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Chapter 2

Keeping Food Safe

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2.1

Introduction to Food Safety

What Is a Foodborne Illness?



All restaurant and foodservice operations must keep food safe. Every person in the operation must work toward this goal.

- A **food-borne illness** is a disease transmitted to people by food.
- A **food-borne illness outbreak** is when two or more people get the same illness after eating the same food.

The **Centers for Disease Control and Prevention (CDC)** estimates that there will be 76 million cases of food-borne illness in the United States each year.

Who is most at risk?

- **High-risk populations** have a higher risk of getting a food-borne illness than others.
 - Pregnant women
 - Children
 - Elderly
- The **immune system** is the body's defense against illness.
 - When the system is weak, it cannot fight off illness as easily as a healthy system.



Forms of Contamination



To prevent food-borne illness, it is important to recognize the hazards that can make food unsafe.

- A **hazard** is something with the potential to cause harm.

- In the preparation of food, hazards are divided into three categories:
 - Biological
 - Chemical
 - Physical

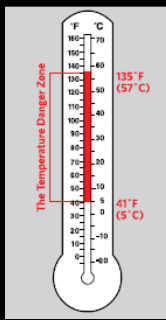
- Contamination means that harmful things are present in food, making it unsafe to eat.

Unsafe Practices



- Food can become unsafe through:
 - Poor personal hygiene
 - Time-temperature abuse
 - Cross-contamination
 - Poor cleaning and sanitizing
 - Purchasing from unapproved suppliers

Biological Contamination



Microorganisms are small, living organisms that can be seen only through a microscope.

- The four types of pathogens that can contaminate food and cause food-borne illness are:
 - **Bacteria**
 - **Viruses**
 - **Parasites**
 - **Fungi**
- **Biological toxins**, another form of biological contamination, are made by pathogens, or they come from a plant or an animal.

Biological Contamination: Bacteria



- Pathogens need six conditions to grow. An easy way to remember these conditions is by remembering the phrase FAT TOM:
 - Food
 - Acidity
 - Temperature
 - Time
 - Oxygen
 - Moisture

TCS Foods



- **TCS Food:**
 - Food that is most vulnerable for pathogen growth is food that needs time and temperature control for safety
- To control temperature, food handlers must keep TCS food out of the **temperature danger zone**.

41-135°F

Ready to Eat Foods



- **Ready-to-eat food:**
 - Food that can be eaten without further preparation, washing, or cooking
 - Needs careful handling to prevent contamination
 - Wear gloves when working with these foods

Other Biological Contamination: Viruses



- **Viruses** are the leading cause of food-borne illness.
 - Can survive refrigerator and freezer temperatures
 - Can't grow in food but can grow inside a person's intestines
 - Can be transferred from:
 - Person to person
 - People to food
 - People to food contact surfaces
 - Stay home if you've been vomiting, have diarrhea, or have jaundice
 - As a whole, avoid using bare hands on ready to eat foods

Other Biological Contamination: Parasites



- **Parasites** cannot grow in food.
 - They must **live in a host organism** to grow.
 - A **host** is a person, animal, or plant on which another organism lives and feeds.
 - Cows
 - Chickens
 - Pigs
 - Fish
 - Also found in contaminated water
 - Purchase food from **approved, reputable suppliers**

Other Biological Contamination: Fungi

Fungi can cause illness, but usually they cause food to spoil.

- Found in:
 - Air
 - Soil
 - Plants
 - Water
 - some food

Other Biological Contamination: Fungi

Mold that is visible to the human eye is actually a tangled mass of **thousands of tiny mold plants**.

- Can grow in any condition but grow especially well in acidic foods with little moisture.

Yeast can spoil food quickly.

- The signs of spoilage include the **smell or taste of alcohol, white or pink discoloration, slime, and bubbles**.
- Also grow well in acidic foods with little moisture.

