



A Process for Preventing Foodborne Illness

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A Process for Preventing Foodborne Illness

How can foodborne illness be prevented in the eight steps of the foodservice process?

The foodservice manager and employees should understand what needs be done at each step of the foodservice process to keep food safe. This chapter explains how each step of the foodservice process affects food safety and provides guidelines for insuring food safety in that step. The guidelines can be used to implement a food safety program in each step of the process. Always follow State and local public health department regulations and the policies and procedures of the State agency, district, and individual school sites.

Eight steps of the foodservice process

1. Purchasing
2. Receiving
3. Storing
4. Preparing
5. Cooking
6. Holding and serving
7. Cooling
8. Reheating

Step 1 PURCHASING

Know How Purchasing Affects Food Safety

The goal of purchasing is to obtain wholesome, safe foods to meet menu requirements. Safety in this step is primarily the responsibility of the food vendors. It is the job of the person responsible for purchasing to choose the vendors wisely.

Follow Food Safety Guidelines for Purchasing

Guidelines for the Vendor

- Meet Federal and State health standards.
- Use a standardized procedure for food sanitation in the operations.
- Train employees in sanitation.
- Have clean delivery trucks with adequate refrigeration and freezer units.
- Deliver foods packaged in protective, leak-proof, durable packaging.
- Deliver foods at the correct temperatures.
- Organize deliveries to separate raw products from processed foods and produce.
- Provide a written policy/procedure on handling returns/recalls related to food safety upon request.

Guidelines for the Purchaser

- Work with the vendor to establish a food delivery schedule for each site.
- Tell the vendor what is expected.
- Request the vendor to provide a print copy of the standardized procedure for food sanitation to ensure the safety of the products they sell.
- Include food safety standards in the purchase specification agreement.
- Request a copy of the vendor's most recent health sanitation report.
- Inform the vendor that the purchaser will conduct unannounced sanitation inspections of trucks. Good vendors will cooperate with inspections and should adjust their delivery schedules to avoid busy periods at schools so that incoming foods can be received and inspected properly.
- Visit the warehouse periodically, if possible, to see that it is clean and organized.
- Reject all products that do not meet requirements.

In FNS Child Nutrition Programs, children less than or equal to 9 years of age must be served only prepackaged, pasteurized juice when juice is on the breakfast, lunch, or snack menu. Juice with a warning label (because it is unpasteurized) is not allowed to be served. If juice is squeezed on site (unpacked juice prepared on the premises), a HACCP plan is needed per *Food Code* specifications in ¶ 8-201.14 (B) – (E) and as specified under 21 CFR PART 120 – HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP) SYSTEMS, Sec. 120.24 Process controls. Refer to Chapter 6 for more information on HACCP.

Step 2 RECEIVING**Know How Receiving Affects Food Safety**

The goals of receiving are

- to make sure foods are fresh and safe when they enter the foodservice operation.
- to transfer foods to proper storage as quickly as possible.

Follow Food Safety Guidelines for Receiving**Train employees for receiving duties.**

- Train one or more employees to follow the established receiving procedures.

The person who receives a food delivery is responsible for controlling the quality and the safety of the foods that are accepted. To insure food safety and food quality, employees who are responsible for receiving deliveries must be trained to accept only the products that meet specifications, quality standards, and sanitation requirements.

Organize the physical space used for receiving.

- Have a pen and hard surface on which to write.
- Have a food thermometer for documenting temperatures on delivery.
- Have a clean cart or hand truck for transporting goods from the receiving area to storage.
- Have the receiving ticket or market order ready when the delivery is scheduled.
- Have the Product Specification List, if this is used by your organization.
- Keep the receiving area well lighted and clean to discourage pests.

Inspect the delivery truck when it arrives.

- Make sure the truck looks and smells clean.
- Check the interior temperature to see if it is appropriate for the foods being delivered. Some suppliers have temperature-recording monitors in their delivery trucks.

Inspect foods immediately upon delivery.

- Inspect food items to be sure they meet temperature requirements, food specifications, and food quality standards. Guidance for evaluating foods during receiving is provided in the next section.
- Mark all items for storage with the date of arrival or the “use-by” date.
- Check expiration dates of milk, eggs, and other perishable goods.
- Check to be sure shelf dates have not expired.
- Make sure frozen foods are in airtight, moisture-proof wrappings.
- Reject foods that have been thawed and refrozen. Signs of thawing and refreezing include large ice crystals, solid areas of ice, or excessive ice in containers.
- Reject cans that have any of the following signs of deterioration: swollen sides or ends, flawed seals or seams, dents, or rust.
- Use a food thermometer to check the temperature of refrigerated and frozen foods including dairy products, fresh meat, fish, and poultry products. When eggs are delivered, the interior temperature of the truck should be 45 °F or lower.
- Examine packaging for content damage and insect infestations.
- Reject dairy, bakery, and other foods delivered in flats or crates that are dirty.
- Remove empty containers and packing material immediately to a separate trash or recycling area.

Evaluate Meat and Poultry During Receiving

Check Meat

Quality, Appearance, Texture

- USDA Inspected Stamp (ask vendor for proof for packaged meats)
- Firm and elastic to the touch
- Should not feel slimy, sticky, or dry
- Beef should be bright red; pork, light pink.

