Updated for the 2022 FDA Food Code

Introduction to Culinary Arts Management

Safety, Recipes and Certification

SECOND EDITION

SDC PUBLICATIONS

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Chapter 02

Handling Food Safely

Introduction

Much of what this section covers will sound like common sense and might be what many people already do at home when cooking. However, given the fast-paced environment and the potential dangers to consumers, especially the highly susceptible population (HSP) or those with allergies, safe food handling best practices in the foodservice industry cannot be left to chance.

The United States (U.S.) Food and Drug Administration (FDA) created and maintains the Food Code, which they recommend state and local jurisdictions adopt to protect food employees and the public from physical and foodborne illness dangers. Every food employee must thoroughly understand safe food handling through training, practice, enforcement, and consistent corrective action. By doing so, everyone will work as a team, and muscle memory will kick in when things get busy or distracting.

Key Terms

Keep an eye out for these essential topics:

- Protective coverings
- Restrict and Exclude
- Highly Susceptible Population (HSP)
- Ready-to-eat Foods (RTE)
- Personal Hygiene
- Carrier
- Corrective Action
- Handwashing
- Jaundice

Objectives

After working through this chapter, you should be able to explain the following to friends and family:

- Know how and when to wash hands
- Describe ready-to-eat-foods (RTE)
- Understand the importance of personal hygiene
- The importance of single-use gloves
- Explain exclude and restrict
- Know when to report health-related issues

Lin, *Managing Owner*

Lin owns a small dumpling shop in the heart of New York City. He has 5 dedicated employees who work hard to meet the demands of the busy business that is open seven days a week. Although Lin expects hard work, they are all paid well and enjoy the number of hours they work. But one day, Lin discovered one of his employees had the wrong idea about how dedicated he needed to be.

As Lin walked past the employee restroom to grab more produce from storage, he heard a strange sound. On his way back to the kitchen, John came out of the restroom. Lin asked if he was all right as he thought he heard what sounded like vomiting. John said he did in fact vomit, but felt better and could for sure finish his shift. He only had one hour left to work and it was during a busy lunch rush.

Lin knew that the FDA Food Code requires any employee who experienced vomiting, diarrhea, or jaundice to be excluded from work immediately. Lin said he appreciated John's desire to work hard but his health and the safety of the customer are more important. Lin sent John home and instructed him to not return until 24 hours after his symptoms had passed. With one less person, the team pushed through the rush and two days later John was back and thankful to have had the time to recover properly.

References in this Coursebook:

Glossary reference: Orange text means the definition of the word can be found in the Glossary located in the Student Workbook.

Food Code section reference: To verify or further study topics covered in this Coursebook, the FDA Food Code section numbers are provided in the margins. The current version of the offical code may be download here: https://www.fda.gov/food/retail-food-protection/fda-food-code

Why It Matters

The global COVID-19 pandemic has taught us that a virus (or microorganism) can and will spread, despite our best efforts. When handling food, over 40 kinds of bacteria, parasites, viruses, and molds (collectively called pathogens) can spread and contaminate food, causing foodborne illness. The stakes are high as about 48 million people a year experience foodborne illness, 128,000 are hospitalized, and roughly 3,000 die, according to the Centers for Disease Control (CDC). People sometimes describe a foodborne illness experience as having food poisoning or the stomach flu. Here are a few examples of how a food handler can contaminate food:

- Poor personal hygiene
- Improper handwashing
- Working while sick
- Bare hand contact with ready-to-eat (RTE) foods

KEY TERM Foodborne Illness is an illness caused by a harmful contaminant in consumed food.

Food safety is in the hands of the food employee. They must handle food safely to prevent the spread of contaminants through food. The ability to do so begins with training.

