Foodborne Illnesses – Quick Tips

It is estimated by the Centers for Disease Control and Prevention (CDC) that one in six Americans (or roughly 48 million people) suffer the effects of a foodborne illness annually. Of these individuals, 128,000 will require hospitalization and 3,000 will eventually die as a result of the illness. More than 250 known diseases are contracted through food contaminated by bacteria, viruses, parasites, toxins, metals and prions. Foodborne-disease outbreaks (FBDOs) happen every year, sometimes affecting multiple states and many people, which can be traced back to a variety of food items. Most FBDO attract a lot of media attention due to the improved illnesses reporting, which in most instances will lead to food item recalls.

One well known FBDO case, which started in September of 2008, according to the CDC would spread to 46 states and leave 714 individuals infected and nine dead in its wake. The outbreak would eventually be linked to peanut butter contaminated with Salmonella Typhimurium. This case prompted one of the largest food recalls in U.S. history, and lead to several company executives and employees receiving prison sentences.

Another FBDO the CDC reported in 2015 involved strains of Salmonella Poona infection that was traced to cucumbers imported from Mexico. A total of 907 people were infected in 40 states, which resulted in 204 hospitalizations and several deaths.

Three bacteria, E. coli, Salmonella, and C. perfringens, represent some of the most common causes of foodborne illness. These foodborne illnesses are easily diagnosed due to tests that allow for the detection of the pathogens in a person’s system.

- **coli:** This bacteria is carried in cattle or similar animals. Foodborne illness from this bacteria is caused by consumption of food or water contaminated by small amounts of feces. You can also contract E. coli by consuming

unpasteurized products. E. coli can spread from person to person. The symptoms resulting from this infection include severe and bloody diarrhea and painful abdominal cramps. These symptoms are usually not accompanied by a fever. The CDC estimates that around five to 10 percent who are diagnosed with certain strains of E. coli infections develop a potentially life-threatening complication known as hemolytic uremic syndrome (HUS) that can lead to temporary anemia, profuse bleeding and kidney failure.

- **Salmonella:** This is a bacteria carried in the intestines of birds, reptiles and mammals. It is contracted by ingesting a variety of different raw or undercooked foods from animal origin. The symptoms resulting from infection by these bacteria include fever, diarrhea and abdominal cramps as well as headaches and nausea.
- **perfringens:** This is a rod-shaped bacteria that lives in environments that do not contain oxygen, such as in the intestines of humans and domesticated animals. This bacteria is commonly called the cafeteria germ, as it results from food left at room temperature for extended periods of time. These bacteria produce spores that exist in soil, sediment, and areas prone to human or animal fecal pollution. The symptoms resulting from infection by this bacteria include abdominal cramps and diarrhea that usually resolve in one to two days. Ingesting large numbers of these bacteria could lead to necrotic enteritis, leading to severe damage to the intestines, which can be fatal.

Diagnosis

The foodborne illnesses caused by the pathogens above can be definitively diagnosed by tests that detect the pathogens in a person’s system or in the food that was consumed. However, many foodborne illnesses are caused by pathogens that cannot be detected or have not been identified, thus these sicknesses remain undiagnosed.

This inability to diagnose many of the illnesses caused by these unknown pathogens has led to complications in detecting when FBDOs

are occurring in the population. Additionally, although some foodborne diseases cause extreme symptoms such as kidney failure, paralysis, or even death, many cause common flu-like symptoms such as vomiting and fever. Because of this, many cases of foodborne illness simply go unreported. The CDC has instituted procedures that aid in the surveillance of foodborne illnesses in order to determine and act upon any FBDOs that may occur.

The CDC has defined a FBDO as the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food. Often it is a combination of events which contribute to an outbreak. However, the ability to monitor FBDOs has steadily become more effective in recent years due to the electronic Foodborne Outbreak Reporting System (eFORS). This electronic database allows local, state, territorial and federal health agencies to report foodborne illness cases as they happen. The CDC then monitors this database and performs any investigations needed into multiple cases of the same illness, or patterns of illness in the population. This database has made it possible to react to FBDOs that may be occurring within the population quickly and effectively, maximizing the ability of health care providers to treat those that have been affected and increasing the safety and awareness of consumers.

Prevention

Although strides have been made to cope with FBDOs as they happen, there are a few simple habits that you can personally do that significantly decrease your chances of contracting a foodborne illness. When purchasing, transporting, storing and preparing food, there are measures that should be taken in order to ensure the safety of the food you are consuming. Many foodborne illnesses arise out of carelessness in the handling of our food prior to consumption. According to the U.S. Department of Agriculture (USDA), food borne illnesses peak during the summer months. The following is a list of practices that can be followed to minimize the likeliness of contracting a foodborne disease.