Internal Temperature

- Fresh meat—at or below 41 °F
- Frozen meat—delivered frozen solid

Signs of Spoilage

- Brown, green, or purple discoloration
- Black, white, or green spots indicating mold
- Freezer burn

Check Poultry

Quality, Appearance, Texture

- USDA Inspected Stamp
- Soft, flabby flesh indicates inferior product

Internal Temperature

- Fresh poultry—at or below 41 °F
- Fresh poultry should be surrounded by crushed ice when delivered.
- Frozen poultry—delivered frozen solid

Signs of Spoilage

- Purplish or greenish discoloration
- Abnormal odor
- Stickiness under wings and around joints
- Dark wing tips
- Freezer burn

Evaluate Eggs and Dairy Products During Receiving

Check Eggs

Quality, Appearance, Texture

- USDA inspected (USDA Inspection Shield)
- Clean, dry shells without cracks

Internal Temperature

- Truck interior at or below 45 °F
- Do not check the internal temperature of the eggs themselves.

Signs of Spoilage

- Cracked, checked, or dirty shells



Check Dairy Products**Quality, Appearance, Texture**

- Pasteurized
- Sweet smell
- Packaging is clean and intact

Internal Temperature

- At or below 41 °F
- Should be delivered refrigerated

Signs of Spoilage

- Sour, moldy odor
- Check the sell-by date; reject dairy products delivered after that date.

Evaluate Milk and Yogurt During Receiving **Check Milk****Quality, Appearance, Texture**

- Pasteurized or ultra-pasteurized
- Smooth and fluid
- Tightly sealed cartons

Internal Temperature

- At or below 41°F
- Should be delivered refrigerated

Signs of Spoilage (Reject delivery)

- Putrid odor
- Curdled consistency
- Check the sell-by date stamped on cartons; reject milk delivered after that date.

 Check Yogurt**Quality, Appearance, Texture**

- Pasteurized or ultra-pasteurized
- Tightly sealed cartons
- No evidence of crystals that form when frozen

Internal Temperature

- At or below 41 °F
- Should be delivered refrigerated

Signs of Spoilage

- Sour smell
- Mold

Evaluate Butter and Ice Cream During Receiving

Check Butter/Margarine

Quality, Appearance, Texture

- Smooth, firm texture
- Uniform color
- Clean packaging or containers

Internal Temperature

- 33 °F to 41 °F
- May be successfully frozen

Signs of Spoilage

- Mold
- Rancid odor

Check Ice Cream

Quality, Appearance, Texture

- Tightly sealed cartons
- No ice crystals indicating thawing and refreezing
- Individual products are not misshapen due to thawing and refreezing.

Internal Temperature

- Should be delivered at 6 °F to 10 °F

Signs of Spoilage or Poor Quality

- Large ice crystals indicate loss of quality.

Evaluate Fresh and Frozen Foods During Receiving

Check Fresh Produce

Quality, Appearance, Texture

- Little or no dirt
- Reasonably unblemished
- No evidence of mold
- Firm texture

Internal Temperature

- Refrigerated produce should have an internal temperature of 33 °F to 41 °F.
- Non-refrigerated produce (bananas, tomatoes, sweet potatoes, dry onions, and potatoes) should have an internal temperature from 50 °F to 60 °F.
- Fresh-cut produce should have a temperature of 33 °F to 41°F—insert the stem of the food thermometer between packages; do not insert into a package.
- Cut melons should have an internal temperature of 41 °F or below.



Signs of spoilage

- Signs of insect infestation
- Mold
- Mushiness, wateriness, or wilting
- Discoloration or blemishes
- Cuts

Check Frozen Foods

Quality, Appearance, Texture

- Packaging intact and clean

Internal Temperature

- Frozen foods should be frozen solid.
- Insert stem of food thermometer between the packages in the case; do not pierce the packaging.

Signs of spoilage

- Signs of thawing (liquids at bottom of carton)
- Signs of thawing and refreezing (large ice crystals on packages and blocks of ice in boxes)

Evaluate Canned and Dry Foods During Receiving

Check Canned Foods

Quality, Appearance, Texture

- Packaging intact

Signs of spoilage

- Swollen, leaking, rusty, or dented cans
- Flawed seals
- Reject any can without a label.

Check Dry Foods

Quality, Appearance, Texture

- Packaging intact
- Dry and undamaged

Signs of spoilage

- Damp or moldy container
- Insect infestation

Evaluate Specially Packaged Foods During Receiving

Check Modified Atmosphere Packaged (MAP) Foods and Vacuum-Packed Foods

- Insert a food thermometer between two packages, being careful not to puncture the wrap. The temperature should be the temperature specified by the manufacturer.
- Examine color indicators on the package to see if the product was kept at a proper temperature. If the color indicators do not match, reject the shipment.

Step 3 **STORING****Know How Storage Affects Food Safety**

Food storage affects both quality and safety. Food stored improperly will lose its quality, spoil more rapidly, and can cause a foodborne illness when harmful microorganisms are allowed to grow.

Follow Food Safety Guidelines for Storing

Dry storage—longer holding of less perishable items

Refrigerator—short-term storage of perishable items

Deep-chilling unit—specific foods for short periods

Freezer—long-term storage of perishable foods

Use Dry Storage Safely

The following foods are typically stored in dry storage:

- canned goods, baking supplies (such as salt and sugar), grain products (such as rice and cereals), and other dry items;
- some fruits (such as bananas, avocados, and pears) which ripen best at room temperature;
- some vegetables (such as onions, potatoes, and tomatoes) which store best in dry storage.

Like all areas of the facility, storerooms for dry storage must be kept clean and litter-free.