Personal Hygiene

People who work with or around food must start each day personally clean, including their **skin**, **hair**, and **outer clothing**, to minimize the spread of pathogens. Personal cleanliness is necessary to prevent contaminating food, equipment, and utensils. Managers will exclude or restrict staff, preventing or limiting them from working if they are not clean when they arrive. Employees should have multiple sets of work clothes or uniforms, or they must wash them between shifts. 2-304.11

People who prepare and handle food need to keep their fingernails trimmed, filed, and maintained, so the edges and surfaces are cleanable and not rough. Fingernail polish or artificial fingernails are prohibited unless wearing single-use gloves. 2-302.11

Jewelry is prohibited while preparing food, except for a simple wedding band. This includes medical information jewelry on the arms, such as a bracelet. It is difficult to clean around jewelry properly, and it is dangerous to lose it in the food and possibly harm a consumer. 2-303.11

Smoking, vaping, chewing gum, or tobacco products is prohibited except in designated areas away from food preparation areas and typically outside. 2-401.11

Handwashing

To effectively reduce the spread of pathogens from an employee's hands to food, handwashing must be performed appropriately. The steps to effectively wash hands are shown in the adjacent graphic. Care must be taken not to re-contaminate hands; thus, use a paper towel to turn off the faucet and open the restroom door. It is vital to scrub around the fingernails, as they are often the most contaminated part of the hands since they are the most difficult to clean. Each handwashing step is essential and should be performed consistently to minimize the potential of contaminating food. To wash hands or prosthetic devices correctly, use the steps on the following page. The whole process should take at least 20 seconds.

5-202.12

Starting with the 2022 Food Code, the water temperature at a handwashing sink must be 85°F (29.4°C) or higher. The goal is comfort, as food handlers are less likely to wash their hands if the water is too hot or cold. For handwashing, soap is what inactivates pathogens, not the water temperature.

In addition to knowing how to properly wash hands, it is equally important to know when and where to do it.

Where to Wash Hands

2-301.15

Hands may only be washed in a handwashing sink or approved automatic handwashing facility. Everything else is excluded, like a three-compartment sink, mop sinks, or sinks used for food preparation. Proper separation of hand washing and other sink-related tasks helps prevent cross-contamination which can lead to foodborne illness.

Figure 1

KEY TERM Cross-Contamination occurs when a pathogen, chemical, or physical substance has been transferred to a food or beverage. The result can be potentially harmful, causing foodborne illness if consumed.

2-301.12

1 Rinse under clean, warm running water.

2 Apply soap.

3 Rub all surfaces of the hands and fingernails together vigorously for at least 10 to 15 seconds.

4 Rinse thoroughly with clean, warm running water.

5 Thoroughly dry the hands and exposed portions of arms.

Figure 2

When to Wash Hands

2-301.14

Food handlers should wash their hands immediately after engaging in activities that contaminate the hands and:

- When entering a food preparation area
- Before putting on clean, single-use gloves for working with food and between glove changes
- Before engaging in food preparation
- Before handling serving utensils and clean equipment
- When changing tasks and switching between working with read-to-eat foods or handling raw foods
- After touching soiled equipment, dishes, utensils, or mobile device (cellphone)
- After touching bare human body parts, like arms, ears, or nose - except clean hands and arms
- After using the restroom or toilet
- After sneezing, coughing, blowing the nose, using tobacco products, drinking, or eating
- After caring for or handling aquatic animals such as molluscan shellfish or crustacea in display tanks or service animals
- After any activities that contaminate the hands

Figure 3

Hand Antiseptics

2-301.16

Hand antiseptics, used as a topical application, may be found within a restaurant but are technically optional and cannot be used in place of proper handwashing, so it is essential to know what this is and when it may be used. Hand antiseptic, also known as hand sanitizer—liquid or gel—is not a triple-antibiotic, such as Neosporin, used to treat a wound. Instead, it is a disinfectant that removes pathogens from the surface of the hands. However, its effectiveness is varied depending on the amount of contamination and physical debris on the hands and fingernails. If used, **only use it after washing hands, let it fully dry, and never in place of proper handwashing**.

