## COURSE BOOK

# FOOD SAFETY ON THE GO

# MODULE 3:
# FOOD SERVICE MANAGEMENT STAFF

COLLEGE OF AGRICULTURE & NATURAL RESOURCES
MEALS on WHEELS AMERICA

# 2019 EDITION

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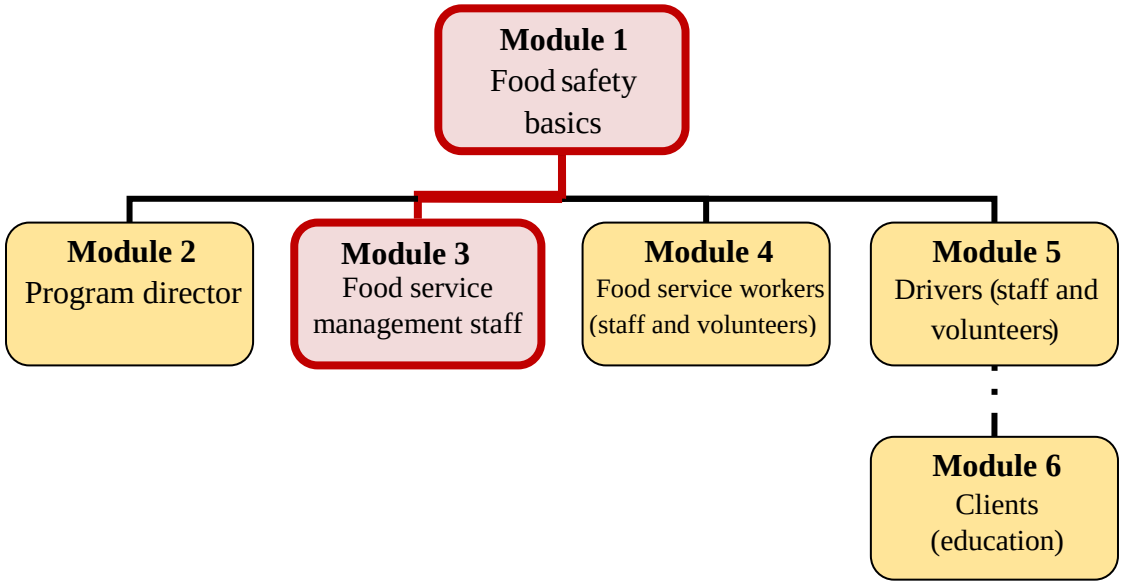
# INTRODUCTION

"Food Safety on the Go" is a food safety training program for staff, volunteers and clients of home delivered meal programs. It is made up of 6 modules. Module 1, Food safety basics, is an overview of food safety for all staff and volunteers. Modules 2 through 5 are for specific individuals within a program: Module 2 is for the program director, Module 3 is for the food service management staff, Module 4 is for food service workers (staff and volunteers), and Module 5 is for drivers (staff and volunteers). Module 6, which is for clients, is in the form of magnets for drivers to give to clients.




The food service management staff should complete Module 1, Food safety basics, and Module 3, Food service management staff.

Thank you for participating in the "Food Safety on the Go" training program.

# MODULE 3 - FOOD MANAGEMENT STAFF

**Length**

~50 minutes

**Audience**

Food service management staff

**Purpose**

This module discusses the food safety responsibilities of the food service management staff in a home delivered meal program.

1. The food service management staff is responsible for food safety.

The food service management staff of a home-delivered meal program is responsible for making sure that safe food is provided to clients.

2. All staff and volunteers need food safety training.

To minimize the risk of foodborne illness, all staff and volunteers in a home-delivered meal program need general food safety training. In addition, staff and volunteers need further food safety training specific to their responsibilities. Food service managers need to make sure that all food service staff and volunteers are properly trained in food safety. State, local, or other relevant food safety regulations may specify certain training requirements. For a program to deliver safe food, it is important to train staff and volunteers in food safety as soon as they start working or volunteering at the program, and at least once a year after that. For legal reasons, it is important that a program document that staff and volunteers have completed food safety training.

