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Environmental Services Support
Since 1987

ServSafe© Food Safety Manager Exam Study Guide

Chapter 5: The Flow of Food

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Chapter 5: The Flow of Food

Cross Contamination

- Cross Contamination: Pathogens can move easily in the foodservice operation by spreading from food or unwashed hands to prep areas, equipment, utensils, or other food.
- The most basic way to prevent cross contamination is to keep raw and ready to eat foods separate from each other:
    - Separate Equipment: Use separate equipment for each type of food. For example, use one set of cutting boards, utensils, and containers for raw poultry and use another set for raw meat. Color coded equipment are a good way to maintain control of this in the foodservice operation.
    - Cleaning and Sanitizing. Clean and sanitize all work surfaces, equipment, and utensils after each task. For example, be sure to clean and sanitize all equipment and surfaces when cutting raw chicken instead of just rinsing the equipment and surfaces. To prevent pathogens such as Salmonella spp. From contaminating food, you must wash, rinse and sanitize all equipment.
    - Prep Food at Different Times. If you need to prep different types of food such as fish, chicken and beef on the same table, be sure to prep at different times and clean and sanitize all surfaces between each product. Also, by prepping ready to eat foods before raw foods, you can minimize the chances of cross contamination.
    - Buy prepared food. Buy items that don't require much prepping or handling. For example, buy pre-cooked chicken breasts or already chopped lettuce.

Time Temperature Abuse

- Most foodborne illnesses occur when TCS (foods that need time and temperature controls for safety) have been time-temperature abused.
- Food has been time temperature abused any time that it remains at 41°F to 135°F (5°C to 57°C) – this is known as the Temperature Danger Zone, because pathogens grow quickly at this temperature range.
- Pathogens can grow even faster at temperatures between 70°F and 125° F (21°C and 52°C).
- Food is being temperature abused when it is handled in the following ways:
    - Food is cooked to the wrong internal temperature.
    - Food is held at the wrong temperature.
    - Food is cooled or re-heated incorrectly.
    - Sneezing, coughing, or using a tissue.
- The longer food stays in the temperature danger zone, the more time pathogens have time to grow.
- To keep food safe, you must reduce the time food spends in the Temperature Danger Zone.

- If food is held in the Temperature Danger Zone - 41°F to 135°F (5°C to 57°C) – for (4) hours or more, it must be thrown away.

Avoiding Time-Temperature Abuse

- Establishing good policies and procedures for your establishment will help prevent time-temperature abuse. The policies and procedures should cover the following points:
    - Monitoring. Determine which foods should be checked, how often and who has the responsibility to monitor to avoid time and temperature abuse.
    - Tools. Make sure that the right thermometers are in use and have timers available to help determine how long food is in the temperature danger zone.
    - Recording. Have foodhandlers record the internal temperatures of food often. Make sure that they record when the temperature was taken and on what part of the food.
    - Time and temperature control. Have procedures to control the amount of food that is taken out all at once to prep.
    - Corrections. Make sure foodhandlers know what to do when time and temperature standards are not met.

Monitoring Time and Temperature

- To keep foods safe, you must monitor the time it spends in the temperature danger zone. The most important tool to monitor this is through a thermometer.
- There are several types of thermometers that are commonly used in food service operations:
    - Bimetallic stemmed thermometers
    - Thermocouples and Thermistors
    - Infrared (Laser) thermometers
- Bimetallic stemmed thermometers
    - Measures temperature through the stem of the thermometer.
    - When checking temperatures, insert the stem of the thermometer in the food up to the dimple of the thermometer.
    - This type of thermometer is especially useful for sensing the temperature of thick or large food.
    - Calibration Nut. You can adjust the thermometer to make it accurate by sing the calibration nut.
    - Make sure that the bimetallic stemmed thermometer is easy to read and that the manufacturer guarantees accuracy to within ±2°F (±1°C) and that the dimple of the thermometer is clearly visible before purchasing this type of thermometer.
- Thermocouples and Thermistors thermometers
    - These type of thermometers measure temperature through a metal probe. The sensing areas of these thermometers is on the tip of their probe.

    - You do not have to insert these type of thermometers into food as deeply as you do with bimetallic thermometers. These make it ideal for thinner foods such as hamburger patties.
    - Temperatures are displayed digitally and many come with different types of probes.
    - Such probes include: Immersion probes (to check frying oil, soups, etc.), surface probe (to check griddles, etc.), penetration probes (check internal temperature of foods), and air probes (to check temperatures inside coolers and ovens).
- Infrared (Laser) thermometers
    - Generally quick and easy to use since they do not need to touch the surface to check its temperature.
    - There is less chance of cross contamination with infrared thermometers since they do not touch food or equipment.
    - These thermometers CAN NOT measure the internal temperature of food.
    - Follow these manufacturer's guidelines closely when using infrared thermometers.
    - Do not take temperatures through glass or metal with an infrared thermometer.

How to Calibrate Thermometers

- Thermometers can lose their accuracy when they go through several temperature differences, bumped or dropped.
- Calibrating a thermometer is the adjusting of the thermometer itself so that it gives a correct reading.
- There are two ways to calibrate a thermometer: 1. One is to adjust it based on the temperature that water freezes – this is called the ice point method 2. The other is to adjust it based on the temperature that water boils – this is called the boiling point method.

Ice Point Method for Calibrating a Thermometer

- Follow these steps to calibrate a thermometer using the ice point method:
    - Fill a large container with crushed ice. Add tap water until the container is full. Sir the mixture well.
    - Put the thermometer stem or probe into the ice water. Make sure that the sensing area is underwater. Wait 30 seconds or until the indicator or readout stops moving. Do not let the probe touch the container.
    - Adjust the thermometer so it reads 32°F (0°C). How you do this depends on the thermometer that is being used.
    - Always follow the manufacturer's directions on any type of thermometer for correct calibration.

Boiling Point Method for Calibrating a Thermometer

- Follow these steps to calibrate a thermometer using the boiling point method:
    - Bring tap water to a boil in a deep pan

- Put the thermometer stem or probe into the boiling water. Make sure the sensing area is underwater.
- Wait 30 seconds or until the indicator or readout stops moving. Do not let the probe touch the container.
- Adjust the thermometer so it reads 212°F (100°C). Note that the temperature will vary depending on the boiling point for your elevation.
- Always follow the manufacturer's directions on any type of thermometer for correct calibration.

General Guidelines for Using Thermometers

- Always clean and sanitize after each use. Remember to keep storage cases clean also.
- Calibrate. Thermometers should also be calibrated at the start of each shift.
- Accuracy. Cross reference the accuracy of thermometers – especially those that can not be collaborated – with another thermometer.
- Glass Thermometers. NEVER use glass thermometers to check the temperature of foods.
- Checking Temperatures. Always insert the probe into the thickest part of the food when checking its temperature. This is usually the center. Also take another reading at a different spot.
- Always wait for the thermometer to steady before recording the temperature – or at least 15 seconds after inserting the stem or probe.