

Introduction to Risk-based Inspections

**CIT Distance Learning
FPF Introductory Topics**

Overview

- **Key Terms**
- **Equipment Needed for Inspection**
- **Hazards**
- **Food Preparation Processes**

What is a Risk-Based Inspection?

- A risk-based inspection means a food establishment inspection approach that utilizes the technical skills and attributes identified in the five performance areas, foodborne illness risk factors and Food Code interventions, good retail practices, application of HACCP, inspection equipment, and communication as specified in Subpart 3-102 with particular emphasis on Food Code interventions and foodborne illness risk factors.
- Refer to Annex 5 in the Food Code Annex for more information on conducting a risk-based inspection

Key Terms

- **Active Managerial Control (AMC)**
- **Food Safety Hazard**
- **Foodborne Illness Risk Factor**

- **Control Measure (CM)**
- **Critical Control Point (CCP)**
- **Critical Limit (CL)**

Active Managerial Control

Definition:

The purposeful incorporation of specific actions or procedures by management into the operation of their business to attain control over foodborne illness risk factors.

Examples:

- Monitoring processes
- Corrective actions
- Management oversight
- Record-keeping
- Self-inspections
- Periodic evaluation of policies and procedures
- Training

Hazards

Biological Biological hazards are biological agents that have the capacity to cause harmful effects in humans.

Chemical Chemical hazards can be naturally occurring or added that can affect a person's health.

Physical Physical hazards occur when a foreign object gets into food identally, or natural objects are left in food.

Classifications of Foodborne Disease

Infection	Caused when a living microorganism is ingested as part of the food. After ingestion, the microorganism grows in the body
Intoxication	Caused when a living microorganism grows in or on a food and produces a toxin. The food containing the toxin is then ingested and the toxin itself causes illness
Toxicoinfection (Toxin-mediated infection)	Caused when a living microorganism is consumed (like an infection) and then the microorganism produces a toxin in the body, as opposed to in the food, that leads to illness

Non-Spore Forming Bacteria

Hazard and Pathogenesis	Associated Foods	Control Measures
<i>E. coli</i> O157:H7 (other shiga toxin-producing <i>E. coli</i>) (Toxicoinfection)	Raw or undercooked ground beef, raw seed sprouts, raw milk, unpasteurized juice, foods contaminated by infected food workers via fecal-oral route	Cooking, no bare hand contact with RTE foods, employee health policy, handwashing, prevention of cross-contamination, pasteurization or treatment of juice
<i>Campylobacter jejuni</i> (Infection)	Raw or undercooked poultry, raw milk	Cooking, handwashing, prevention of cross-contamination
<i>Listeria monocytogenes</i> (Infection)	Raw meat and poultry, fresh soft cheese, paté, smoked seafood, deli meats, deli salads	Cooking, date marking, cold holding, handwashing, prevention of cross-contamination
<i>Salmonella spp.</i> (Infection)	Raw or undercooked meat and poultry, seafood, eggs, raw seed sprouts, raw vegetables, raw milk, untreated juice	Cooking, use of pasteurized eggs, employee health policy, no bare hand contact with RTE foods, handwashing, pasteurization or treatment of juice

Non-Spore Forming Bacteria

Hazard and Pathogenesis	Associated Foods	Control Measures
<i>Shigella spp.</i> (Infection)	Raw vegetables and herbs, other foods contaminated by infected workers via fecal-oral route	Cooking, No bare hand contact with RTE foods, employee health policy, handwashing
<i>Staphylococcus aureus</i> (Intoxication caused by preformed, heat- stable toxin)	RTE PHF (TCS food) foods touched by bare hands after cooking and further time/temperature abused	Cooling, cold holding, hot holding, no bare hand contact with RTE food, handwashing
<i>Vibrio spp.</i> (Infection or Toxicoinfection)	Raw or undercooked seafood, shellfish	Cooking, approved source, prevention of cross-contamination, cold holding
<i>Yersinia enterocolitica</i> (Infection)	Raw or undercooked meat (esp. pork), oysters, fish, and raw milk	Cooking, pasteurization, prevention of cross-contamination, handwashing