3. Programs need food safety policies and procedures throughout the flow of food

Programs must follow all state, local and other relevant food safety regulations. Regulations such as time and temperature requirements can differ by state or region, and programs should find out from local health departments which regulations apply to them. They also need to make sure that their caterers and vendors are following appropriate food safety regulations.

It only takes one minor mistake for a foodborne illness outbreak to happen. To avoid a foodborne illness outbreak, a food safety system must focus on prevention. It is not enough for a program to be reactive and only correct violations found during inspections. To make sure that safe food is delivered to clients, proper food safety policies and procedures are needed throughout the flow of food, which includes purchasing, receiving, storage, preparation, holding and delivery. A team effort is needed to develop and follow all food safety policies and procedures. Food service managers must make sure that food service staff and volunteers are following proper food safety practices at all times.

### a. Purchasing

*i. Suppliers*

Suppliers should have a good reputation and follow federal, state and local food safety laws. Suppliers should be buying their products from approved sources, which also follow federal, state and local laws. It can be useful to look at copies of suppliers' latest inspection reports. It is also important to keep good records on the purchasing history from each supplier.

*ii. Risky foods*

Home-delivered meal clients are very vulnerable when it comes to foodborne illness. Programs should carefully choose the types of foods to include in home-delivered meals, to reduce the risk of foodborne illness.

There are some foods that are not recommended for highly susceptible populations such as older adults, and these foods are not advisable for home-delivered meal clients (1). They include:

- raw or undercooked meat or poultry
- any raw or undercooked fish, or shellfish such as oysters, clams, mussels, or scallops
- food containing raw or undercooked seafood e.g., sashimi, found in some sushi or ceviche
- refrigerated smoked fish
- partially cooked seafood, such as shrimp and crab
- unpasteurized (raw) milk
- raw or undercooked eggs, such as eggs with runny yolk
- foods that contain raw/undercooked eggs, such as homemade Caesar salad dressings, homemade raw cookie dough, and homemade eggnog
- raw sprouts (alfalfa, bean, or any other sprout)
- unwashed fresh vegetables, including lettuce/salads
- soft cheeses made from unpasteurized (raw) milk, such as: feta, brie, camembert, blue-veined, or queso fresco

- hot dogs, deli meats, and luncheon meats that have not been reheated
- unpasteurized or untreated juice from fruits or vegetables

A number of foods support the growth of harmful bacteria and require time and temperature control in order to limit the growth of harmful bacteria. These foods are known as "time/temperature control for safety," or "TCS" foods. Programs need to make sure that TCS foods are handled properly. TCS foods include (2):

- any animal product that is raw or heat-treated, e.g., meat, poultry, milk, fish, shellfish, crabs, and lobster;
- cooked plant foods, such as rice, beans and vegetables;
- tofu and other soy protein; raw sprouts and sprout seeds (any type); sliced melons, cut tomatoes or mixtures of cut tomatoes, and cut leafy greens;
- garlic-in-oil mixtures (Note: this does not include commercially prepared acidified products that you may find on the shelves at the grocery store).

Bacteria grow fastest at temperatures between 41°F and 135°F, known as the temperature "danger zone." To prevent the growth of harmful bacteria, TCS foods should spend as little time as possible in the temperature danger zone. Time-temperature abuse occurs when TCS foods are held for too long in the temperature danger zone. Foodservice managers should determine which foods require time/temperature control for safety, and make sure that food service staff and volunteers know that these foods need to be kept at proper temperatures to be safe (3).

### b. Receiving

A program is responsible for checking the quality and safety of foods that are delivered to the program. Employees who receive food deliveries should be trained in proper inspection procedures. These procedures include checking products for freshness of foods, safe temperatures, expired code dates, signs of thawing and refreezing, pest damage, signs of cross-contamination (usually caused by placing raw in close proximity to ready-to-eat foods), and other possible food safety hazards. Deliveries should not be accepted if they do not meet standards.

