

# Lesson 2:

## Chapter 1 Module 2

### Foodborne Illness

#### **Chapter 1: The Importance of Food Safety throughout your Food Service Establishment**

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## Chapter 1 – Module 2: Foodborne Illness

### FOODBORNE ILLNESS

#### Key Words:

- Foodborne Illness
- Time/Temperature Control for Safety (TCS)
- Bacteria
- Temperature Danger Zone (TDZ)
- Viruses
- Allergic Reaction to Foods
- Parasites
- The Big Eight
- Cross-Contact

#### Main Ideas:

- People get sick and can die from foods they eat
- Time/Temperature Control for Safety foods (High Risk Foods) require extra attention and care
- Cross-Contamination
- Cross-Contact from one allergenic food to another can cause an allergic reaction to food
- Not following food safety procedures in restaurants puts guests at risk for foodborne illness and food allergy reactions

### Foodborne Illness

Foodborne Illness occurs when people get sick from something contained in food they eat or drink. Foodborne illness can be caused by:

- Bacteria, viruses, or parasites in foods
- Molds, toxins, and contaminants
- Allergic reactions to foods and ingredients

#### Risk of Foodborne Illness from Bacteria, Viruses, or Parasites

Bacteria and viruses are very small organisms that cannot be seen, smelled, or tasted. Harmful organisms can be present in foods when they enter a restaurant. Other times, these very small organisms get into food accidentally, contaminating the food, when a restaurant employee does not follow safe food practices. People who eat contaminated food can become sick. The foods that most commonly contain harmful bacteria and viruses are wide-ranging:

- Meat: beef, poultry, fish, shellfish
- Eggs
- Milk and dairy products
- Salads and other fresh cut leafy greens
- Whole, Ready-to-Eat fruits and vegetables
- Cooked starchy foods such as baked potatoes, pasta, rice, and beans



All of the above foods require **Time/Temperature Control for Safety**.

All foods should be stored, handled, prepared, and served using safe food handling practices; however, **Time/Temperature Control for Safety (TCS)** foods often require special attention and extra care. Both Standard Operating Procedures (SOPs) and Hazard Analysis Critical Control Point (HACCP) plans help minimize the risks associated with **Time/Temperature Control for Safety** foods.

### **People at High Risk**

People of any age can become ill from bacteria and viruses contained in food. Older people, very young children, pregnant women, and people with chronic health conditions or medical problems often suffer more severely from foodborne illness than a healthy adult. In severe cases, a person can die from an illness caused by bacteria, viruses, or parasites.

### ***Foodborne Illness – Just a stomach ache? Not always.***

**Symptoms of foodborne illness caused by bacteria, viruses, or parasites include:**

- Weakness
- Fever
- Nausea and vomiting
- Stomach cramps
- Diarrhea
- Kidney Failure

### **Scenario 1: Death from Hamburgers**



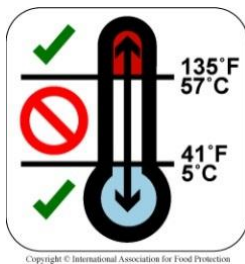
A few years ago, there was a foodborne illness outbreak that spread to four states with over 700 people becoming sick, 100 people requiring hospitalization, and four deaths. One child who died was a nine-year-old girl. Her kidneys and other organs failed. The bacteria causing this illness were found in hamburgers at a national chain restaurant. This bacteria caused illness because restaurant employees did not cook the hamburgers to a high enough internal temperature. To kill these bacteria, ground beef must be cooked to an internal temperature of 155°F. If you serve hamburgers at your restaurant, make sure that employees cook hamburgers long enough and check the final temperature with a thermometer. You do not want customers to become ill from something they eat at your restaurant.