Spore Forming Bacteria

Hazard and Classification	Associated Foods	Control Measures
<p><i>Bacillus cereus</i></p> <p>2 types: Emetic (vomiting) type causes intoxication by heat stable, preformed toxin</p> <p>Diarrheal type causes toxicoinfection by ingestion of cells which produce toxin in the gut</p>	<p>Meat, poultry, starchy foods (rice, potatoes), puddings, soups, cooked vegetables</p>	<p>Cooling, cold holding, hot holding</p>
<p><i>Clostridium botulinum</i></p> <p>(Intoxication)</p>	<p>Vacuum-packed foods, reduced oxygen packaged foods, under-processed canned foods, garlic-in-oil mixtures, time/ temperature abused baked potatoes/sautéed onions, meats and fish, vegetables esp. those grown close to the ground</p>	<p>Thermal processing (time + pressure), cooling, cold holding, hot holding, acidification and drying, etc.</p>
<p><i>Clostridium perfringens</i></p> <p>(Toxicoinfection)</p>	<p>Cooked meat and poultry, Cooked meat and poultry products including casseroles, gravies</p>	<p>Cooling, cold holding, reheating, hot holding</p>

Viruses

Hazard and Pathogenesis	Associated Foods	Control Measures
Hepatitis A and E (Infection)	Any food contaminated by infected worker via fecal-oral route; raw or undercooked shellfish	No bare hand contact with RTE food, minimizing bare hand contact with foods not RTE, employee health policy, handwashing, approved sources (shellfish)
Noroviruses, Rotaviruses, Astroviruses, Caliciviruses, Enteric Adenoviruses, Parvoviruses (Infection)	Any food contaminated by infected worker via fecal-oral route/ vomitus; raw or undercooked shellfish	No bare hand contact with RTE food, minimizing bare hand contact with foods not RTE, employee health policy, handwashing, approved sources (shellfish)

Parasites

Hazard and Pathogenesis	Associated Foods	Control Measures
Anisakis simplex (Infection)	Various fish (cod, haddock, fluke, pacific salmon, herring, flounder, monkfish)	Cooking, freezing
Taenia spp. (Infection)	Beef and pork	Cooking
Trichinella spiralis (Infection)	Pork, bear, and seal meat, pork (limited)	Cooking
Giardia lamblia (Infection)	Contaminated water supply, contaminated vegetables, food contaminated by ill food workers	Water treatment, use of vegetables grown under Good Agricultural Practices (GAPs), handwashing, no bare hand contact with RTE food, employee health policy
Cryptosporidium parvum (Infection)	Contaminated water supply, contaminated vegetables, food contaminated by ill food workers	Water treatment, use of vegetables grown under Good Agricultural Practices (GAPs), handwashing, no bare hand contact with RTE food, employee health policy

Naturally Occurring Chemical Hazards

Hazard	Associated Foods	Control Measures
Scombrototoxin	Primarily associated with tuna, mahi-mahi, blue fish, anchovies, mackerel; Also found in cheese	Check temperatures at receiving; store at proper cold holding temperatures; buyer specifications: obtain verification from supplier that product has not been temperature abused prior to arrival in facility.
Ciguatoxin	Reef fin fish from extreme SE US, Hawaii, and tropical areas; barracuda, jacks, king mackerel, large groupers, and snappers	Purchase fish from reputable sources to ensure they have not been harvested from an area subject to an adverse advisory.

Competitive Microflora

- Surfaces of raw meat, poultry and fish have aerobic spoilage bacteria, mold, and yeasts
- Spoilage organisms outcompete pathogenic bacteria
(Slows bacteria growth and prevents toxin-formation)
- Exceptions
 - Scombroid species (temperature abused prior to cooking)
 - Reduced oxygen packaging of TCS foods

Food Safety Hazards

Definition:

A biological, chemical, or physical property that can cause a food to be unsafe for consumption. Hazards are not behaviors, practices, or code violations.

Examples:

- **Biological:** Pathogens like *Salmonella spp.* or Norovirus
- **Chemical:** Scombrototoxin, ciguatera toxin, sanitizers
- **Physical:** Foreign objects such as glass, plastic, or metal

Foodborne Illness Risk Factors

Definition:

Five broad categories of contributing factors that are commonly associated with foodborne illness outbreaks at the retail level.