### c. Storage

Food should be stored in a way that maintains its quality and safety. Storage procedures should include the following:

- store foods in appropriate areas (refrigerated storage, frozen storage, dry storage, etc…)
- store refrigerated raw meat, poultry and seafood separately from ready-to-eat food, in other words food that will be eaten without any more preparation, washing or cooking; if they cannot be stored separately, store ready-to-eat food on a shelf above raw seafood, meat and poultry, to prevent juices from raw food from dripping onto ready-to-eat food;
- label foods properly with a name and the date received;
- rotate products according to the "first in, first out," or FIFO method, to make sure that the oldest product is used first;
- check the foods periodically and throw away the food that is past its expiration date;

- use appropriate storage containers, and keep them clean before and after use;
- keep time/temperature control for safety (TCS) foods at proper temperatures; the federal Food Code (2017) recommends 41°F or lower for cold foods, or 135°F or above for hot foods;
- regularly check temperatures of stored food and storage areas, and keep a written log of temperatures;
- keep all storage areas and equipment clean and dry to prevent contamination;
- store food at least 6 inches off the floor to prevent contamination.

### *d. Preparation*

Food needs to be prepared, cooked, cooled, reheated and held properly to avoid contamination and growth of harmful bacteria.

*i. Thawing*

Frozen food should be thawed in one of the following ways: in the refrigerator, under cool running drinkable water, in a microwave, or as part of the cooking process.

*ii. Preparation*

Product temperatures and preparation times should be written down. Only clean and sanitized utensils must be used in food preparation.

*iii. Cooking*

Food needs to be handled correctly before cooking, since cooking will not destroy all spores and toxins produced by harmful bacteria. Cooking can, however, lower the number of some bacteria and viruses in foods to safe levels. Foods need to be cooked to specific minimum internal temperatures for designated amounts of time. Minimum temperatures that are recommended in the federal Food Code (2017) are listed on the following websites:

- https://www.fda.gov/downloads/food/guidanceregulation/retailfoodprotection/foodcode/ucm595140.pdf
- http://www.fsis.usda.gov/PDF/IsItDoneYet_Magnet.pdf
- http://www.fsis.usda.gov/OA/thermy/foodservice/FoodServicePoster-ENG.pdf
- https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/at-risk-populations/older-adults-and-food-safety/ct_index

A food thermometer should be used, according to the manufacturer's instructions, to measure the temperature of a food. After cooking, food should be served as quickly as possible so that it spends as little time as possible in the temperature danger zone.

*iv. Cooling*

After cooking, if a food is going to be stored and served later, it needs to be cooled rapidly. This way, the food can spend as little time as possible in the temperature danger zone, and growth of harmful bacteria can be prevented. After cooking, time/temperature control for safety (TCS) food must be cooled from 135°F to 41°F or below within six hours. Also, the food must be cooled from 135°F to 70°F within the first two hours. To cool large amounts of food, the food should be divided into smaller amounts to allow faster cooling and may be placed in shallow pans. In addition, the following tools can be used to cool food safely: an ice-water bath, ice paddles, and a blast chiller. Ice or cold water can also be added to certain dishes as part of the recipe.

*v. Reheating*

If TCS food that was cooked and cooled is reheated for hot holding, all parts of the food must reach a temperature of at least 165°F for 15 seconds. Reheating should be done quickly, and the food must reach this temperature within two hours.

### e. Holding

Food can become contaminated after preparation or cooking if it is not handled safely and held at the right temperature. It is a must to **keep cold food cold, and hot food hot** to prevent growth of harmful bacteria, since harmful bacteria grow fastest in the temperature danger zone between 41°F and 135°F. A food thermometer should be used to measure the internal temperature of a food. The federal Food Code recommends that hot TCS food be held at 135°F or above, and cold TCS food be held at 41°F or below.

### f. Delivery

Staff and volunteer drivers need to be trained in safe delivery procedures. Home-delivered meal clients are at a considerably higher risk of foodborne illness, and of serious health complications from foodborne illness, than others in the population. Strict procedures to prevent growth of harmful bacteria are needed to minimize clients' risk of foodborne illness. It is safest if home-delivered meals do not spend any time in the temperature danger zone before clients receive the meals. Hot TCS food should be kept at 135°F or above, and cold TCS food at 41°F or below until clients receive their meals.