### Preventing Foodborne Illness from Bacteria, Viruses, and Parasites

Harmful bacteria are often found in foods such as raw meat and poultry when the product is received at the restaurant. Harmful bacteria and viruses can also be spread to food when restaurant employees do not follow safe food handling practices. Some of these unsafe practices include the following:

- ✗ Employees handling food when they are ill
- ✗ Employees not properly washing hands before preparing or serving food
- ✗ Using dirty equipment
- ✗ Cross-Contamination
- ✗ Purchasing food from unreliable sources

Only safe food preparation methods and proper cooking can kill these bacteria so they do not make people ill. Employees in a restaurant with a **positive food safety culture** will practice behaviors to avoid these food safety hazards.



#### Temperature Danger Zone (TDZ)

Food temperatures are very useful to control the growth of bacteria. The temperature range from 41°F to 135°F is known as the Temperature Danger Zone (TDZ). At this temperature range, bacteria increase rapidly in numbers. Most harmful bacteria and viruses are killed when food is cooked to the proper internal temperature. For example, chicken should be cooked to an internal temperature of 165°F, while pork needs to reach an internal temperature of 145°F.

No one wants to cause a customer to become ill or die from foodborne illness. Simple steps you take can make a big difference. To reduce the risk of illness from bacteria, viruses, or parasites in food, follow these safe food handling practices:

- ✓ Wash hands frequently and thoroughly when preparing and serving food
- ✓ Stay home when sick
- ✓ Clean and sanitize kitchen equipment and utensils between and after each use
- ✓ Keep cold foods cold (41°F or below)
- ✓ Cook foods to high enough internal temperatures
- ✓ Hold hot foods at 135°F or higher
- ✓ Never leave food in the Temperature Danger Zone for more than 4 hours
- ✓ Reheat foods to 165°F or higher within 2 hours
- ✓ Throw away foods held at  $\geq 135^\circ\text{F}$  for 4 or more hours

#### Risk of Foodborne Illness from Allergic Reactions to Foods

Food allergens are very small protein particles found in food. These proteins cause allergic reactions in some people. Even the smallest amount of food protein can cause an allergic reaction. Like bacteria, viruses, and parasites, these particles cannot be seen, smelled, or tasted. There are eight foods that cause most allergic reactions; however, over 200 foods have been identified as causing food allergy reactions. The eight most common food allergens are known as **The Big Eight** which include milk, eggs, soy, wheat, fish, crustacean shellfish, peanuts, and tree nuts (such as almonds, walnuts, and pecans).

#### THE BIG EIGHT:

- Milk
- Eggs
- Soy
- Wheat
- Fish
- Crustacean Shellfish
- Peanuts
- Tree Nuts

### People at Risk

People of any age can have allergic reactions to foods. Unlike foodborne illness from bacteria, food allergy does not discriminate based on age. Food allergens are not destroyed by cooking. Individuals with a food allergy will have an allergic reaction by eating or drinking even the smallest amount of food allergen.

#### REMEMBER:

Cooking food does not kill food allergens.

Cooking food does not kill food allergens so proper handling and avoiding cross-contact of foods containing allergens is the only way to keep allergic individuals safe. The only way for an individual to prevent an allergic reaction to food is to avoid the food completely.

People of any age can have food allergies displaying a range of symptoms:

- Nausea
- Shortness of breath
- Itchy rash
- Swelling of the throat, tongue, face, eyes, hands, or feet
- Vomiting
- Diarrhea
- Stomach cramps
- Anaphylaxis

Similar to foodborne illness caused from bacteria, viruses, or parasites, in severe cases, a person can die from an allergic reaction to food.



### Scenario 2: Allergy to Shellfish was Deadly

A man died after having an allergic reaction to crustacean shellfish at a restaurant in Tennessee. He knew that he was allergic to shellfish, so he ordered a chicken dinner. However, the chicken dinner that was served contained a small amount of crab meat. The man had eaten only a few bites of his dinner when he went into anaphylactic shock. Within minutes of eating the food, his throat closed up, and he could not breathe. Employees called an ambulance, but he died before help arrived.

All restaurant employees, from managers to cooks to servers, must work together to make sure that customers with food allergies are not served a food that can make them ill or die. In this case, a cook was preparing shellfish (crab) and chicken using the same equipment and work counters. Small particles from the crab meat were accidentally mixed with the chicken. When this happens, it is called **Cross-Contact**. Employees at your restaurant can prevent **Cross-Contact** by using separate and clean equipment, utensils, and work counters to prepare foods for customers with allergies.