Examples:

- Poor personal hygiene
- Improper holding temperatures
- Inadequate cooking temperatures
- Food from unsafe sources
- Contaminated equipment/cross-contamination

Control Measures

Definition:

Any action/activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. Control measures essential for food safety are implemented at critical control points (CCPs).

Examples:

- Proper handwashing
- Proper Cooking raw animal foods
- Proper Sanitization of food contact surfaces of equipment and utensils
- Proper storage of raw and RTE foods to prevent cross-contamination

Critical Control Points (CCP)

Definition:

Operational steps in the flow of food where controls can be applied to prevent or eliminate a food safety hazard or reduce it to safe levels.

Examples:

- Cooking
- Hot Holding
- Cooling
- Cold Holding
- Reheating for Hot Holding

Critical Limit (CL)

Definition:

Prescribed parameter (minimum and/or maximum value) that must be met to ensure that food safety hazards are controlled at a CCP.

Examples:

- 165°F instantaneous (cook temperature for poultry)
- pH < 4.2 (preparation CCP for sushi rice)

Priority Equipment Needs

Standard 8 of the *Voluntary National Retail Food Regulatory Program Standards* requires at a minimum:

- Thermocouple
- Alcohol swabs or suitable means to sanitize thermometer probe
- Chemical test kits
- Heat-sensitive tape or maximum registering thermometer
- Flashlight
- Head cover
- Forms and administrative materials

Other Equipment

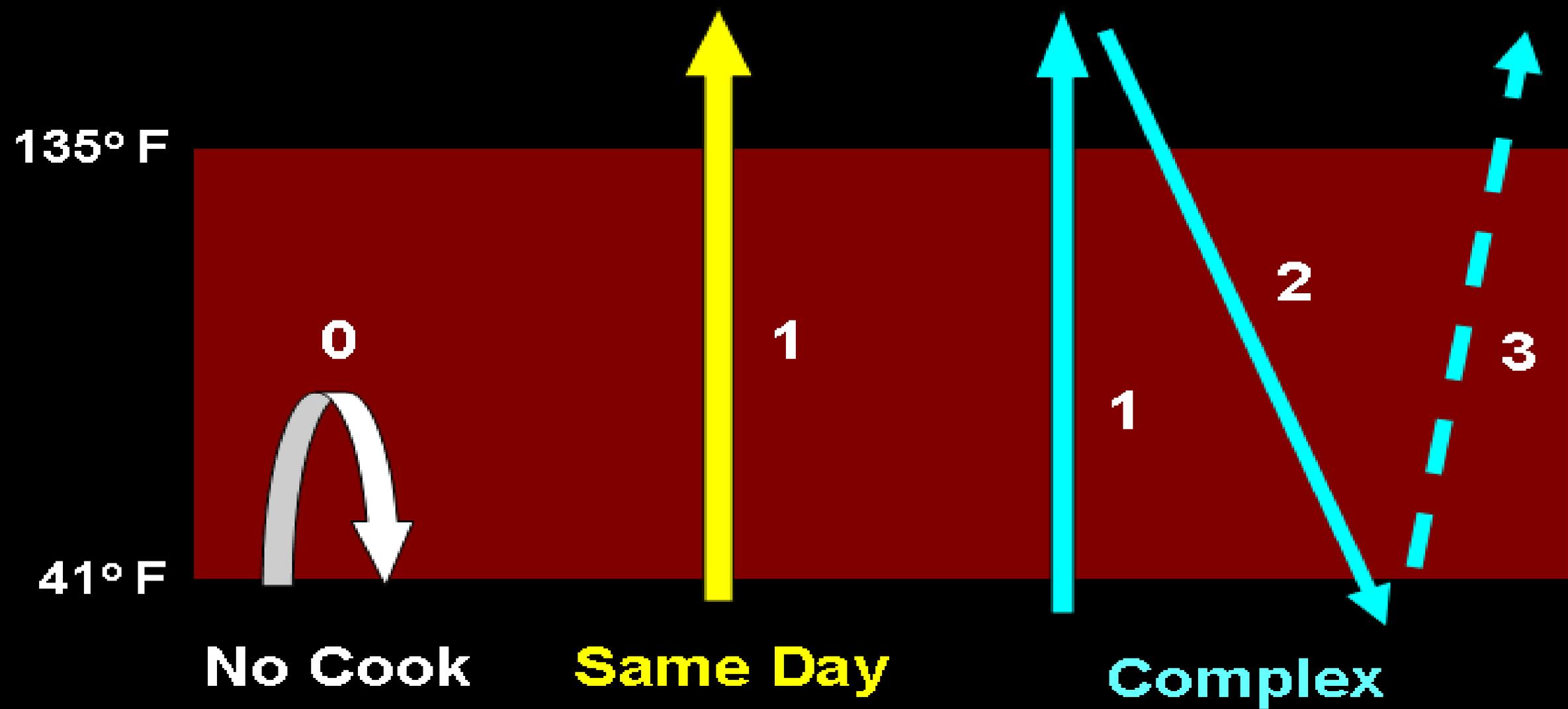
- **Light meter**
- **Device for measuring distance**
- **Time/temperature data logger**
- **pH meter**
- **Water activity meter**
- **Camera**