Figure 4

Manager's Responsibility

2-103.11(D)

Ultimately, the food establishment manager is responsible for the personal hygiene of their employees. They are required to train and monitor food employees for proper personal hygiene. **Corrective actions** are required when workers are not following procedure by immediately being corrected and retrained. Additionally, contaminated food must be discarded, and tainted equipment must be cleaned and sanitized.

Because the consequences are severe, staff who continually fail to follow the well-defined and modeled rules may be terminated. When these essential policies are not adhered to, an operation can be cited during inspections, and customers can become sick or even die from contaminated food. As a result of these unfortunate events, the business may have its reputation tarnished or end up going out of business. When it comes to handwashing, managers are responsible for:

- Ensuring that food employees wash their hands, as required.
- Providing accessible, adequately maintained, designated handwashing sinks.
- Making sure that handwashing sinks have clean, running warm water, soap and paper towels, or other approved means for drying.
- Posting signage that notifies food employees of the handwashing requirement.
- Monitoring food employees to ensure proper handwashing and suitable hand hygiene protocol during the work shift.

FDA Handwashing Study

FDA Employee Health and Personal Hygiene Handbook, Page 16

To help emphasize the challenges of complying with the Food Code, consider the surprising results of a study performed by the FDA in 2018. Full-service and fast-food restaurants were out of compliance with proper handwashing practices by 81% and 65%, respectively. That's right, less than half the time, hands are not being adequately cleaned to prevent cross-contamination, which can put customers at risk of serious illness. To improve handwashing compliance:

Make it a Priority

Consistent enforcement of a mandatory handwashing policy will lead to greater compliance.

Remove Deterrents

Provide sinks near the needed areas and keep them clean and accessible. Make sure they are consistently stocked with soap, paper towels, and a trash can. The sink should also have warm water.

Motivate & Reward Staff

Recognize and reward compliance with the handwashing policy to motivate staff.

While this entire book is about food safety and culinary arts, this section will briefly introduce some essential topics to anyone who works with food in a commercial capacity must know. Basic food safety topics:

- Working with ready-to-eat (RTE) foods
- Using single-use gloves
- Understanding rules related to employee illness and disease
- Wearing hair restraints

Ready-to-Eat (RTE) Foods

Any food that can be eaten as-is and does not need to be washed to remove germs or if it has already been cooked is considered a ready-to-eat (RTE) food. Examples of RTE foods include:

- Any food not cooked after final preparation, such as sushi or sandwiches
- Washed produce that is eaten raw, such as fruits and salads
- Bakery or bread items, such as toast or rolls
- Cooked food, such as pizza and hamburgers
- Garnishes, like parsley, lemon wedges, or pickles on plates
- Fruits or vegetables for mixed drinks or smoothies
- Ice

Never handle RTE foods with bare hands!

3-301.11

An essential rule is to never handle ready-to-eat foods with bare hands (with rare exceptions in some jurisdictions). However, it is acceptable to handle RTE foods if there is a subsequent pathogen-kill step. For example, it is OK to use bare hands to add cooked bacon as an ingredient to a dish that will be cooked (to a minimum internal temperature specified in the FDA Food Code). Another example, which is allowed, is using bare hands to add cheese topping to a pizza. In these scenarios, any pathogens which may have transferred from the food employee's hands to the food will be destroyed or reduced to safe levels. By contrast, it is not acceptable to add a cheese topping to a sandwich with bare hands.

Even with effective handwashing practices, heavily contaminated hands can still transmit pathogens from bare hands to food and contribute to a foodborne illness outbreak. Therefore, RTE foods must be handled with suitable utensils. Utensils to handle ready-to-eat foods include:

- Deli paper
- Tongs
- Spatula
- Single-use gloves
- Chopsticks
- Toothpicks
- Scoops
- Ladles
- Other utensils

Protective Coverings

In addition to good personal hygiene, a food employee must wear proper protective coverings, as required, when working with food or food equipment. This section will cover the "what" and the "when" requirements for protective coverings to prevent food contamination.