Time and temperature requirements can vary by state or region, and should be checked with the local health department. State, local, or other relevant food safety regulations may or may not require that home-delivered meals remain at the above hot-holding or cold-holding temperatures during delivery. However, it is safest if meals can be kept at these holding temperatures until clients receive them.

The time from when food is prepared to when it is eaten should be as short as possible. Volunteer and staff drivers' routes should be as short as possible for both meal safety and meal quality. If a route takes more than two hours, it should be split into two or more routes if possible. When delivering frozen meals, route time limits are less important for meal safety and quality, as long as the meals are kept at 0° F or below.

It is recommended that the times at which drivers pick up meals from the kitchen and deliver the meals to each client be recorded. Meal temperatures should also regularly be measured and written down when meals are picked up from the kitchen. Preferably on a daily or weekly basis, but at least once a month, meal temperatures should also be tested and recorded on each route during delivery, to make sure that meals stay out of the temperature danger zone. On test days, the temperature of a test meal can be measured and recorded when the last client on a route receives his or her meal. Alternatively, program staff could measure and record the temperature of a test meal at the end of a driver's route. If the temperature of the test meal is found to be in the temperature danger zone, corrective action is recommended. This may include shortening the driver's route or changing delivery equipment so that meals can remain at safe temperatures during delivery.

The inside of program vehicles and volunteers' private vehicles should be cleaned regularly. Program delivery vehicles should be checked for cleanliness before drivers go on their routes. Volunteer drivers should be reminded to keep the inside of their vehicles clean.

Delivery equipment should be able to keep meals at proper hot-holding or cold-holding temperatures at all times. It is recommended that insulated food containers that can keep hot food at 135°F or above and cold food at 41°F or below be used. Containers should be food-grade, and designed so that food will not mix, leak or spill. They should be able to let air circulate to keep temperatures even, and should be cleaned and sanitized regularly.

Drivers should clean their hands before handling any food containers during meal pick-up and delivery. Washing hands with soap and water is more effective than using hand sanitizers, as hand sanitizers don't remove soil and other material that might be on hands. However, drivers should carry alcohol-based disposable hand sanitizing wipes or hand sanitizing lotion in their vehicles, as they may not always have access to soap and water during meal delivery. The lotion should have an alcohol content of at least 60 percent. In addition, drivers should not bring pets along in their vehicles during meal delivery, as pets could contaminate drivers' hands and the meals.

It is recommended that home-delivered meals be labeled with a "use-by" or "discard by" date, which is no more than three days after delivery, as well as instructions for storage and reheating. The label might be color-coded by day of the week. A sample label for a hot meal could be:

## EAT RIGHT AWAY OR REFRIGERATE

DISCARD BY:

***Date no more than 3 days after delivery***

TO REHEAT A MEAL:

Heat until food is hot and steaming.
If using the oven, set to at least 325°F.
If using a microwave, cover the dish, and partway through cooking, stir it and turn it so that it heats evenly.

If a client is not at home, the driver should not leave the meal, outside or inside, for the client. Leaving a meal in the temperature danger zone increases the chance that it will cause foodborne illness. Even if a client has provided an insulated container for the meal, the container may not keep the meal at a safe temperature. There is an added risk of tampering when meals are left outside. The client may also be away from home for a longer time than planned, which increases the chance that the meal will become unsafe to eat. If the program allows, a meal could be left with a neighbor. In this case, it is important that the driver explain to the neighbor how to store the meal.

### g. Client handling and storage of home-delivered meals

Clients need to eat meals right after they receive them, or refrigerate or freeze the meals. It is best if home-delivered meals are labeled with a “use by” date, or a “discard by” date, and instructions for storage and reheating. If the client can’t read the use-by date or instructions, it is important that the driver read and explain them to the client upon meal delivery.

When home refrigerators are set at a high temperature, or above 40° F, this can strongly increase the risk of foodborne illness. A number of clients may have their refrigerators set too high.

When an assessor goes to a client's home for an initial assessment, it is recommended that the assessor check the client's kitchen appliances, such as the oven, microwave and refrigerator, which may be used to heat or cool home-delivered meals. This way, the assessor can make sure that these appliances are working and that the refrigerator is set at a safe temperature.