People who have food allergies must avoid eating foods that contain the allergen or it will cause them to become sick. When customers order foods from a restaurant, they do not expect the food to contain allergens from another food. Unfortunately, this can easily happen when employees are unaware of safe food handling practices for food allergens.

How can a customer be served food they are allergic to by accident?

- ✗ A cook substitutes ingredients in recipes without informing others
- ✗ Wait staff provide incorrect information to a customer
- ✗ Staff does not know all the ingredients in a product
- ✗ Cross-Contact

**AVOID CROSS-CONTACT:**

- Wash hands and change gloves and aprons between preparing different menu items
- Wash and sanitize equipment, utensils, and counters between food items

In the above case, a customer allergic to crustacean shellfish ordered the chicken dinner. He died because the chicken dinner actually contained a small amount of crab meat caused by **Cross-Contact**. The same knife and cutting board were used to cut both the crab and the chicken without being cleaned. The knife and cutting board contacted the crab and then transferred the allergen to the chicken.

**Preventing Foodborne Illness from Allergic Reactions to Food**

No one wants a customer to become ill or die from an allergic reaction to food. Many safe food handling practices will help you prevent this from happening:

- ✓ Wash hands and change gloves before preparing and serving an allergy free item
- ✓ Use standardized recipes
- ✓ Avoid adding or substituting ingredients
- ✓ Know what ingredients are contained in menu items
- ✓ Read food labels carefully
- ✓ If you are uncertain about an ingredient, tell the customer or ask a manager for help
- ✓ Clean kitchen equipment and utensils carefully between and after each use
- ✓ Use a separate work counter to prepare food for customers who have food allergies

**Cooking food does not kill food allergens. Customers who have food allergies can be safe only if they avoid eating foods to which they are allergic.**

[There is no video link for Chapter 1 Module 2.](#)

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## Foodborne Illness

**Module Quiz:** Please make sure you have read Chapter 1 – Module 2 before you take the quiz. If you have any questions about the information found in Module 2, please ask your manager before you begin.

1. Bacteria, viruses, and allergenic food proteins found in foods cannot be seen, smelled, or tasted.
  - a. True
  - b. False
2. Older people, young children, and people with chronic health conditions have a higher risk than other people of foodborne illness caused by bacteria and viruses.
  - a. True
  - b. False
3. In severe cases, a person can die from foodborne illness caused by:
  - a. Bacteria
  - b. Viruses
  - c. Food allergens
  - d. All of the above
4. Stomach cramps, vomiting, and diarrhea can be symptoms of foodborne illness caused by:
  - a. Bacteria
  - b. Viruses
  - c. Food allergens
  - d. All of the above
5. Having restaurant workers stay at home when they are sick can reduce risk of foodborne illness caused by:
  - a. Bacteria
  - b. Viruses
  - c. Food allergens
  - d. a. and b. only
6. Cooking foods to proper temperatures kills most harmful bacteria and viruses.
  - a. True
  - b. False
7. Washing hands often and cleaning kitchen equipment and utensils carefully are important food handling practices to prevent foodborne illness caused by:
  - a. Bacteria
  - b. Viruses
  - c. Food allergens
  - d. All of the above

8. Using standardized recipes can reduce the risk of foodborne illness caused by:
  - a. Bacteria
  - b. Viruses
  - c. Food allergens
  - d. All of the above
9. Which of the following actions by restaurant staff might result in a customer having an allergic reaction to food?
  - a. Following the standardized recipes for menu items
  - b. Using a separate work counter to prepare food for customers who have food allergies
  - c. Substituting chopped peanuts for walnuts in a recipe
  - d. Listing ingredients for menu items on the restaurant menu
10. A customer with a peanut allergy can eat a small amount of peanuts without becoming ill or having an allergic reaction.
  - a. True
  - b. False