Single–use Gloves

Combined with proper hand washing, using single-use gloves when handling RTE foods can effectively decrease the transfer of pathogens from hands to food and thus minimize the chances of a foodborne illness outbreak. It is essential, however, to keep in mind that the use of suitable gloves does not guarantee protection from the transmission of microorganisms from hands to food. Therefore, the best course of action is staff training on handwashing and glove usage, followed by consistent modeling and enforcement.

Figure 5

Follow these instructions for the use of single-use gloves:

- Wash hands before using gloves
- 2-304.15(A) Change gloves and wash hands between handling RTE foods, raw ingredients, or when interruptions in a workflow happen
- Do not reuse or wash disposable or single-use gloves
- Discard damaged or torn single-use gloves
- Annex 3, 4-602.11 Gloves are considered utensils, and as such must be replaced no less than every four hours during continued use to prevent the growth of pathogens.
- Wear single-use gloves over nail polish, artificial nails, or uncleanable orthopedic support devices.

If gloves are not used properly, they can become a source of cross-contamination. Since gloves are not put on the hands by someone else like they are for a surgeon, it is not hard to imagine how dirty hands can instantly contaminate the gloves while they are being put on. This contamination risk is why washing hands before using gloves is essential.

Annex 3, 3-304.15 Latex can cause an allergic reaction to some staff and, in rare cases, customers consuming food touched by latex gloves. 2-304.15(D) Cloth gloves, sometimes used by servers in fine dining establishments, may only touch food if it is subsequently cooked. Gloves should be purchased from an approved reputable vendor, and a latex alternative should be available for staff sensitive to latex. Since hands are not the same size, multiple glove sizes should be available for a correct fit, which helps with agility and safety while handling food.

2-201.11(A)(1)(2)(iii) A cut, burn, or lesion containing pus such as a boil or infected wound that is open or draining must be covered by a dry, durable, tight-fitting bandage or finger cot. To help avoid contaminating food, bandages should be brightly colored and covered with a single-use glove. 2-401.13

Hair Restraints

2-402.11 To keep hair from touching or contaminating food, the Food Code requires that food employees wear hair restraints, such as nets, hats, and clothing covering body hair. This requirement does not apply to staff who only serve beverages and packaged or wrapped foods. Servers, hosts, and bus staff are also excluded from covering hair if they present minimal risk of contaminating exposed food, equipment, or utensils.

Figure 6

Personal Eating and Drinking

There are certain rules that must be followed related to a food employee consuming food or a beverage while working. The main goal of these rules is to prevent the contamination of food being prepared for the consumer.

Contained Beverages

2-401.11

It is essential to stay hydrated while working as a food employee to stay healthy and work efficiently. Staff often drink water or soda throughout their shift—water is better for keeping hydrated. While consuming a beverage is allowed, even in the work area, there are some rules to follow to prevent direct or cross-contamination of food. Beverage rules for food staff:

- Closed container; *with lid and straw or sip lid*
- Stored on a non-food contact surface; e.g., *a supply shelf or atop a microwave*
- Separate from exposed food, clean equipment, or unwrapped single-use articles

Eating and Tasting Food

When food must be taste-tested to ensure proper seasoning, the utensil may only be used once to prevent food contamination. Corrective action must be taken immediately when food employees are out of compliance. This involves disposing of contaminated food, cleaning affected equipment, and retraining.

2-401.11
6-403.11

Food workers are not allowed to eat meals in or around food preparation or production areas. Instead, they must eat in a breakroom, the dining room, or outside of the operation.

An inspection by the local authority (health inspector) can cite the restaurant as "**out of compliance**" if a food employee is **observed** eating in non-designated areas or drinking from a non-enclosed cup. This is also true if **evidence** of a Food Code violation is revealed during an inspection, such as a cup without a lid, a cup found sitting on a food-contact surface, or a plate of partially eaten food discovered in a food preparation area.

