

# 3

## Contamination, Food Allergens, and Foodborne Illness

### Chapter Overview

Chapter 3 introduces students to different types of contaminants and food allergens.

### Learning Objectives

- 3-1** Identify ways to prevent physical and chemical contamination
- 3-2** Summarize how deliberate contamination of food can be prevented
- 3-3** Identify the most common food allergens and their associated symptoms
- 3-4** Describe methods of preventing allergic reactions

### Opening Case Study

#### 1. How could this incident have been prevented?

Answer: The incident could have been prevented if the self-service area had an attendant or other employee supervising the area. Not only could the employee assist any guests that might need help, but they would likely have noticed the act. Their presence may have also deterred the person from deliberately contaminating the food.

## Chapter Breakdown

Pages 62 to 65

### 3.1 Physical and Chemical Contaminants

#### Resources

PowerPoint Slides 3 to 6

#### Reinforce and Review:

- Physical contamination can occur when foreign objects get into food. It can also take place when natural objects are left in food, such as the bones in a fish fillet.
- To prevent contamination, closely inspect the food you receive. Take steps to make sure food will not become physically contaminated during its flow through your operation.
- Chemical contaminants can come from many common substances within an operation. To prevent contamination, use only utensils and equipment that are made for handling food. Also store chemicals away from food, utensils, and equipment used for food. Follow the chemical manufacturers' directions for use as well.

#### Key Terms

No key terms for this section

#### Knowledge Check Answers

1. Common physical contaminants include:

- Metal shavings from cans
- Wood
- Fingernails
- Staples
- Bandages
- Glass
- Jewelry
- Dirt

2. Steps that can be taken to prevent chemical contamination include:

- Purchasing chemicals from approved, reputable suppliers
- Storing chemicals away from prep areas, food-storage areas, and service areas. Chemicals must be separated from food and food-contact surfaces by spacing and partitioning. Chemicals must NEVER be stored above food or food-contact surfaces.
- Using chemicals for their intended use and follow the manufacturers' directions

- Only handling food with equipment and utensils approved for foodservice use
- Making sure the manufacturers' labels on original chemical containers are readable
- Following the manufacturers' directions and local regulatory requirements when throwing out chemicals

## Chapter Breakdown

Pages 65 to 66

**3.2 The Deliberate Contamination of Food**

### Resources

PowerPoint Slide 7

### Reinforce and Review:

- Take steps to prevent the deliberate contamination of food. The key is to make food very difficult to tamper with at your operation. A food defense program should address where food can be at risk.

### Key Terms

- **Food defense program:** Program developed and implemented by an operation to prevent deliberate contamination of its food.
- **ALERT:** Acronym developed by the FDA to help operations develop a food defense program. ALERT stands for assure, look, employees, reports, and threat.

### Knowledge Check Answers

1. A food defense program is a program developed and implemented by an operation to prevent deliberate contamination of its food.
2. The manager is performing the "Look" step in ALERT. This step includes monitoring the security of the product in the facility by:
  - Limiting access to prep and storage areas. Locking storage areas is one way to do this.
  - Creating a system for handling damaged products.
  - Storing chemicals in a secure location.
  - Training staff to spot food defense threats.

## Chapter Breakdown

Pages 66 to 71

3.3 Allergens

### Resources

PowerPoint Slides 8 to 12

### Reinforce and Review:

- Managers and staff should be aware of the most common food allergens, which include milk, eggs, fish, crustacean shellfish, wheat, soy, peanuts, tree nuts, and sesame.
- Service staff should be able to tell guests about menu items that contain potential allergens. Kitchen staff needs to make sure that allergens are not transferred from food containing an allergen to food being served to a guest.

### Key Terms

- **Food allergen:** A naturally-occurring protein in food or in an ingredient that some people are sensitive to. When enough of an allergen is eaten, the immune system mistakenly considers it harmful and attacks the food protein. This can result in an allergic reaction.
- **Anaphylaxis:** A severe allergic reaction that can lead to death.
- **Cross-contact:** The transfer of an allergen from a food or food-contact surface containing an allergen to a food that does not contain an allergen.

