

## **Avoiding a Foodborne Fiasco**

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### **Introduction**

The Centers for Disease Control and Prevention estimates that 48 million people or 1 in 6 Americans experience a foodborne illness every year as a result of consuming contaminated food or drink and roughly 128,000 people in the US are hospitalized due to foodborne illness. There are many different pathogens or disease causing microbes that can cause illness. Currently, there are 250 known pathogens that are responsible for 20% of the reported foodborne cases and the root cause of the remaining 80% of all cases are many unknown pathogens. Additionally, chemical contaminants such as pesticides can cause foodborne illness. In the US, the top five pathogens that cause foodborne illnesses are norovirus (58%), salmonella (10%), *Clostridium perfringens* (10%), and campylobacter (9%). However, salmonella infections are responsible for the most hospitalizations and for the most deaths out of any of the foodborne pathogens.

### **What is a Pathogen?**

Foodborne pathogens can cause several different types of illness. Salmonella and noroviruses can cause illness by consumption of live pathogens that replicate and grow in the intestinal tracks which is called a foodborne infection. An organism like *Bacillus cereus* (a pathogen found in rice and grains) can cause illness through foodborne intoxication through the production of toxins and the live bacteria does not need to be consumed. These microorganisms typically do not make the food look, taste or smell bad so it is impossible to determine if the food is contaminated.

For a pathogen to grow and proliferate, certain conditions must be met. The first one condition is that the pathogen or its toxin must be in the food. Many raw foods have naturally occurring background levels of pathogen contamination. These pathogens can thrive when the temperature and the nutrients are suitable for the pathogenic growth. Foods that are high in protein such as eggs, meat, fish, and milk can provide appropriate nutrient levels for pathogens. Additionally, foods that are slightly acidic (pH levels 4.6-7.6) also support microbiological growth. Additionally, foodborne pathogens grow best in foods that have a temperature of 70-104° F. It is essential that hot foods must be kept hot and cold foods must be kept cold to prevent growth. Common food service foods that have a higher risk of foodborne illness are rice, cooked or raw animal products, cooked or raw vegetables, raw seed sprouts, raw shell eggs or water cooled hard boiled eggs, cut melons, and garlic and oil mixtures.

Once a pathogen has been allowed to proliferate in a food, foodborne illness can set in following consumption of the contaminated food. Most foodborne illnesses can occur with 2-24 hours following consumption of the contaminated food but symptoms have been reported as far out as 30 days post-contaminated food consumption. The time of onset of foodborne illness symptoms can be pathogen dependent. The most common symptom is diarrhea but symptoms can include vomiting, cramping, fever, and flu like symptoms.

## **Prevent the problem before it happens**

To avoid potential problems in foods, it is very important to control or eliminate pathogens in food products. HACCPs or hazard analysis and critical control points are your quality assurance and risk assessment steps. They include coming up with preventative measures; evaluating critical control points and preventing, eliminating or reducing risk; evaluating and establishing critical limits such as cooking temperatures; monitoring CCP's with temperature measurements; corrective action; record keeping systems; and verification.

SOPs and employee education are essential in preventing foodborne illnesses. The SOPs should address everything from where the product can be ordered from to how it is received, how it is stored, how long it is stored, how it is prepared, where it is prepared, by whom it is prepared, how it is transported and how it is served. Comprehensive SOPs go a long way to not only preventing foodborne illness, but also defending claims. However, that is only if they are adhered to. Employee training should be conducted on a continuous basis and management should continually verify SOPs are being followed. There are also several training certifications in food handling such as those offered through ServSafe and Learn2Serve. These can be done online and provide management with valuable education in developing safe food handling protocols.

## **Summary**

While a foodborne illness outbreak can be devastating to a restaurant there is no restaurant that in a single night can serve as many individuals as a hotel during a large conference banquet or buffet. Many foodborne illness claims originate from that exact setting. Often times there are numerous individuals who become ill. The assumption is that there must have been some adulterated food item they all consumed that made them sick. It could not possibly be a coincidence... but it could be something other than a foodborne illness! Reaction time and record keeping is crucial in defending these claims.