

Sustainable Food Safety 201



PEAK SHIFT

CHAPTER 3

Contamination, Food Allergens, and Foodborne Illness

**Identify the hazard.
Choose the right response.**

FDA Food Code 2026, 2-103.11(O), 3-101.11, 3-602.12(C), Chapters 4 and 7

BASIS: TEACHING FRAMEWORK



How to Use This Chapter

01 Learn

Identify the hazard and how it reaches the food.

02 Compare

Separate look-alike terms and different authority levels.

03 Explain

Follow the worked restaurant decisions.

04 Practice

Use the learner guide and separate interactive quiz.

Understanding comes before the score.

Identify the Hazard and the Route

Biological

An organism reaches food through hands, tools, water or another food.

Physical

An object such as glass or metal can cause injury.

Chemical

A harmful substance reaches food or a food-contact surface.

Allergen

A food protein can trigger an immune reaction in an allergic person.

Intentional contamination describes how harm is introduced, not a separate substance.

A Good Earlier Step Can Be Undone

The event

A raw-chicken utensil touches cooked ready-to-eat food.

What failed

Contamination was transferred after the cooking step.

What matters

Stop service of affected food and apply the proper disposition rule.

The earlier cook does not protect against a later transfer.

Physical Hazards: Objects That Injure

Foreign objects Glass, metal fragments, hard plastic and loose equipment parts.

Natural hard material Bones or pits can be a hazard in the food and context presented.

Possible harm Choking, cuts, damaged teeth or other injury.

Find the source as well as the affected food.

Broken Glass Near the Ice Bin

01 Stop

Keep the affected ice and service area out of use.

02 Control exposure

Prevent more product or utensils from contacting fragments.

03 Remove and clean

Discard contaminated ice; clean and sanitize the bin and tools.

04 Restart

Use intact equipment and fresh ice after the area is safe.

Scooping out visible fragments is not an adequate correction.

3-101.11; 3-701.11; 4-501.11; restaurant worked example

BASIS: FDA CODE + WORKED EXAMPLE

Chemical Contamination Has Several Sources

Cleaning products

Detergents, degreasers and sanitizer used or stored incorrectly.

Pesticides

Wrong product, location or application can contaminate food.

Maintenance supplies

Lubricants and repair chemicals require suitable use and storage.

Personal items

Medicines and personal-care products need protected storage.

A necessary chemical becomes a hazard when it reaches the wrong place or dose.

7-201.11; 7-202.11-.12; 7-208.11; 7-207

BASIS: FDA FOOD CODE

Original and Working Chemical Containers

Original container

Keep a legible manufacturer label identifying the contents.

Working container

Identify the chemical by its common name.

Do not identify an unknown chemical by smell, color or guessing.

Store Chemicals Away From Exposure Routes

Separate

Use spacing or partitioning to prevent contamination.

Not above

Keep toxic materials below or away from protected food-related items.

Protect

Food, equipment, utensils, linens and single-use articles all matter.

The limited warewashing exception still requires prevention of contamination.

Use Chemicals According to Their Purpose

01 Select

Use an appropriate product for the intended task and surface.

02 Prepare

Follow the label and applicable dilution conditions.

03 Verify

Use the appropriate test method when required.

04 Protect food

Prevent spray, residue and accidental contact with exposed food.

More concentrated does not mean more food-safe.

Food-Contact Materials Matter

Copper and brass

Generally not with food below pH 6; a limited brewing exception applies.

Galvanized metal

Not for contact with acidic food.

Lead-containing ware

Only materials that meet the applicable Code limits may be used.

All food-contact items

Must be suitable, safe and maintained for their intended use.

Decorative does not mean suitable for serving or storing food.

Harm Clues Are Not a Diagnosis

Possible physical injury

Choking, a cut, pain while biting, or a damaged tooth.

Possible chemical exposure

Burning, irritation, nausea or vomiting; effects vary by substance.

Protect the person, stop exposure and obtain appropriate medical help.

Safe-food duties; exposure response is public-health guidance

BASIS: CODE + PUBLIC-HEALTH RESPONSE

Food Safety and Food Defense

Food safety

Prevent hazards arising from ordinary production and handling failures.

Food defense

Protect against intentional contamination intended to cause harm.

Intent changes the response, even when the contaminant is the same.