4. Staff and volunteers need to be in good health and maintain good personal hygiene

**a. Health**

Infected employees are thought to cause at least two thirds of foodborne illness outbreaks in U.S. restaurants (3). Viruses and bacteria that cause foodborne illness can be transferred through food from an infected staff member or volunteer to a client. Staff and volunteers need to be in good health and to maintain good personal hygiene to lower the chance of foodborne illness in clients.

Staff and volunteers should know that they need to report the following health issues to the food service management:

- vomiting, diarrhea, jaundice, sore throat with fever, or any exposed boil or open, infected wound or cut on the hands or arms;
- an illness diagnosed by a health practitioner that was caused by, for example: *Salmonella Typhi* or typhoid-like fever, *Shigella* species, Norovirus, hepatitis A virus, *E. coli* O157:H7 or other Enterohemorrhagic or Shiga toxin-producing *E. coli* ;
- illness with typhoid-like fever within the past 3 months, unless treated with antibiotics;
- exposure to typhoid-like fever, shigellosis, Norovirus, hepatitis A virus, *E. coli* O157:H7 or other Enterohemorrhagic or Shiga toxin-producing *E. coli*, by eating or serving food that was involved in a foodborne illness outbreak, or by living with a diagnosed person;

Any wounds on hands or arms should be covered with a clean, dry bandage that keeps the wound from leaking. Bandages on hands should be covered with disposable gloves as well. Staff or volunteers who could transmit harmful viruses or bacteria to food or to others must be excluded or restricted from working with food.

**b. Hygiene**

*i. Washing hands*

Staff and volunteers need to maintain personal cleanliness and wash their hands properly. Washing hands is one of the best ways to reduce the risk of foodborne illness, as it can keep harmful viruses and bacteria from spreading. Up to 70 percent of all infections are transmitted by hands, and harmful bacteria and viruses can sometimes survive on unwashed hands for hours.

Hands should be scrubbed in warm soapy water for at least 20 seconds before and after handling food, after using the restroom, and after touching one's hair, face, body, clothing, or anything else that could contaminate hands. Hands should be dried with a clean paper towel or a hand dryer (4).

*ii. Personal hygiene*

Poor personal hygiene is a common cause of foodborne illness. Staff and volunteers need to have good personal hygiene so that they don't spread harmful viruses or bacteria to food or to others. Staff and volunteers who work with food should keep their fingernails short and clean, bathe or shower before working with food, and keep their hair clean. They should also wear clean clothes and a clean hair restraint when working with food. If food service workers wear aprons and leave a food preparation area, to go to the restroom, for example, they should take off their aprons and store them properly. Food service workers should remove any jewelry from their hands and arms before working with food. They should not eat, drink, smoke, or chew gum or tobacco while handling food or while working in a food preparation area. They should also minimize talking if they are not wearing a mask while they are working.

*iii. Single-use gloves*

Gloves can help keep hands from contaminating food if they are used properly. There are gloves that are specifically designed for foodservice operations. Gloves should be used only once, and never washed and reused. Gloves do not take the place of washing hands. Food handlers need to wash their hands at least as often when wearing gloves as when not wearing them. They should wash their hands before putting on gloves and when changing gloves.

Food handlers should change gloves:

- before beginning a different task
- as soon as the gloves become soiled or torn
- after handling raw meat, and before handling ready-to-eat food, in other words food that will be eaten without any more preparation, washing or cooking

5. Programs need a policy on food product recalls

Programs need a policy on how to handle food product recalls. A food product recall is an action by a food manufacturer or distributor to remove products from commerce that may cause health problems or death. A program's recall policy should follow any relevant state or local health department requirements. Procedures for food product recalls may include the following:

- Determine who is responsible for keeping up-to-date on current food product recalls;
- Determine who will contact the local health department and other regulatory agencies, and handle phone calls from clients and the media;
- Identify the recalled food product, and learn the reason for the recall;
- Determine whether the recall is relevant to the program;
- Count the recalled product in inventory;
- Identify where and how to segregate the product;
- Place warning labels on the product;
- Notify staff not to use the product;
- Determine the amount of recalled product that has been used;
- Identify whether the product was served, to whom it was served, and when it was served.