- **Correct forms**
- **Black light**
- **Foodborne illness investigation kit**
- **Sample collection kit**
- **Cell phone**

Food Preparation Processes

- **Process 1:** Food Preparation with No Cook Step
- **Process 2:** Preparation for Same Day Service
- **Process 3:** Complex Food Preparation

Complete Trips Through the Danger Zone



Process 1:

Food Preparation with No Cook Step



Receive → Store → Prepare → Hold → Serve



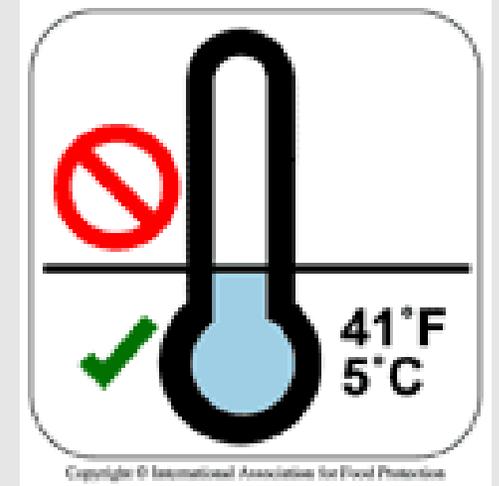
Examples:

Tuna Salad, Raw Oysters, Sashimi,
Cold Cut Sandwiches

Inspection Priorities

Process 1

- Cold Holding or Time as a Public Health Control
- Food source (shellfish, sashimi)
- Receiving temperatures
- Freezing to destroy parasites (fish for sushi)
- Cooling from ambient temperature



Process 2:

Food Preparation for Same Day Service

Receive → Store → Prepare → Cook → Hold → Serve

Examples:

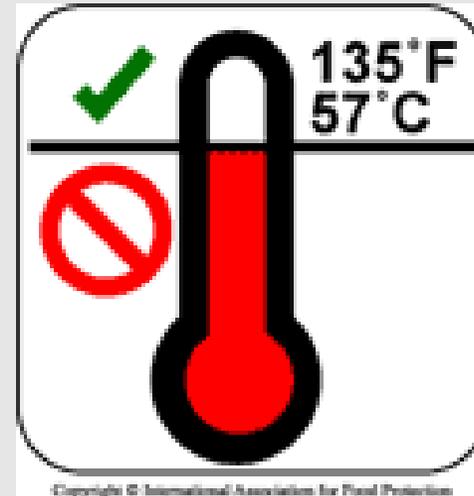
Fried Chicken, Baked Fish, Hamburgers



Inspection Priorities

Process 2

- Cooking
- Hot Holding
- Time as a Public Health Control





Process 3: *Complex Food Preparation*

Receive → Store → Prepare → Cook

Cool → Reheat → Hot Hold → Serve

Examples:

Beef Stew, Soups, Gravy, Chili



Inspection Priorities

Process 3

- Cooking
- Hot Holding
- Cold Holding
- Time as a Public Health Control
- Cooling
- Reheating



Inspection Priorities

All Processes

- Employee Health Policy
- Personal Hygiene Program
 - Handwashing
 - No bare hand contact
- Food source



Inspection Priorities

All Processes

- Cleaning/sanitizing of food contact surfaces
- Cross-contamination related to storage and preparation
- Datemarking RTE, TCS foods
- Calibration of thermometers



End of Presentation

If you have questions about this presentation, please contact your Regional Specialist.