Staff Health–Related Issues

2-201.11

The personal health of people who work with food is not entirely private due to the potential of contaminating food and the related danger to the consumer from foodborne illness. Even before symptoms occur, an illness can be contagious and infect co-workers or contaminate food and equipment. Food employees are considered a **carrier** when they have a virus or disease that can spread through food. Because of this, the FDA Food Code requires employees to sign a form agreeing to **inform management** when they have specific symptoms, whether at work or not.

The following symptoms must be reported, including the date the symptoms were first experienced:

- Vomiting
- Diarrhea
- Sore throat with fever
- Jaundice
- Infected cuts, wounds, or lesions containing pus on exposed body parts

When these symptoms occur before arriving to work, staff must not report to work. Instead, they are to call or text their manager. When these symptoms are reported or observed during a shift, the manager will **exclude** or **restrict** the employee following the FDA Decision Tree (Figure 7). In the case of exclusion, the food employee will not be allowed to return to work for at least 24 hours after the symptoms have occurred.

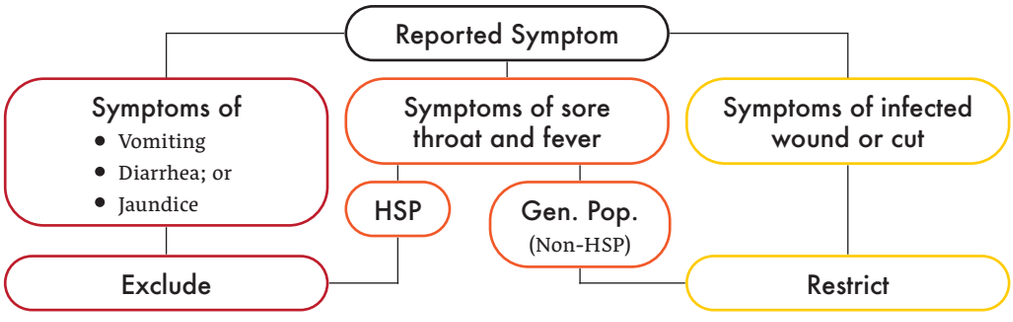

Figure 7

Highly Susceptible Population

People who are immunocompromised or receive food at healthcare or day-care-type facilities are considered a highly susceptible population (HPS). This high-risk population includes preschool-aged children, older adults, and any-

one with certain underlying health conditions. Because this group of consumers is more likely to experience foodborne illness, including more intense symptoms and a higher mortality rate, they are carefully considered in the FDA Food Code and throughout this book. As a result, certain foods and practices are prohibited when a food establishment exclusively serves HPS consumers (i.e., not the general population) in a nursing home, for example. Do not offer for sale or serve these foods in a ready-to-eat form:

3-801.11

- Raw animal foods, including raw marinated fish, raw molluscan shellfish, steak tartar
- Animal food not cooked to the minimum required temperatures, such as lightly-cooked fish, rare meat, soft-cooked shell eggs, and meringue
- Raw seed sprouts
- Unpasteurized juices

Exclusion and Restriction

2-201.12

It is helpful to understand the distinction between the two corrective actions taken by a manager or person in charge (PIC) related to personal health issues - namely, exclusion and restriction. First, understand that neither is a form of punishment but a health safety precaution. **Exclusion** means a food employee is not allowed to enter or work in a food establishment. **Restriction** limits a food employee, who has a risk of spreading a disease that is transmissible through food, from working with clean equipment, or exposed food. An exclusion or restriction applies to all food establishments. Staff must also report if diagnosed with the following disease or medical condition:

- Norovirus
- Salmonella Typhi (Typhoid fever)
- E. coli (or other STEC)
- Hepatitis A
- Nontyphoidal Salmonella
- Shigella spp. (Shigellosis)

Manager's Responsibility

2-401.12

Managers need to watch for signs of illness, such as **Jaundice** (yellowing of the skin or eyes), increased bathroom breaks, persistent sneezing, coughing, or signs of fever. When these symptoms are observed, the manager must discuss this with the employee and take corrective action as necessary.