The following website provides up-to-date information on food recalls, and allows people to sign up for e-mail messages or other types of updates on the latest recalls: http://www.foodsafety.gov/recalls/recent/index.html

Once a home-delivered meal program prepares a policy on food product recalls, it can send the policy to the local health department and to other regulatory agencies, as well as to any legal representatives of the program, and ask them to review the policy and make suggestions, and then the program could incorporate those suggestions to revise the policy.

6. Home-delivered meal programs need a policy on cases of foodborne illness

Programs should have a policy on how to respond to cases or outbreaks of foodborne illness, in case any occur. The policy should follow any relevant state or local health department for requirements. Procedures may include the following:

- Develop a form for reports of client foodborne illness. The form can include the client's name; contact information; symptoms; doctor's name and phone number, if the foodborne illness was diagnosed by a doctor; and information on the foods and beverages that the client consumed.
- Determine who will handle phone calls from clients, the media, the local health department and other regulatory agencies.
- Contact the local health department immediately in case of a suspected outbreak.
- If samples of suspected foods will be taken for testing, ask the local health department for any recommended procedures or storage requirements for these foods.

Once a program prepares a policy on cases of foodborne illness, it can send the policy to the local health department and to other regulatory agencies, as well as to any legal representatives of the program, and ask them to review the policy and make suggestions, and then the program could incorporate those suggestions to revise the policy.

7. A Hazard Analysis and Critical Control Point (HACCP) system

A Hazard Analysis and Critical Control Point (HACCP) system is a food safety system that can be used to identify, evaluate and control food safety hazards throughout the flow of food (5,6, 7). These can be biological, chemical, or physical hazards that are likely to cause illness or injury if not controlled. A HACCP system is meant to prevent, eliminate, or reduce food safety hazards to an acceptable level before a food reaches the consumer. The Food and Drug Administration (FDA) supports the use of a HACCP system, though it is not required for all foodservice operations.

A HACCP system should be based on a written plan that is specific to each program's menu, clients, equipment, and processes. For this reason, it may not be easy to transfer a HACCP plan from one program to another. A HACCP plan involves finding food safety hazards, figuring out the steps needed to control the hazards, putting procedures in place, and verifying the effects of the actions taken to make sure food is safe. Keeping good records is required throughout the whole process and establishing corrective actions as needed are best practices.

There are seven HACCP principles, which outline how to create a HACCP plan:

- Conduct a hazard analysis
- Determine the critical control points (CCPs)
- Establish critical limits
- Establish monitoring procedures
- Establish corrective actions
- Establish verification procedures
- Establish record-keeping and documentation procedures

More information on creating a HACCP plan can be found in the federal Food Code, at the following website:
https://www.fda.gov/food/guidanceregulation/haccp/ucm2006810.htm

8. Inspections are important

### a. Self-inspections

Programs should conduct self-inspections often to make sure they are following proper food safety procedures. Programs can use the same type of checklist for self-inspections that the regulatory agency, such as the local health department, uses for inspections. The federal Food Code (2017) also has a Food Establishment Inspection Report Form, which can be found at the following website:
https://www.fda.gov/downloads/food/guidanceregulation/retailfoodprotection/foodcode/ucm595140.pdf (see page 716).

If any food safety risks are found during a self-inspection, it is important to correct them as soon as possible.

### b. Health inspections by the regulatory agency

State, county or city health inspectors, who may also be called sanitarians, health officials, or environmental health specialists, conduct inspections of foodservice operations in most states. Some health departments conduct inspections at least every six months, and inspectors often arrive unannounced. Inspectors use the state or local health code as a guide to examine whether a foodservice operation is meeting basic food safety standards. The inspection system allows a home-delivered meal program to know how well it is following important food safety practices. The program must correct any problems noted in the inspection report.

Inspectors can be very helpful in making sure a program provides safe food to clients. It is important to cooperate with inspectors, ask them questions during inspections, and build a positive working relationship with them.