2026 Food Code: food defense definition; FDA retail defense guidance

BASIS: FDA FOOD CODE + GUIDANCE

Food-Defense Awareness by Assigned Duty

Person in charge

Ensure employee awareness of food-defense signs relevant to assigned duties.

Employee

Report suspicious activity to the person in charge.

Access

Control unnecessary access to food preparation and storage areas.

Teach the duty; do not invent a universal security job title.

2026 Food Code 2-103.11(R); Food Code 2-103.11(B)-(C)

BASIS: FDA FOOD CODE

Employees FIRST

F - Follow

Use the operation's food-defense plan and procedures.

I - Inspect

Pay attention to your work area and nearby areas.

R - Recognize

Notice conditions that do not belong.

S - Secure

Protect ingredients, supplies and finished food.

T - Tell

Report unusual or suspicious activity to management.

FDA awareness tool: a memory aid, not a separate mandatory five-step law.

ALERT: Management Awareness

A - Assure

Consider whether supplies come from safe, secure sources.

L - Look

Protect products and ingredients while under your control.

E - Employees

Know who is working in and accessing food areas.

R - Reports

Maintain and review useful security information.

T - Threat

Know the response and whom to notify about a threat.

ALERT and FIRST support awareness; they are not interchangeable acronyms.

Suspected Tampering: Stop, Secure, Notify

The event

An ingredient container has unexplained seal damage and credible signs of tampering.

Immediate action

Stop use, secure the product and tell the person in charge.

Next decision

Management involves appropriate authorities and preserves evidence.

Do not taste, serve, return or discard suspected evidence on your own.

FDA retail food-defense guidance; 2026 Food Code 2-103.11(R)

BASIS: FDA GUIDANCE + FOOD CODE

The Allergen Hazard

Food allergy

An immune-system reaction to a food protein; reactions can be severe.

Not the same condition

An intolerance is different. A customer request still requires accurate information.

A food can be suitable for most guests and dangerous to a particular guest.

1-201.10; 2-103.11(O); FDA food-allergy guidance

BASIS: CODE + FDA PUBLIC-HEALTH GUIDANCE

The Nine Major Food Allergens

Milk and eggs

Two separate major-allergen categories.

Fish and crustaceans

Fish; crustacean shellfish such as shrimp, crab and lobster.

Tree nuts and peanuts

Separate categories, not interchangeable names.

Wheat and soybeans

Both are major food allergens.

Sesame

Includes sesame-containing ingredients such as tahini.

Count the categories: 2 + 2 + 2 + 2 + 1 = 9.

Categories Do Not Replace Ingredient Detail

Fish	Identify the fish species when required; do not substitute a vague category.
Crustacean shellfish	Shrimp, crab and lobster fit this major-allergen category.
Molluscan shellfish	Clams, oysters and mussels are outside that federal category, but can cause allergy.
Tree nuts and peanuts	Identify the actual nut or ingredient; do not treat them as equivalent.

Not on the major-allergen list does not mean allergy-free.

1-201.10; 3-602.11; FDA labeling guidance

BASIS: FDA FOOD CODE

Labeling Exceptions and Current Guidance

Highly refined oils

Excluded from the major-allergen definition; do not extend this to unrefined oils.

Milk and eggs

2025 guidance: milk from domesticated ruminants; eggs from domesticated fowl.

Coconut

Not on FDA's current major tree-nut list; it can still cause allergy.

A labeling classification is not an individual guarantee of safety.

1-201.10; FDA food-allergen labeling guidance, Edition 5 (2025)

BASIS: CODE DEFINITION + FDA 2025 GUIDANCE

Packaged and Bulk Food Information

Packaged food

Required label information includes the identity and major-allergen food sources.

Ingredient statement

Read the current full ingredient information, not only front-label claims.

Bulk self-dispensing

Use the required label or displayed information tied to the actual product.

A previous case label does not verify today's substitute product.

3-602.11; applicable federal labeling requirements

BASIS: FDA FOOD CODE

Written Information for Unpackaged Food

Model-Code requirement

Written notification of major allergens present as ingredients in unpackaged food.

Implementation

Use accurate written information tied to the item; check local adoption.

A verbal promise does not replace the written requirement where adopted.

Recognize an Allergic Reaction

Skin and mouth

Hives, itching, flushing or swelling of lips, face or tongue.