With proper medical documentation, some non-infectious conditions do not affect an employee's ability to handle food safely. Examples are Crohn's disease, irritable bowel syndrome, and some liver diseases. The Americans with Disabilities Act (ADA) protects the right to work for individuals with infectious diseases not spread through food, such as HIV/AIDS, Hepatitis B, Hepatitis C, and Tuberculosis.

Summary

The theme of this chapter is how food employees can keep food safe from contamination. The main goal of safe food handling is to protect the consumer from foodborne illnesses caused by contaminated food. This is especially true for the highly susceptible population (HSP), who are more likely to experience foodborne illness and have a more severe, potentially fatal reaction due to their age or underlying health conditions. The preventative measures discussed in this chapter include maintaining good personal hygiene, properly washing hands, using protective coverings as required, and reporting any personal health issues. With proper training, monitoring, corrective action, and retraining, a food establishment significantly reduces the risks of a foodborne illness outbreak.

- The highly susceptible population (HSP) have a higher risk of experiencing foodborne illness due to age and health.
- Staff must arrive to work clean, well-groomed, and practice good personal hygiene.
- Corrective action involves intervening in an unsafe practice and retraining.
- A food handler is considered a carrier when they have a virus or disease that can spread through food.
- Ready-to-eat foods (RTE) can be eaten as-is and do not require subsequent or additional cooking. RTE examples include lettuce, bread, potato chips, and cake.
- Food employees must know how and when to wash their hands to reduce the chances of cross-contamination.
- Bright-colored bandages & single-use gloves must be used to avoid food contamination.
- Exclusion means a food employee is not allowed to enter or work in a food establishment, whereas restriction limits them from working with clean equipment or exposed food.

The Student's Workbook

As assigned by your instructor, use the separate Student's Workbook to work independently or in groups. Activities for this week's chapter include:

- Create a handwashing poster
- Vote on the best (and completely accurate) poster in the class
- Watch the video and reflect
- Discuss the risks of each ingredient in the Chef's Salad recipe
- Make a list of equipment needed
- Review the cleaning and sanitizing checklist
- Fill out the recipe and cost form

Review Questions

Use these questions to check your knowledge of the material in this chapter. *Your instructor has the answers.*

1 Properly washing hands is an example of good _____.

- **a.** attitude
- **b.** hygiene
- **c.** ethics
- **d.** timing

2 The only jewelry allowed to be worn by a food handler is/are _____.

- **a.** a simple wedding band
- **b.** decorative rings
- **c.** a medical bracelet
- **d.** a decorative bracelet

3 Which is not one of the 5 steps of proper handwashing?

- **a.** Rub hands together
- **b.** Thorough drying
- **c.** Use antiseptic
- **d.** Wet hands

4 When working with ready-to-eat (RTE) foods, food handlers must use _____.

- **a.** bare hands
- **b.** colorful ingredients
- **c.** single-use gloves
- **d.** a flat surface

5 Hands should be washed in _____.

- **a.** a handwashing sink
- **b.** any sink
- **c.** a mop sink
- **d.** a bathroom

6 Corrective action includes _____.

- **a.** addressing the issue at a later time
- **b.** only scheduling retraining
- **c.** adding more seasoning to a dish
- **d.** an immediate response

7 Single-use gloves are not required when _____.

- **a.** working with RTE foods
- **b.** wearing artificial nails
- **c.** working with raw meat
- **d.** an uncleanable orthopedic device

8 A food employee who is vomiting must be _____.

- **a.** restricted
- **b.** excluded
- **c.** retained
- **d.** given extra breaks