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Intro to Food Safety Workbook

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Introduction

This workbook is intended to introduce potential and new food service workers to important food safety principles. Customers at your facility or yourself dining out place their trust in food services workers who prepare and serve safe food. It is extremely important that each food service worker knows the basics about food safety.

General Food Safety

What is potentially hazardous food?

Potentially hazardous foods are products that require a time-temperature control in order to be safe for human consumption. Food safety organizations use this term to classify foods that contain moisture, protein, or are neutral to slightly acidic. Disease causing bacteria can easily grow in foods such as meats, poultry, seafood, eggs, dairy, cooked vegetables such as beans, and cooked cereal grains such as rice. These potentially hazardous foods must be kept above **135°F** or below **41°F** to avoid risk of illness.

Factors that increase risk of foodborne illness

A foodborne illness is caused when contaminated food containing bacteria, viruses, parasites, or toxins, is consumed. Although preventable, 1 in 6 Americans will become sick by consuming contaminated foods or beverages. **Five factors** that increase potential risk of foodborne illness are:

1. Holding potentially hazardous foods in improper hot and cold holding temperatures
2. Cooking foods at improper temperatures
3. Using dirty or contaminated utensils and equipment (Cutting boards, handles of utensils, etc)
4. Poor employee health and hygiene (unwashed hands, touching surfaces without washing after)
5. Unapproved food sources (foods must come from a licensed facility)

Contamination hazards and examples

Biological hazards are the most common cause of foodborne illness. They're caused by pathogenic microorganisms including viruses, bacteria, parasites, and fungi. Example: Consuming an undercooked meat product.

Physical hazards are objects that can be found in food such as: naturally occurring objects (bone, animal hair, leaves, etc) Agricultural occurring objects (manure, dirt, etc) and objects added during processing (plastic, metal, glass, hair, etc). Example: Consuming food that contains shards of glass.

Chemical hazards are substances that can be found around the workplace areas. Chemical hazards include substances such as sanitizers and cleaning solutions. Example: Storing food on the same shelf as cleaning solutions.

FAT TOM

An acronym used in the food service industry to define the six favorable conditions that are required for foodborne pathogen growth: **Food, Acidity, Time, Temperature, Oxygen,** and **Moisture**.

Food – Enough nutrients in food to promote growth of microorganisms.
Acidity – Foodborne pathogens require a slightly acidic environment to thrive.
Time – Food must be removed from "danger zone" within two-four hours by either cooling or heating.
Temperature – Foodborne pathogens grow best between **41°F** to **135°F**, also known as the "danger zone"
Oxygen – Most foodborne pathogens require oxygen to grow, making them aerobic.
Moisture – Water is an essential for growth of foodborne pathogens.

Time and Temperature Requirements

Temperature Danger Zone

Allowing food to be left out at room temperature for too long can cause bacteria to grow on food that can be dangerous and cause illness. Bacteria tend to grow rapidly between the temperatures of **41°F** and **135°F** often calling this range the "**Danger Zone**." Never leave food out of refrigeration for longer than **2 hours**.

Hot holding and cold holding temperatures

Hot-holding equipment must be able to keep foods at **135°F** or higher while cold-holding equipment must keep foods at **41°F** or colder.
When holding hot foods for service:

- Stir food regularly to help evenly distribute the heat throughout the food.
- Keep food covered to retain heat and eliminate potential contaminants.
- Check temperature every 2 hours with thermometer.
- Discard any hot food after 4 hours not maintaining a temperature of 135°F or higher.

When holding cold foods for service:

- Protect foods by covering them to avoid contaminants. Foods must have a cover during storage as well, this could be a lid, cling wrap, etc.
- Use a thermometer to check the temperature every 2 hours.
- Never store food directly on ice. Place items in pans surrounding them with ice.
- Frozen foods must remain frozen.

How to use a thermometer

A food thermometer is the only dependable way to ensure the safe temperature of meat, poultry, and egg products. Proper placement of the thermometer in the food will ensure an accurate reading. If the thermometer is not inserted correctly, or placed in the wrong area, the temperature reading will not accurately reflect the internal temperature. Generally, the food thermometer should be inserted in the thickest part of the food.