### Knowledge Check Answers

1. The Big Nine allergens include:

- Milk
- Soy
- Eggs
- Wheat
- Fish
- Crustacean shellfish
- Peanuts
- Tree nuts
- Sesame

**2.** Cross-contact can be avoided by:

- Checking recipes and ingredient labels to confirm that the allergen is not present.
- Washing, rinsing, and sanitizing cookware, utensils, and equipment before prepping food. This includes food-prep surfaces. Some operations use a separate set of cooking utensils just for allergen special orders.
- Making sure the allergen does not touch anything for guests with food allergies, including food, beverages, utensils, equipment, and gloves.
- Washing hands and changing gloves before prepping food.
- Using separate fryers and cooking oils when frying food for guests with food allergies.
- Labeling food packaged on-site for retail sale. Name all major allergens on the label and follow any additional labeling requirements.

**CLASSROOM ACTIVITY: Allergens à la Carte**

LO: 3-3 Identify the most common food allergens and their associated symptoms

Materials: Blank paper, highlighters (optional)

1. Ask students to create a detailed menu of 4–5 dishes that contain at least one instance of each of the Big Nine allergens.
2. Have students get into pairs and swap menus with their partners.
3. Instruct students to highlight or circle the allergens in their partner’s menu.
4. Ask students to verify that their partner correctly identified all the allergens.

Instructor note: If students have a hard time getting started with their menus, help them generate ideas by suggesting a type of cuisine or encourage them to draw inspiration from their favorite restaurants.

## End of Chapter

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### Discussion Questions

#### 1. What are some ways to keep food safe from physical contaminants?

There are several ways to keep food safe from physical contaminants:

- Purchase food from approved, reputable suppliers.
- Closely inspect the food you receive.
- Take steps to make sure no physical contaminants can get into food in your operation. This includes making sure that food handlers practice good personal hygiene.

#### 2. A prep cook has decided to wear earrings while working. What is the food safety risk?

The earrings could fall into food and contaminate it. If a person were to bite down or eat the earrings, they could receive a cut or dental damage, or even choke.

#### 3. What are some ways to keep chemicals from contaminating food?

There are several ways to keep chemicals from contaminating food:

- Make sure chemicals are approved for use in a foodservice operation.
- Purchase chemicals from approved, reputable suppliers.
- Store chemicals away from prep areas, food-storage areas, and service areas.
- Separate chemicals from food and food-contact surfaces by spacing and partitioning.
- Do not store chemicals above food or food-contact surfaces.
- Use chemicals for their intended use and follow manufacturers' directions.
- Only handle food with equipment and utensils approved for foodservice use.
- Make sure the manufacturers' labels on original chemical containers are readable.
- Follow the manufacturers' directions and local regulatory requirements when throwing out chemicals.

#### 4. What are some ways to prevent the deliberate contamination of food?

There are several ways to prevent the deliberate contamination of food:

- Make sure that the products you receive are from safe sources.
- Monitor the security of products in the operation.
- Know who is in the operation.
- Keep information related to food defense accessible.
- Identify what you will do and who you will contact if there is suspicious activity or a threat at your operation.

## 5. What measures can be taken to help ensure the safety of guests with food allergies?

There are several measures that can be taken by both service staff and kitchen staff to ensure the safety of guests with food allergies.

Service staff:

- Describe dishes so guests know how they are prepared.
- Tell guests if the food they are allergic to is on the menu item.
- Identify any secret ingredients.
- Suggest menu items that do not contain the food that the guest is allergic to.
- Clearly mark the order for the guest with the identified food allergy.
- Deliver food to the guest with the allergy separately from other food delivered to the table.

Kitchen staff:

- Check recipes and ingredient labels to confirm that the allergen is not present.
- Wash, rinse, and sanitize cookware, utensils, and equipment before prepping food. If possible, use a separate set of cooking utensils just for allergen special orders.
- Make sure the allergen does not touch anything for guests with food allergies, including food, beverages, utensils, equipment, and gloves.
- Wash your hands and change gloves before prepping food.
- Use separate fryers and cooking oils when frying food for guests with food allergies.
- Label food packaged on-site.

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**Apply Your Knowledge**

### The 1984 Rajneeshee Bioterror Attack

#### 1. What could have been done to prevent what happened?

A staff member should have been assigned to monitor guests at the salad bar. Not only would this have helped prevent the accidental contamination of food by guests, but it may have stopped the terrorists from deliberately contaminating it.

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**Study Questions**

1. A. Store the sanitizer bottle away from the prep area.
2. C. Chemical
3. B. Smoked salmon wrapped in a lettuce leaf
4. A. Use cleaned and sanitized utensils when prepping the order.
5. A. Hold the product.
6. B. To address points in an operation where food is most at risk from deliberate contamination.