Follow the suggestions below to maintain sanitary dry storage for food and supplies.

Follow State public health regulations.

- Maintain the storage room temperature between 50 °F and 70 °F. Use a wall thermometer to check the temperature of the dry storage area.
- Keep the storerooms clean and dry.
- Sweep and scrub walls, ceiling, floors, shelves, light fixtures, and racks on a routine basis.
- Have a regular cleaning schedule for all surfaces and floors.
- Store all food and paper supplies 6 to 8 inches off the floor (follow State public health regulations).
- Keep food in labeled containers approved for food storage; containers should have tight-fitting lids.
- Label all food with name and delivery date.
- Take cans out of cardboard cases and write the delivery date on the can. If a code number from the case needs to be recorded on the can, write it on the top of the can or keep the needed portion of the cardboard case. Cardboard boxes attract roaches and other pests.
- Use the FIFO (First In, First Out) method of inventory. Store new products behind older products and use the older products first.
- Protect food from contamination with regular pest control.
- Store chemicals away from food and other food-related supplies.
- Check all storage areas frequently.
- Look for damaged or spoiled foods, broken or torn packages, and bulging or leaking cans.

- Remove any potentially spoiled foods, bulging cans, or infested packages and foods *immediately* and clean the area thoroughly. Discard or destroy contaminated food according to State, district or school procedures.

Use Refrigerated Storage Safely

Foods stored in refrigerators include fresh meat, poultry, seafood, dairy products, most fresh fruit and vegetables, and leftovers. Follow State and local public health department regulations for the temperature setting for refrigerators. The *Food Code* requires cold food temperatures to be maintained at 41°F or below.

- Arrange food in refrigerators to allow for maximum air circulation. Refrigerators should contain open, slotted shelving to allow cold air to circulate around food. Do not line shelves with foil or paper or overload the refrigerator; leave space between items to provide air circulation.
- For best practice, all refrigerated foods should be labeled with the name of the food item, date, time, and temperature.
- Store food in clean, non-absorbent, covered containers that are approved for food storage. Be sure all containers are properly sealed.
- Cool hot foods by putting into shallow pans or small containers before refrigeration. Some commonly used safe cooling methods include dividing the food into smaller batches for cooling in the refrigerator, cooling in shallow pans in the refrigerator, using an ice-water bath, and stirring with cold paddles.
- Store dairy products separately from foods with strong odors like onions, cabbage, and seafood.
- Store fruits in a separate section of the refrigerator from vegetables. The ethylene gas that some fruits generate during ripening causes some vegetables to deteriorate more rapidly.
- To avoid cross-contamination, store raw or uncooked food away from and below prepared or ready-to-eat food, such as deli meat or cheese.
- Never allow fluids from raw poultry, fish, or meat to come into contact with other foods. Change the drip pan at the first sight of raw juices in the pan.
- Check the temperature of all refrigeration units regularly to make sure they stay at or below 41°F or at State or district required temperature settings. Keeping potentially hazardous foods at *the proper temperature* is a key factor in preventing foodborne illness.
- Record the temperature of each refrigerator at the same time every day (see Appendix 4, Storage Temperature Form). Keep the temperature form on file to document that foods have been stored at correct temperatures.
- Have at least two hanging thermometers located at different locations inside each refrigerator to confirm the reading of the mounted or built-in thermometers. Place one thermometer in the coldest part and one in the warmest part in the refrigerator.

Use Deep Chilling Safely

- Storing foods at temperatures between 26 °F and 32 °F has been found to decrease bacterial growth. This method can be used to increase the shelf life of fresh foods such as poultry, meat, seafood, and other protein items without compromising their quality by freezing.

- Some foods will form ice crystals during deep chilling.
- Certain foods can be deep chilled in specially designed units or in a refrigerator set to deep chilling temperature.

Use Frozen Storage Safely

Frozen meats, poultry, seafood, fruits and vegetables, and some dairy products, such as ice cream, should be stored in a freezer at 0 °F to -10 °F to keep them fresh and safe for an extended period of time.

As a rule, a freezer should be used primarily to store foods that are *frozen when they are received*. Freezing refrigerated food can lower the quality of some items.

- Arrange food in freezers to allow for maximum air circulation. Freezers should contain open, slotted shelving to allow cold air to circulate around food. Do not line shelves with foil or paper or overload the freezer; leave space between items to provide air circulation.
- Store frozen foods in moisture-proof material or containers to minimize loss of flavor and to avoid discoloration, dehydration, and odor absorption.
- Monitor freezer temperature regularly, using several thermometers to ensure adequacy and consistent temperatures. Record temperatures of each freezer on a temperature log.
- Avoid raising the temperature of the freezer by frequently opening and closing the freezer door or placing large amounts of hot foods in the freezer. A freezer “cold curtain” on the door can help maintain the required cold temperature.
- Never refreeze thawed food unless it has been thoroughly cooked.

Step 4 PREPARING

Know How Preparing Affects Food Safety

The preparation step of the foodservice process includes many opportunities for the safety of food to be compromised. Food handlers must be on alert to

- prevent contamination of food;
- avoid time in the temperature danger zone; and
- use safe food handling practices.



**KEEP HOT FOODS HOT!
KEEP COLD FOODS COLD!**

Follow Food Safety Guidelines for Preparing

Thaw Food Safely

Freezing food keeps most bacteria from multiplying but it does not kill them. NEVER thaw food at room temperature.