Chemical Contamination



- Chemicals contaminants come from everyday items that are found in restaurant and foodservice operations and may cause food-borne illnesses.

Chemical Contamination Prevention



- Store chemicals in a separate area away from food, utensils, and equipment used for food.
 - Foodservice chemicals can contaminate food if they are used or stored in the wrong ways.
 - Includes: Cleaners, sanitizers, polishes, and machine lubricants

- To prevent toxic-metal poisoning:
 - only use utensils and equipment, including kettles, pots, serving-ware and pans, that are made for handling food.

Physical Contamination

- **Physical contamination** happens when objects get into food.
- Contaminants can be naturally occurring, such as the bones in fish, or result from accidents and mistakes.



Physical Contamination



- Common physical contaminants include:
 - Metal shavings from cans
 - Glass from broken light bulbs
 - Fingernails, hair, and bandages
 - Jewelry
 - Fruit pits

- Most physical contamination can be prevented by inspecting food closely, practicing good personal hygiene, and following preparation procedures.

Food Defense



Restaurant and foodservice employees also must take steps to prevent people from purposely contaminating food.

1. Prevent tampering by controlling access to the operation's food storage and preparation areas.
2. All employees in an operation, from busser to executive chef, should report anything that seems suspicious.

Allergens



A **food allergy** is the body's negative reaction to a food protein.

- Employees should be aware of major allergens and the menu items that contain them.
- When serving customers with food allergies, servers must be ready to answer customers' questions about any menu item.
- Servers should never take a guess about what a menu item contains. If they don't know, they should ask someone who does.

Allergens: Cross Contact



Cross-contact:

- Occurs when allergens are transferred from food containing an allergen to the food served to the customer.

U.S. Regulation of Food Safety



- Most regulations that affect restaurant and foodservice operations in the United States are written at the state level, but federal, state, and local governments are all involved.
- The Food and Drug Administration (FDA) writes the **FDA Food Code**, which recommends **specific food safety regulations** for the restaurant and foodservice industry.

U.S. Regulation of Food Safety



- An **inspection** is a formal review or examination conducted to see if an operation is following food safety laws.
- Successful restaurant and foodservice managers understand local food safety requirements and design policies that address them.

Section 2.1 Summary



- A food-borne illness is a disease transmitted to people by food.
- High-risk populations include people with weakened immune systems.
- Pathogens need six conditions to grow. These conditions can be remembered by FAT TOM: food, acidity, temperature, time, oxygen, and moisture.
- Those foods that need time and temperature control for safety are called TCS foods. Ready-to-eat food also needs careful handling to prevent contamination.
- Biological contamination can be prevented by purchasing from approved, reputable suppliers, and then cooking and holding dishes correctly.

Section 2.1

Summary (cont.)



- To store chemicals properly, keep them in a separate area away from food, utensils, and equipment used for food.
- A food defense system helps to prevent people from purposely contaminating food. One important way to prevent tampering is to make sure access to an operation's food is controlled through use of uniforms and name tags.
- The most common allergens include milk and dairy products, eggs and egg products, fish, shellfish, wheat, soy, peanuts, and tree nuts.
- The restaurant and foodservice industry is monitored by many agencies. The FDA writes the *FDA Food Code*, and each state adopts the code as it sees fit. State and local health departments then enforce these laws.

Assignment for Next Lesson:

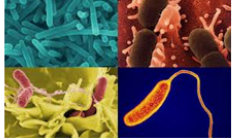
■ How to Handle an Outbreak

Name _____

Chapter 2: Keeping Food Safe, Culinary Arts 1
Mrs. Moehr
_____/10 points possible

How to Handle an Outbreak

In recent years, there have been numerous incidents of food-borne illnesses making the headlines. Research one incident and complete the following:



1. Source of the problem (type of food or contaminant):

2. Date(s) of outbreak: _____
3. Identify the pathogen(s) involved: _____
4. Number of people affected and demographic most affected (if available):