Digestive symptoms

Vomiting, cramps or diarrhea may occur.

Breathing and circulation

Wheezing, throat tightness, trouble breathing, dizziness or fainting.

Reactions can progress quickly; do not wait for every symptom to appear.

FDA food-allergy symptoms and anaphylaxis guidance

BASIS: FDA PUBLIC-HEALTH GUIDANCE

Respond to a Suspected Severe Reaction

01 Call

Call 911 for a suspected severe allergic reaction.

02 Follow

Follow emergency-dispatcher instructions and the emergency procedure.

03 Support

Do not leave the guest alone; support use of prescribed emergency medicine as directed.

04 Inform

Provide accurate ingredient and order details without delaying care.

Do not substitute food, water or antihistamines for emergency treatment.

FDA anaphylaxis guidance; emergency response example

BASIS: PUBLIC-HEALTH GUIDANCE + RESPONSE EXAMPLE

Cross-Contact and Cross-Contamination

Allergen cross-contact

An allergen protein transfers into food where it is not intended.

Microbial cross-contamination

Pathogens transfer through food, hands, utensils or surfaces.

The transfer can look similar, but the hazard and correction must match.

Verify Before Making a Promise

01 Identify

Clarify the specific food or allergen the guest must avoid.

02 Check

Read current ingredient labels and the complete recipe.

03 Trace

Include sauces, seasonings, sides, garnishes and shared equipment.

04 Communicate

Explain verified information and any preparation limitation honestly.

If the ingredient or process cannot be verified, do not promise it is safe.

2-103.11(O); 3-601.12; 3-602; restaurant verification example

BASIS: FDA CODE + RESTAURANT EXAMPLE

Cleaning Removes Residue; Sanitizing Is Different

01 Remove residue

Pre-scrape or remove visible food as appropriate.

02 Wash and rinse

Remove food soil and detergent with the proper cleaning process.

03 Sanitize and air-dry

Complete required food-contact sanitation.

04 Reset handling

Wash hands, change gloves as needed, and use controlled clean tools.

Sanitizer alone is not a substitute for removing allergen protein.

4-602.11; 4-603; 4-702; 4-901.11; FDA cleaning study

BASIS: FDA CODE + RESEARCH

Shared Equipment Can Carry Allergens

Fryer

A clean basket does not remove allergen material from shared oil.

Toaster or conveyor

Crumbs and contact surfaces can transfer residue.

Blender or scoop

Food residue and shared rinse water can transfer protein.

Grill and tools

Surface residue and shared utensils need controlled cleaning or separation.

Verify the whole process, not just the part that looks clean.

After Cross-Contact: Do Not Re-Plate the Problem

The event

Cheese touches a burger being prepared for a guest with a milk allergy.

Not a repair

Removing the cheese or moving the burger to a new plate.

Safe response

Keep it from that guest; discard the affected order under the procedure and remake safely.

Correct the affected food and the transfer route before restarting.

3-101.11; 3-701.11; FDA allergen guidance; worked procedure

BASIS: FDA CODE + GUIDANCE + WORKED EXAMPLE

Allergy Training and Responsibility

Person in charge

Ensure allergy-awareness training appropriate to assigned duties.

Employees

Understand relevant allergens, reaction symptoms and their assigned controls.

Restaurant procedure

Define order communication, preparation and handoff responsibilities.

The training duty is objective; the exact handoff job title is not universal.

Three Events, Three Different Responses

Cleaner on food

Stop service and apply the unsafe-food disposition rule; do not invent a rinse repair.

Milk on an allergy order

Do not serve the affected order to that guest; remake with controlled handling.

Suspected tampering

Stop use, secure product, notify management and preserve evidence for authorities.

Identify the facts before choosing discard, hold or another authorized action.

Chapter 3: What to Remember

Name the route	An earlier cook or a correct holding temperature does not prevent later contamination.
Match the control	Chemicals, physical objects and allergen proteins require the appropriate action.
Verify allergens	Know the nine categories, current ingredients and preparation limits.
Separate authority	Code duties, FDA guidance and restaurant procedures are not the same thing.

Protect the current guest and correct the process that created the exposure.

Next: Independent Practice

Study guide

Review definitions, comparisons and worked restaurant examples.

Practice quiz

Answer 30 original questions; read every explanation and revisit the references.

Next chapter: employee health and personal hygiene.