Some foods, such as frozen vegetables, pre-formed hamburger patties, and chicken nuggets, can be cooked from the frozen state. It is important to note, however, that this method depends on the size of the item. Cooking from the frozen state it is not recommended for large foods such as a whole turkey.

Four Safe Methods to Thaw Frozen Foods

1. Thaw frozen food in refrigeration at a temperature at or below 41 °F. Place the food in a pan on the lowest shelf so juices cannot drip on other foods. The drip pan should be changed when the first sign of juices appears.
2. Thaw frozen food under clean, drinkable running water at a sufficient water velocity to float off loose particles in an overflow and at a temperature of 70 °F or less. Remember that a food cannot remain in the temperature danger zone for more than four hours. The four hours includes the thawing time under running water and the preparation time.
3. Thaw frozen food in a microwave oven only if it will be cooked immediately. This method is *not* considered best practice in school foodservice.
4. Thaw frozen food as part of the cooking process. This method is typically used for frozen patties, nuggets, pizzas, and some other convenience foods.

Complete Pre-Preparation Safely

This stage of food preparation includes

- assembling ingredients using the recipe,
- weighing or measuring ingredients, and
- assembling small equipment and utensils needed.

During this stage, there are several cautions for food handlers because

- pre-preparation usually takes place at room temperature.
- this stage is one of the most common points of contamination and cross-contamination.

Follow Food Safety Guidelines for Pre-Preparation

- Wash hands correctly before beginning preparation.
- Prepare foods no further in advance than necessary.
- Prepare foods in small batches and place in cold storage immediately. This will prevent holding food too long in the temperature danger zone.
- Always hold prepared cold foods at or below 41 °F.
- Wash fresh fruits and vegetables with cold, running water to remove surface pesticide residues and other impurities, such as soil particles; wash regardless of whether the produce will be served whole, peeled, or cooked.
- Use a brush to scrub thick-skinned produce.

- **Thaw Food Safely**
- **Four Safe Methods to Thaw Frozen Foods**
- **Complete Pre-Preparation Safely**
- **Follow Food Safety Guidelines for Pre-Preparation**
- **Follow Food Safety Guidelines for Panned Foods to Be Cooked Later**
- **Follow Food Safety Guidelines for Cold Foods That Will Not Be Cooked**

- Avoid CROSS-CONTAMINATION.
- Wash hands correctly before beginning preparation.
- Keep raw products separate from ready-to-serve foods.
- After each contact with a food, wash, rinse, and sanitize cutting boards, knives, equipment, and all other food contact surfaces. Wash hands.
- Use batter, breading, or marinade for one product (recipe) and then discard. Follow the recipe to use the product as planned.
- When a can is opened, if contents are foamy or bad smelling, do not use the contents and report this to the manager and then the purchaser. Keep the can until the purchaser has been notified and has notified the vendor. If possible, save the can lid and cardboard box if they have numbers that will help track the product. Secure the can and mark “Do not use.” Discard according to district and State procedures when notified.
- Be aware of those foods that are potentially hazardous and pay special attention to food handling practices during their preparation.

Mix Food Safely

The mixing stage of food preparation is when ingredients are combined. For many recipes, the ingredients are combined, pans are prepared and the food is cooked immediately (see Step 5: Cooking); but some foods are panned and stored in the refrigerator for cooking later. Some recipes are for cold foods that will not be cooked. Each situation has special considerations for food safety, and that is why it is important to document temperature throughout food preparation.

Follow Food Safety Guidelines for Panned Foods to Be Cooked Later

- Wash hands and properly use single-use gloves.
- Keep food out of the temperature danger zone—move panned food to the refrigerator for holding as soon as possible. Best practice is to set a time limit of 20 minutes for preparing a batch of food so that ingredients are at room temperature only 20 minutes before cooking or storing in the refrigerator.
- Because food will be held before cooking or serving, be especially careful about cross-contamination.
- Cover food to prevent contamination during storage.
- Document the internal temperature of the food during this step.

Follow Food Safety Guidelines for Cold Foods That Will Not Be Cooked

Some examples of cold foods not cooked after preparation include chicken salad, tuna salad, potato salad with eggs, other protein-rich salads, and sandwiches prepared in advance.

Because cold foods such as these receive no further cooking, it is essential that all ingredients used in them are properly cleaned, prepared, and, where applicable, cooked. It is a good idea to chill meats and other ingredients and combine them while chilled.

- Wash hands and use single-use gloves.

- Properly clean, prepare, or cook ingredients for cold mixed foods that will receive no further cooking. Wash fresh fruits and vegetables with cold, running water; use a brush to scrub thick-skinned produce.
- Chill cooked or canned meats and other ingredients and combine while chilled.
- Prepare foods in small batches and place in cold storage immediately.
- Hold prepared cold foods at or below 41 °F and document temperature. Prepare foods no further in advance than necessary.
- Beware of cross-contamination.
- After each contact with a potentially hazardous food, wash, rinse, and sanitize cutting boards, knives, and other food-contact surfaces.

