, pregnant women, developing babies, older adults, and individuals with chronic diseases or weakened immune systems. This paper provides a short introduction to food poisoning.

Keywords food poisoning, food safety, food hygiene

Introduction

Food poisoning, also called foodborne illness, is any illness or disease that results from eating contaminated food and the illness may result in hospitalizations and deaths. It may also be regarded as intoxication of food by chemicals or toxins from bacteria or fungi. Thousands of individuals suffer every year from the discomfort and pain resulting from foodborne illness. Food poisoning outbreaks often occur in mass social events where common meals are prepared for large community gatherings such as banquets, religious festivals, parties, and weddings [1].

Food contamination can occur at any point, during harvesting, processing, preparation, storing or even at home kitchen. One can expect some symptoms within hours of eating contaminated food. The Centers for Disease Control and Prevention (CDC) have estimated that about 1 in 6 Americans suffer from a foodborne illness every year (a total of 48 million individuals).

As shown in Figure 1 [2], common short-term effects or symptoms of food poisoning include upset stomach, abdominal pain, nausea, vomiting, loss of appetite, diarrhea, and dehydration, while long-term effects include brain damage and death. Some of these symptoms often resolve themselves without any medical intervention and can be treated by resting and drinking plenty of liquids. However, if you experience severe symptoms, it is expedient that you seek your doctor's advice. In some countries, such as Japan, it is required that cases of food poisonings must be reported.

The food industry, with strong government support, have capitalized on recent outbreaks of pathogenic. The government contributes to the prevention of food poisoning by investigating incidents of food poisoning, providing laboratory service for the special investigation of bacterial food poisoning, and promotion of legislation [3]. The Food and Drug Administration (FDA) is allowing the use of high-level radiation to "treat" beef, pork, poultry, eggs, vegetables, fruit, flour, and spices, while the U.S. Department of Agriculture (USDA) proposes the imminent irradiation of imported fruit and vegetables.





Figure 1: Food poisoning symptoms [2]



Figure 2: Some causes of food poisoning [4]

Causes of Food Poisoning

There are numerous causes of food and water poisoning. Some of them are illustrated in Figure 2 [4]. The following brief listing considers the common and typical causes [5].

- **Bacteria and Viruses:** These are the most common cause of food poisoning in the US. This may be due to the transfer of bacteria or other contaminants from one surface. It is common in raw and ready-to-eat foods. The symptoms depend on which bacteria or virus cause the contamination.
- **Parasites:** Parasites are organisms that derive nourishment and protection from other living organisms known as hosts. The most common foodborne parasites are protozoa, roundworms, and tapeworms.
- **Chemical Toxins:** Certain chemicals are regarded toxins that can cause food poisoning. The chemical toxins may be produced in certain foods that are poorly cooked or stored.
- **Allergens:** Food allergy is an abnormal response to a food triggered by your body's immune system. Certain foods, such as nuts, milk, eggs, can cause allergic reactions in people with food allergies.



Food poisoning is one of the most important health problems in Britain associated with summer conditions and high temperatures. Salmonella is one of the most important foodborne pathogens affecting European populations. For example, Salmonella infection causes more deaths annually than any other foodborne pathogen in England and Wales [6].

Certain individuals are more likely to get sick from contaminated food. These include children younger than 5 years, pregnant women, adults older than 65 years, individual whose immune systems are weak, and individuals with chronic diseases.

Preventing Food Poisoning

Food poisoning can be prevented. The Centers for Disease Control (CDC) published ways to prevent food poisoning. To prevent food poisoning at home or wherever you eat food, follow these simple rules [7]:

- Wash hands and food contact surfaces often
- Keep foods separated to prevent cross-contamination
- Cook food thoroughly, especially raw meat, eggs, and poultry
- Cook and store foods at a safe temperature
- Refrigerate or freeze perishable foods promptly
- Do not defrost food at room temperature
- Throw away questionable food/drinks

Kitchen hygiene is the key to preventing food poisoning. If possible, it is expedient to avoid uncooked dishes, salads, sauces, and dressings containing raw or lightly cooked eggs. A lot of people are putting themselves at risk of food poisoning by eating raw egg dishes since eggs can be contaminated by the food poisoning bacterium Salmonella when laid.

Challenging Issues

Clinical aspects suggesting food poisoning are insufficiently known by the general population and even by the medical world. Giving medicines to animals may lead to their eventual ingestion by humans. Maintaining food safety and preventing food poisoning during mass community gatherings is a major challenge for public health authorities. It is difficult for an importing country to know whether food products have been produced in good hygienic conditions.

Conclusion

Food poisoning comprises a wide range of disorders of various causes. It is a serious health threat and can have economic consequences for individuals in developed and developing nations. It is important to be aware of the possibility of the occurrence of food poisoning and be continuously vigilant. Evidence from the past can be used as a guide to the incidence of possible future outbreaks. More information on food poisoning can be found in books [8-9].

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