Safe cooling process or "quick chill"

Potentially hazardous foods should be cooled down rapidly from 135°F to 41°F within 6 hours with the drop from 135°F to 70°F occurring within 2 hours. Improper cooling methods are one of the leading causes of foodborne illness. Safe cooling methods of potentially hazardous foods include:

- Placing food in shallow pans or stainless steel containers and putting in an appropriate refrigeration unit.
- Placing the potentially hazardous food in a heat-conducting container and placing it in an ice bath while frequently stirring.
- Use equipment designed for quick cooling of foods.
- Separate into smaller, thinner portions and place in an appropriate refrigeration unit.
- Add ice as an ingredient

Safe thawing processes

Perishable foods must never be left at room temperature to thaw. Proper thawing techniques are as followed:

Refrigerator thawing is the longest, but safest way to thaw food. Once the food is thawed, it should remain safe and in good quality for an additional day or two before having to cook it or refreeze it.

Cold water thawing is faster than refrigerator thawing but requires more attention. Food must be in a leak-proof bag before submerging in cold tap water. Change water every 30 minutes until food is thawed. Once thawed completely, the food must be cooked immediately.

Microwave thawing should only be done if the food item is being cooked promptly after because some areas of the food may be warm and begin to cook bringing it to optimal temperatures for bacterial growth.

Cooking without thawing should only be done if there's not enough time to thaw frozen foods. It is safe to cook foods from a frozen state just keep in mind, cooking will take approximately 50% longer than usual thawing time.

Personal Hygiene

Personal hygiene for all food handlers

All food handlers must practice personal hygiene and cleanliness to minimize the risk of food contamination and provide safe food to customers. If working with food, one must always be clean and in good health; that includes bathing daily and wearing a clean pair of clothes. If you're feeling ill, you must not go to work and notify a supervisor about your condition to avoid possible contamination. It is also very important to avoid direct bare hand contact with foods that are ready to eat.

Hand washing procedures and the importance of handwashing sinks

The most important hygiene practice in food handling is hand washing. The following steps are how employees should wash their hands:

- First, rinse hands with hot water and apply soap.
- Second, rub your hands together for at least **20 seconds** making sure to scrub between your fingers, under your nails, your forearms, and the back your hands.
- Third, completely rinse off your hands under water and promptly dry them with a disposable paper towel.

Hand washing should take place in an approved, designated hand sink. Other sinks such as wash sinks and food preparation sinks are not accepted for hand washing. The hand washing station must be accessible at all times and should have a sufficient supply of hot water, soap, and paper towels. One must abide by these guidelines to avoid cross-contamination.

Cross-Contamination

What is cross-contamination?

Cross-contamination is the unintentional transfer of harmful bacteria to food from raw foods or contaminated surfaces that are not being handled properly. Preventing cross-contamination is a huge factor in preventing foodborne illness.

Separate raw foods from 'ready to eat' foods

Separating raw foods from 'ready to eat' foods is a crucial step in avoiding cross-contamination and future foodborne illness. Raw animal foods such as raw meats, eggs, poultry, and fish should always be stored in containers on the lowest shelf of the refrigerator. This helps prevent meat juices from dripping onto cooked foods and other ready to eat foods avoiding the risk of cross contamination. Finally, all food products must be stored at least six inches about the floor at all times.

Hand usage and cross-contamination

All food handlers must keep in mind that their hands can be a big factor when it comes to cross-contamination. You should always be aware of what your hands are touching and recognize that you have to wash them to prevent passing the contamination to prepared foods. One must always was their hands when:

- First arriving to work
- Before handling food and utensils
- Before putting on gloves and in between gloves changes
- After using the restroom
- After coming in contact with your body or uniform
- After handling dirty equipment, dishes or utensils
- After taking your break
- After any activity that can cause contamination (taking out trash, sweeping floor, etc)

Cleaning and Sanitizing

Defining cleaning and sanitizing

There is a huge difference between washing and sanitizing. Washing is when you remove visible soil and contamination with a cleaning agent while sanitizing is when you kill and reduce the number of harmful bacteria to a 99.999% reduction via heat, radiation, or chemicals. You must wash **AND** sanitize every surface that comes into direct contact with food to make sure that it's completely free of any contamination.