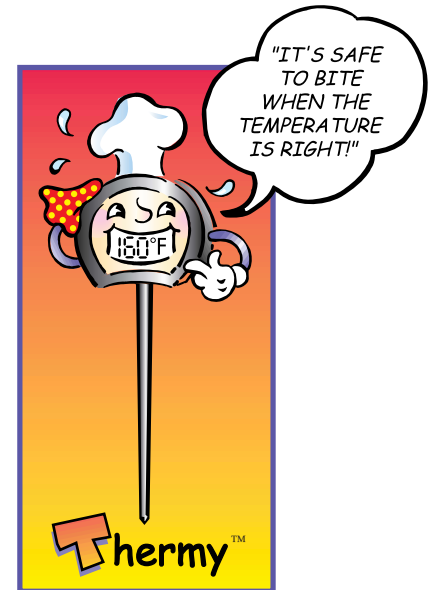
Step 5 COOKING

Know How Cooking Affects Food Safety

Even when foods are handled correctly up to this step in the food preparation process, bacteria and other contaminants may still be present. Cooking foods to the safe internal temperature will destroy any existing bacteria but may not kill toxins or bacterial spores.

Follow Food Safety Guidelines for Cooking Foods

- Follow equipment manufacturer's directions and standardized recipes to avoid overloading baking pans.
- Stir foods cooked in deep pots frequently to ensure even heat distribution and thorough cooking.
- Avoid overloading fryers. Allow the oil temperature to return to the required level between batches.
- Regulate size and thickness of each portion to make cooking time predictable and uniform. Cook like-size portions together.
- Never interrupt the cooking process. Partially cooking poultry or meat, for example, may produce conditions that encourage bacterial growth.
- Use a food thermometer to monitor the accuracy of heating equipment.
- Use a food thermometer to check that food reaches the required safe internal temperature during cooking. (For more detail on using a food thermometer, see pages 13 to 14.)
- Check food temperature in several places, especially in the thickest parts, to make sure the food is thoroughly cooked.
- To avoid getting a false reading, be careful not to touch the pan or bone with the food thermometer.
- Always cook food to the required safe internal temperature and appropriate time.
- Use a serving utensil or single-use glove to avoid cross-contamination.
- Taste foods correctly to avoid cross-contamination. Place a small amount of food from the food container into a small bowl, step away from the food container, and taste the food with a teaspoon. Remove the used bowl and teaspoon to the dishroom. Never reuse a bowl or spoon already used for tasting. Wash hands after tasting.



Food Safety and Inspection Service, USDA

Minimum Safe Internal Temperatures

Product	Internal Temperature
Poultry, stuffing, stuffed meats, stuffed pasta, casseroles, leftovers	165 °F for 15 seconds
Pork, bacon	145 °F for 15 seconds
Injected meats	155 °F for 15 seconds
Ground or flaked meats including hamburger, ground pork, flaked fish (patties or sticks), sausage, gyros	155 °F for 15 seconds*
Beef and pork roasts	145 °F for 4 minutes*
Ham (a cured pork roast)	145 °F for 4 minutes
Beef steaks, veal, lamb, commercially raised game animals	145 °F for 15 seconds
Fish	145 °F for 15 seconds
Shell eggs for immediate service	145 °F for 15 seconds
Any potentially hazardous food cooked in a microwave oven	165 °F for 15 seconds; Let food stand for 2 minutes after cooking to obtain temperature equilibrium
Vegetables to be served hot	135 °F or above
Leftovers to be reheated (example: leftover spaghetti with meat sauce)	165 °F for 15 seconds; Let food stand for 2 minutes after cooking
Convenience products that include a potentially hazardous food, such as hamburger patties, chicken nuggets, burritos, and pizza	165 °F for 15 seconds
Ready-to-eat food taken from a commercially processed, hermetically sealed container or from an intact package (examples: hot dogs, chicken nuggets)	135 °F (heat rapidly to this temperature for hot holding)

*For alternative times and temperatures, see the FDA Food Code 2001
<http://www.cfsan.fda.gov/~dms/fc01-toc.html>

**Do not serve *wild game* in FNS Child Nutrition Programs.
 All game must be purchased from a USDA meat inspected establishment.
 Wild game is not allowed for use in FNS Child Nutrition Programs.**

Step 6 HOLDING AND SERVING**Know How Holding and Serving Affect Food Safety**

Foodborne outbreaks have occurred because improper procedures were used *after* cooking was completed. To handle food safely, it is necessary to hold and serve foods at safe temperatures, either above or below the temperature danger zone. Specifically this means

- Always keep HOT foods in hot holding equipment at or above 135 °F; and
- Always keep COLD foods in a refrigeration unit or surrounded by ice at or below 41 °F.

Best practice to ensure good food quality as well as safety is to prepare foods just-in-time for service. Just-in-time food preparation is also known as batch cooking or cooking to the line.

Follow Food Safety Guidelines for Holding and Serving

- Use hot holding equipment, such as steam tables and hot food carts during service but never for reheating. Hot foods should be cooked to the required temperature and placed in holding cabinets or on a steam table to be held at or above 135 °F.
- Keep COLD foods at or below 41 °F in a refrigeration unit or surrounded by ice.
- Stir foods at reasonable intervals to ensure even heating or cooling.
- Check internal food temperatures with a food thermometer every 30 minutes. Sanitize the food thermometer after each use.
- During any point in the food production process when food could be in the temperature danger zone, the internal temperature must be documented. Follow State and local public health department recommendations to control time and temperature at each stage of food production.
- Cover hot holding equipment to retain heat and to guard against contamination.
- Monitor the temperature of hot holding equipment with each use.
- Avoid cross-contamination that can occur when an undercooked food is added to another food that is not cooked further. Example: Freshly made scrambled eggs are added to an existing pan of scrambled eggs on a steam table.