Choosing the Right Food at the Right Time:

1. When shopping, get canned and packaged foods first before heading to the refrigerated sections of the grocery store. Make sure cans are not bulging or dented. Check for cracks in jars and avoid jars with bulging lids. If canned or packaged goods are sticky on the outside this could indicate a leak, and these products should be avoided.
2. Choose pasteurized milks and cheeses, as well as juices and ciders that have been pasteurized or treated. Pasteurization is accomplished by significantly elevating the temperature of the product during processing, thus killing any microorganisms that may cause illness.
3. Select eggs that are refrigerated and check the eggs, before leaving the store, for any cracks. Cracks can allow microorganisms to enter the eggs, thus increasing the chances for illness.
4. Wait to select frozen food and perishables, such as meat, poultry, and seafood, until the end of your shopping trip, and bag these products separately in plastic bags so the drippings do not contaminate other food.
5. Bring a cooler full of ice to keep frozen and perishable foods cold if your return trip from the grocery store will be longer than one hour.

Storage

1. Refrigerate (40°F) or freeze (0°F) perishables immediately upon arriving home from the store.
2. Store eggs in the refrigerator. Avoid storing them in the door because the temperature is warmer there due to the door being opened and closed.
3. Meats, poultry and fish can be placed in the refrigerator in the packaging from the grocery store if they are to be cooked within one to two days. For longer storage, these items should be wrapped tightly and placed in the freezer.
4. Keep cold food cold and hot food hot.

Preparation

1. Produce should be cleaned prior to preparation in order to remove any dirt and grime. Pay special attention to cleaning

produce that will be eaten raw because there will be no heat involved during preparation to kill lingering bacteria.
2. Wash hands, utensils and cutting boards that have come in contact with meat or poultry before preparing other foods. This reduces the possibility of cross contamination.
3. Cook meat, poultry and eggs thoroughly. Ground beef should reach an internal temperature of 160°F, and eggs should be cooked until the yolk is firm. Make sure to use a meat thermometer to check internal temperatures.
4. Make sure to refrigerate any leftovers promptly so contamination is not allowed to occur.

Restaurant Safety

1. Restaurants are inspected by the local health department. Only patronize restaurants that have passed the health inspection.
2. Order your steaks or hamburgers well done and send your meal back if the meat is still pink in the center.
3. Ask if the eggs and other dairy products used to prepare your food are pasteurized.

These prevention measures are needed to limit the possibility of contamination of our food as it travels from the farm to our tables. However, if contamination does occur and a foodborne illness results, it is important to report this to your local health department. With the information you provide, health officials can gain a better understanding regarding the initialization, transmission and other contributing factors to FBDOs.

Commonly Asked Questions

Q: How can I tell if I have a foodborne illness or just the flu? Are there tell-tale signs indicating a foodborne illness?

A: Some of the symptoms of the flu are similar to those of foodborne illness, such as fever, loss of appetite, headache and vomiting. However, in addition to these symptoms the flu carries with it muscle and joint aches, fatigue and cough. A foodborne illness would not display the respiratory symptoms, such as cough,

that accompanies the flu.

Q: How long does it take to get sick from ingesting an illness causing pathogen?

A: After a pathogen is ingested an incubation period begins. This incubation period can last from a few hours to a few days. During this period, the microbes move through the stomach and begin multiplying in the intestines. At this point symptoms will be noticed, such as diarrhea or fever. Some microbes will cause symptoms via the intestines, while others will produce a toxin that can enter the bloodstream and attack other organs in the body, causing more severe symptoms, such as temporary anemia or kidney failure, in extreme cases.

Q: Are certain people more susceptible to foodborne illnesses?

A: Infants, pregnant women, the elderly and those individuals with weakened immune systems are more susceptible to foodborne illness because they do not have strong natural mechanisms to fend off a microbial attack in their system. These individuals are also more likely to have severe symptoms associated with a foodborne illness.

Q: What should I do if I suspect a foodborne illness?

A: First and most important, seek medical treatment as necessary, especially if you are considered to be someone more susceptible (infants, pregnant women, the elderly and those individuals with weakened immune systems) to foodborne illness. If you suspect the foodborne illness originated from a restaurant or large gathering, contact your local health department.

Sources

Foodsafety.gov
CDC Food Safety

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