3 Compartment Sinks

All establishments that do not have automatic dishwashing equipment are required to have a sink with at least three compartments for **washing**, **rinsing**, and **sanitizing** all equipment and integral drain boards. The compartments of the sink should be big enough to fit the largest cooking equipment, such as pots and pans. Compartment sinks should not be used for washing mops or hands. The following is the order for proper manual washing:

- **Wash** at 110°F water with detergent.
- **Rinse** with hot, clean water.
- **Sanitize** with 175°F water only or 75°F water with sanitizer (follow the manufacturer's directions for sanitizer use.)
    - 50 ppm for chlorine
    - 200 ppm for quaternary ammonia

ALWAYS remember to maintain the correct temperatures and sanitizer concentration to avoid cross-contamination.

Food Safety Multiple Choice Quiz

1. Cold potentially hazardous food should be held at what temperature or below?
    A. Above 41°F at all times.
    B. Between 41°F and 135°F at all times.
    C. Below 41°F at all times.
    D. Any temperature if the food is pre-packaged.

2. Hot, cooked potentially hazardous food should be held at what temperature or above?
    A. Above 41°F at all times.
    B. Above 135°F at all times.
    C. Between 41°F and 135°F at all times.
    D. At any temperature if food is already cooked.

3. Storing food on the same shelf as your cleaning solutions would be what type of hazard?
    A. Biological hazard.
    B. Physical hazard.
    C. Chemical hazard.
    D. All of the above.

4. Consuming an undercooked meat product would be what type of hazard?
    A. Biological hazard.
    B. Physical hazard.
    C. Chemical hazard.
    D. All of the above.

5. Consuming food that contains shards of glass would be what type of hazard?
    A. Biological hazard.
    B. Physical hazard.
    C. Chemical hazard.
    D. All of the above.

6. What does the acronym FAT TOM stand for?
    A. Fish, Albacore, Tilapia, Trout, Oyster, Mackerel.
    B. Flank, Arm, Tenderloin, Top, Offal, Mock.
    C. Fennel, Allspice, Thyme, Tarragon, Onion, Mint.
    D. Food, Acidity, Time, Temperature, Oxygen, Moisture.

7. What temperature range does the “danger zone” fall under?
    A. 110°F - 170°F.
    B. 41°F - 135°F.
    C. 30°F - 120°F.
    D. 50°F - 150°F.

8. How would you check the temperature for a turkey?
    A. Touch the outside and see if the turkey is hot.
    B. Insert the thermometer making sure it’s touching bone.
    C. Insert the thermometer in the thickest part of the meat.
    D. Turkey should be properly cooked if cooking directions were followed correctly.

9. What is a proper procedure for cooling food?
    A. The food should be placed in shallow, stainless steel pans in a walk-in cooler.
    B. Leave the food at room temperature for 2 hours then proceed to put in the walk-in cooler.
    C. Always cool the food in the same container it was cooked in.
    D. The method used to cool down food doesn’t matter, as long as the food is reheated to above 165°F.

10. What is one of the correct ways to thaw food?
    A. In a hot water bath.
    B. At room temperature.
    C. Inside a refrigerator or under cold running water.
    D. In the oven.

11. How long should you scrub your hands for when you wash them?
    A. 10 seconds.
    B. 20 seconds.
    C. 30 seconds.
    D. 40 seconds.

12. How can a food handler cause cross-contamination?
    A. Using the same cutting board with raw meat and vegetables.
    B. Not washing their hands after using the restroom.
    C. Coughing or sneezing into their hand.
    D. All of the above.

13. How must raw animal foods (raw meat) be stored in the refrigerator?
    A. On the top shelf.
    B. In the middle shelf.
    C. Stored in containers on the lowest shelves of the refrigerator.
    D. Anywhere space is available.

14. When should you wash your hands when handling food?
    A. After using the restroom.
    B. Before handling food and utensils.
    C. After handling dirty equipment, dishes, or utensils.
    D. All of the above.

15. What is the difference between washing and sanitizing?
    A. Washing makes things look clean while sanitizing makes them smell good.
    B. Washing removes food stains while sanitizing removes contamination.
    C. Washing removes contamination while sanitizing destroys microorganisms.
    D. There is no difference.

16. In what order are you required to clean your food equipment and utensils?
    A. Sanitize, Wash, Rinse.
    B. Wash, Rinse, Sanitize.
    C. Rinse, Wash, Sanitize.
    D. Sanitize, Rinse, Wash.

Answers: (1) C; (2) B; (3) C; (4) A; (5) C; (6) D; (7) B; (8) C; (9) A; (10) C; (11) B; (12) D; (13) C; (14) D; (15) C; (16) B.