Follow Food Safety Guidelines for Employees on the Service Line

- Follow rules for good personal hygiene.
- Always wash hands and arms up to the elbow with soap and warm water of at least 100 °F for at least 20 seconds before serving food.
- Use cleaned and sanitized long-handled ladles and spoons so bare hands do not touch food.
- Avoid touching the parts of plates, food trays, or flatware that will come into contact with food or the customer's mouth.
- Wear single-use gloves when serving food by hand. Follow guidelines for single-use gloves (see Chapter 2).
- When possible, use tongs to dispense rolls and bread, or wear single-use gloves.
- Clean and sanitize equipment and utensils thoroughly after each use.
- Use lids and sneeze guards to protect prepared food from contamination.

- AVOID CROSS-CONTAMINATION . . . Always wash hands between food preparation tasks.
- AVOID CROSS-CONTAMINATION . . . Always clean and sanitize food preparation areas and equipment between food preparation tasks. For example, do not reuse a serving pan used to hold raw chicken to serve the same chicken after it has been cooked unless the pan has been thoroughly cleaned and sanitized.
- Throw away garnishes used on pans on the service line.

Follow Food Safety Guidelines for Sanitary Self-service

- Monitor self-service lines. Customers – especially children – are generally not educated about food sanitation and can either unintentionally or intentionally contaminate food by
 - using the same plate or tray twice;
 - touching food with their hands;
 - sneezing or coughing into food;
 - picking up foods, such as rolls or carrot sticks, with their fingers;
 - not using serving utensils;
 - eating on the service line;
 - dipping their fingers into a container of food to taste it;
 - putting head under sneeze guard to reach items in the back; and
 - returning food items to avoid waste.
- Post signs on self-service lines to encourage customers to be polite and avoid contaminating food. A sample sign is provided in Appendix 2, “Tips for Customers—Keep Your Food Safe.”
- Observe customer behavior and remove any foods that may have been contaminated.
- Package food to prevent contamination: serve sealed packages of crackers, breadsticks, and condiments; pre-wrap sandwiches.
- Monitor and document the internal temperature of self-service items every 30 minutes as with other foods on the service lines.

Follow Food Safety Guidelines for Transporting and Receiving Food for Off-site Feeding

Transporting prepared food from a central kitchen to remote sites must be monitored. Special care must be taken to ensure that food is safe when it leaves the central kitchen and is *still* safe when it is served.

- ***Transport food using proper food carriers***
Use only food carriers approved by the National Sanitation Foundation International (NSF International) for transporting food. Follow State and local public health department recommendations.
 - Sanitize food carriers daily.
 - Make sure the insulating properties in carriers are adequate to maintain safe food temperature.
 - Equip trucks with equipment designed to keep hot foods hot (at or above 135 °F) and cold foods cold (at or below 41 °F).
 - Clean and sanitize the interior of delivery trucks on a routine basis.

■ **Use proper food containers**

Food containers should be

- rigid and sectioned so foods do not mix,
- tightly closed to retain heat or cold,
- non-porous to avoid leakage,
- easy to clean or disposable, and
- approved to hold food.



**KEEP HOT
FOODS HOT!
KEEP COLD
FOODS COLD!**

■ **Monitor temperatures**

- Transport an extra sample of hot and cold foods in order to measure the internal temperature of the sample foods on arrival at the remote site. Hot food should be delivered at or above 135 °F and cold food should be delivered at or below 41 °F.
- Keep a 48-hour sample (or follow the school district's requirements) of potentially hazardous foods in case of a foodborne outbreak.
- Store food immediately upon arrival in order to maintain safe internal temperatures.

Step 7 COOLING

Know How Cooling Affects Food Safety

In any foodservice, it is often necessary to prepare foods in advance or use leftover foods. This can easily lead to problems unless proper precautions are taken. In fact, problems at the cooling stage contribute to outbreaks of foodborne illness.

Follow Steps for Safe Cooling

In an institutional foodservice, it is often necessary to prepare foods in advance or use leftover foods. This can easily lead to problems unless proper precautions are taken. In fact, problems at this stage may contribute to outbreaks of foodborne illness.

- Protect the food from contamination during the cooling process. To avoid contamination, food that is being chilled in the refrigerator should be loosely covered. Although uncovered foods cool faster, be aware that they are *at increased risk* for cross-contamination.
- Reduce food mass. Smaller amounts of food will chill more quickly than larger amounts, so cut large items into pieces or divide food among several containers or shallow pans.
- Use shallow, pre-chilled pans (no more than 4 inches deep).
- Stainless steel containers transfer heat better and cool faster than plastic.
- Chill rapidly. Quick-chill large amounts of food (larger than 1/2 gallon or 2 pounds).
 - Use an ice-water bath—water is a much better heat conductor than air. As a result, foods can cool much more quickly in an ice-water bath than they can in a refrigerator.
 - Use a quick-chill unit (26 °F to 32 °F) rather than a refrigerator. These special refrigerators are sometimes used in large, central kitchens for chilling large amounts of food quickly. The typical walk-in or reach-in refrigerator was designed to keep cold foods cold rather than to chill hot foods. They can take too long to cool foods to safe temperatures.

- Pre-chill foods in a freezer for about 30 minutes before refrigerating. Separate food items so air can flow freely around them. Do not stack shallow pans.
- NEVER cool food at room temperature.
- Stir frequently. Stirring accelerates cooling and helps to ensure that cold air reaches all parts of the food. Some manufacturers make cold paddles just for cooling food; they can be filled with water and frozen. If a cold paddle is used to stir a food, it should be washed and sanitized after use.
- Measure and document temperature during the cooling process. Chill cooked hot food from 135 °F to 70 °F within 2 hours and from 70 °F to 41 °F in an additional 4 hours for no more than a total cooling time of 6 hours. If the food has not reached 70 °F within 2 hours it must be reheated immediately to 165 °F for 15 seconds.
- When the food has been properly cooled to 41 °F or lower, cover tightly and label with product name, date, and time of preparation.

Store cooked foods on the upper shelves of the refrigerator. Never store them beneath raw foods.

Step 8 REHEATING

Know How Reheating Affects Food Safety

Reheating is used for previously cooked food, either pre-prepared or leftover. Like the original cooking process, reheating requires precautions to prevent contamination and keep food out of the temperature danger zone. Cooling a contaminated food does not kill harmful microorganisms; it only slows growth. Failure to reheat a previously cooked food to the required temperature within the time limit can result in a foodborne outbreak.

Follow Guidelines for Reheating Food

- Take the food through the temperature danger zone as quickly as possible.
- Reheat all previously cooked food to an internal temperature of 165 °F for 15 seconds.
- If a pre-cooked food is added to a recipe as an ingredient, the whole mixture must be reheated to 165 °F for 15 seconds. For example, if adding pre-cooked ground beef to canned spaghetti sauce, the mixture must reach 165 °F for 15 seconds.
- Heat sauces, soups, and gravies to a minimum of 165 °F within two hours after taking the food out of the refrigerator.
- Never reheat food in hot-holding equipment.
- Never mix a leftover batch of food with a fresh batch of food.
- According to the *Food Code*, food held at 41 °F or less may be held for seven days. (If a food is held at between 41 °F and 45 °F in existing equipment in place and in use, that cannot maintain the food at 41 °F, a four-day hold is allowed.)
- While storing leftovers, be sure refrigerator temperature is low enough to maintain an internal temperature of foods at 41 °F or below.

Summary

CHAPTER 5, **"A Process for Preventing Foodborne Illness,"**

describes the eight steps of the foodservice process with ways to prevent foodborne illness in every step.

Eight steps of the foodservice process

1. Purchasing
2. Receiving
3. Storing
4. Preparing
5. Cooking
6. Holding and serving
7. Cooling
8. Reheating

Handling food safely through the foodservice process is the highest priority in any kitchen. It is everyone's responsibility to

- maintain a clean, sanitary environment;
- control potential sources of food contamination; and
- be vigilant with time and temperature control.

Food can become contaminated and harmful microorganisms can grow and cause a foodborne illness during every step of the foodservice process unless food safety guidelines are followed.

The Food Safety Checklist on the following pages can be used as a weekly self-inspection for each step of the foodservice process.

Food Safety Checklist

Date _____ Observer _____

Directions: Use this checklist once a week to determine areas in your operation requiring corrective action. Record corrective action taken and keep completed records in a notebook for future reference.

PERSONAL DRESS AND HYGIENE	Yes	No	Corrective Action
● Employees wear proper uniform including proper shoes.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Hair restraint is worn.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Fingernails are short, unpolished, and clean (no artificial nails).	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Jewelry is limited to a plain ring, such as a wedding band.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Hands are washed properly, frequently, and at appropriate times. ...	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Burns, wounds, sores or scabs, or splints and bandages on hands are completely covered while handling food.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Eating, drinking, chewing gum, smoking, or using tobacco are observed only in designated areas away from preparation, service, storage, and ware washing areas.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Employees use disposable tissues when coughing or sneezing and then immediately wash hands.	<input type="checkbox"/>	<input type="checkbox"/>	_____

FOOD PREPARATION	Yes	No	Corrective Action
● Food preparation equipment and food contact surfaces are properly washed, rinsed, and sanitized after every use.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Frozen food is thawed under refrigeration or in cold running water.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Preparation is planned so ingredients are kept out of the temperature danger zone to the extent possible.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is tasted using the proper procedure.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Procedures are in place to prevent cross-contamination.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is handled with utensils, single-use gloves, or clean hands.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Utensils are used to avoid touching parts that will be in direct contact with food or a person's mouth.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Reusable towels are used only for sanitizing equipment surfaces and not for drying hands, utensils, floor, etc.	<input type="checkbox"/>	<input type="checkbox"/>	_____

Continued on next page

FOOD PREPARATION *(continued)*

	Yes	No	Corrective Action
● Food is cooked to the required safe internal temperature for the appropriate time. The temperature is tested with a calibrated food thermometer.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● The internal temperature of food <i>being cooked</i> is monitored and documented.	<input type="checkbox"/>	<input type="checkbox"/>	_____

HOT HOLDING

	Yes	No	Corrective Action
● Hot holding unit is clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is heated to the required safe internal temperature before placing in hot holding.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Temperature of hot food <i>being held</i> is at or above 135 °F and internal temperature is monitored and documented every 30 minutes.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is protected from contamination.	<input type="checkbox"/>	<input type="checkbox"/>	_____

COLD HOLDING

	Yes	No	Corrective Action
● Refrigerators are kept clean and organized.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Temperature of cold food being held is at or below 41 °F and internal temperature is monitored every 30 minutes.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is protected from contamination.	<input type="checkbox"/>	<input type="checkbox"/>	_____

REFRIGERATOR, FREEZER, AND MILK COOLER

	Yes	No	Corrective Action
● Thermometers are conspicuous and accurate.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Temperature is appropriate for piece of equipment.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is stored 6 inches off floor in walk-in cooling equipment.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Refrigerator and freezer units are clean and neat.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Proper chilling procedures are used.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● All food is properly wrapped, labeled, and dated.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● The FIFO (First In, First Out) method of inventory is practiced. ...	<input type="checkbox"/>	<input type="checkbox"/>	_____
● A temperature form is maintained to document storage temperatures.	<input type="checkbox"/>	<input type="checkbox"/>	_____

FOOD STORAGE AND DRY STORAGE

	Yes	No	Corrective Action
● Temperature of dry storage area is between 50 °F and 70 °F or State public health department requirement.	<input type="checkbox"/>	<input type="checkbox"/>	_____

Continued on next page

FOOD STORAGE AND DRY STORAGE *(continued)*

	Yes	No	Corrective Action
● All food and paper supplies are stored 6 to 8 inches off the floor.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● All food is labeled with name and delivery date.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● The FIFO (First In, First Out) method of inventory management is used.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● There are no bulging or leaking canned goods or torn bags in storage.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food is protected from contamination.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● All surfaces and floors are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Chemicals are stored away from food and food-related supplies.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● There is a regular cleaning schedule for all surfaces and floors.	<input type="checkbox"/>	<input type="checkbox"/>	_____

CLEANING AND SANITIZING

	Yes	No	Corrective Action
● Three-compartment sink is properly set up for ware washing.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Suds are visible only in wash sink.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Water is clean and free of grease and food particles.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● A chemical test kit or thermometer is used to check sanitizing rinse.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Water temperatures are correct for wash and rinse.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● If heat sanitizing, the utensils are allowed to remain immersed in 171 °F water for 30 seconds.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● If using a chemical sanitizer, it is mixed correctly and a sanitizer test strip is used to test chemical concentration.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Smallware and utensils are allowed to air dry.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Wiping cloths are stored in sanitizing solution while in use.	<input type="checkbox"/>	<input type="checkbox"/>	_____

UTENSILS AND EQUIPMENT

	Yes	No	Corrective Action
● All small equipment and utensils, including cutting boards, are cleaned and sanitized between uses.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Small equipment and utensils are washed, sanitized, and air-dried.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Work surfaces are clean to sight.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Work surfaces are cleaned and sanitized between uses.	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Thermometers are cleaned and sanitized after each use.	<input type="checkbox"/>	<input type="checkbox"/>	_____

Continued on next page



UTENSILS AND EQUIPMENT *(continued)*

	Yes	No	Corrective Action
● Thermometers are calibrated on a routine basis.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Can opener is clean to sight.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Drawers and racks are clean.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Small equipment is stored inverted, covered, or otherwise protected from dust or contamination.....	<input type="checkbox"/>	<input type="checkbox"/>	_____

LARGE EQUIPMENT

	Yes	No	Corrective Action
● Food slicer is clean to sight.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Food slicer is cleaned and sanitized after each use.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● All pieces of equipment are clean to sight including equipment on serving lines, storage shelves, cabinets, ovens, ranges, fryers, and steam equipment.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Exhaust hood and filters are clean.....	<input type="checkbox"/>	<input type="checkbox"/>	_____

GARBAGE STORAGE AND DISPOSAL

	Yes	No	Corrective Action
● Kitchen garbage cans are clean and covered.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Garbage cans are emptied as necessary.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Boxes and containers are removed from site.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Loading dock and area around dumpster are clean.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Dumpster is closed.....	<input type="checkbox"/>	<input type="checkbox"/>	_____

PEST CONTROL

	Yes	No	Corrective Action
● Outside doors have screens and are equipped with a self-closing device.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● Screens are on open windows and doors are in good repair.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● No evidence of pests is present.....	<input type="checkbox"/>	<input type="checkbox"/>	_____
● There is a regular schedule of pest control by a licensed pest control operator.....	<input type="checkbox"/>	<input type="checkbox"/>	_____

Serving It Safe



Step 1 Purchasing

- Buy from reputable vendors
- Include food safety standards in purchasing agreement
- Accept foods only if delivered at proper temperatures in clean, well-equipped trucks

Step 2 Receiving

- Inspect foods upon arrival for proper temperature, content damage, and insect infestation
- Reject all products that do not meet requirements
- Store foods immediately
- Keep receiving area clean

Step 3 Storing

- Label food with description and delivery date
- Use oldest foods first
- Avoid cross-contamination
- Store chemicals away from foods and other food-related supplies
- Maintain proper refrigerator, freezer and dry storage temperatures

Step 4 Preparing

- Wash hands frequently, properly, and at appropriate times
- Avoid cross-contamination
- Keep foods out of temperature "danger zone" (41 °F-135 °F)
- Prepare foods no further in advance than necessary
- Thaw foods properly

Step 5 Cooking

- Avoid cross-contamination
- Use a clean food thermometer
- Record internal temperatures
- Cook foods to the proper internal temperature for appropriate time without interruptions

Step 6 Serving and Holding

- Avoid cross-contamination
- Hold foods at proper temperatures either below 41 °F or above 135 °F
- Record internal temperature
- Monitor the temperature of hot holding and cold holding equipment
- Follow rules for good personal hygiene
- Maintain a sanitary foodservice operation

Step 7 Cooling

- Chill rapidly
- Stir frequently
- Use shallow, pre-chilled pans
- Record internal temperature
- Store appropriately

Step 8 Reheating

- Reheat rapidly
- Reheat to internal temperature of 165 °F for 15 seconds
- Record internal temperatures
- Never reheat food in hot-holding equipment

USDA

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