## KEY POINTS

- The food service management staff of a home-delivered meal program is responsible for making sure that safe food is provided to clients.
- For a program to deliver safe food, it is important to train staff and volunteers in food safety as soon as they start working or volunteering at the program, and at least once a year after that.
- Programs must follow all state, local and other relevant food safety regulations.
- Regulations such as time and temperature requirements can differ by state or region, and programs should find out from local health departments which regulations apply to them.
- Programs also need to make sure that their caterers and vendors are following relevant food safety regulations.

- Proper food safety policies and procedures are needed throughout the flow of food, which includes purchasing, receiving, storage, preparation, holding and delivery.
- Staff and volunteers need to be in good health and to maintain good personal hygiene to lower the chance of foodborne illness in clients.
- Programs need a policy on how to handle food product recalls, as well as a policy on how to respond to cases or outbreaks of foodborne illness, in case any occur.
- A Hazard Analysis and Critical Control Point (HACCP) system is a food safety system that can be used to identify, evaluate and control food safety hazards throughout the flow of food.
- Programs should conduct self-inspections often to make sure they are following proper food safety procedures.
- It is important for a program to cooperate with state, county or city health inspectors, and build a positive working relationship with them.

## ACTIVITY: Scenario and discussion

**Home-delivered meals linked to foodborne illness outbreak** (8)

A lunch of roast chicken, stuffing potato, green beans, and gravy, as well as raspberry crumble and custard, was delivered to 140 clients of a home-delivered meal program. Between 5 and 14 hours after the meal, at least 49 people developed stomach pain and diarrhea. One client, an 81-year-old woman, was found dead the following morning. The other victims had severe symptoms but recovered within a few days.

The meals were packed in containers at 11 a.m. and delivered between noon and 1 p.m. All of the food, except for the chickens, had been prepared that morning. On the previous day, the chickens were thawed for three hours in warm water and roasted for 3 and a half hours at 450 degrees F. They were then stored at room temperature overnight, for 19 hours, and reheated for 30 minutes at 450 degrees F before delivery. The program had previously found that the average temperature of its meals was 175 degrees when the meals were packed, at 11 a.m., and 120 degrees two hours later at the end of the delivery route. The 49 victims of this foodborne illness outbreak all received their meals toward the end of the delivery route. Several types of harmful bacteria were identified in the meals.

**Discussion question: How might this outbreak have been prevented?**

## MORE INFORMATION

- FDA Food Code: http://www.fda.gov/Food/FoodSafety/RetailFoodProtection/FoodCode/default.htm

# GLOSSARY

**Bacterium**: A single-celled organism.
**Calibrate a thermometer**: Ensure that a thermometer gives accurate readings by adjusting it to a known standard, such as the freezing point or the boiling point of water.
***Campylobacter***: A group of bacteria, some of which can cause foodborne illness.
**Clean**: The process of removing food residue and other types of soil from the surface of equipment or utensil. Be sure to select right cleaning agent for food-contact surface.
**Contamination**: The unintended presence of harmful substances or microorganisms.
**Cross-contamination**: The transfer of harmful bacteria or viruses from one food or surface to another. ***E. Coli***: A group of bacteria, some of which can cause foodborne illness.
**Flow of food**: The path food takes through a foodservice operation; it can include purchasing, receiving, storage, preparation, cooking, holding, cooling, reheating, plating and delivery.
**Food Code (FDA)**: A model for state and local regulators to use to develop or update their food safety rules. It is issued by the Food and Drug Administration (FDA), a federal government agency.
**Food product recall**: An action by a food manufacturer or distributor to remove products from commerce that may cause health problems or death.
**Food safety**: The conditions and practices that preserve the quality of food to prevent contamination and foodborne illness.
**Foodborne illness (often called "food poisoning")**: Any illness that is caused by eating food that is contaminated.
**Foodborne illness outbreak**: An incident in which two or more people get the same illness after eating the same food.
**Hazard analysis and critical control point (HACCP) system**: A food safety system that can be used to identify, evaluate and control food safety hazards throughout the flow of food.
**Health inspector (may also be called sanitarian, health official or environmental health specialist)**: State, county or city employee who conducts foodservice inspections.
**Hepatitis A virus**: A virus that can cause foodborne illness.
**Immune system**: The body's defense system against illness.
**Infectious dose**: The number of harmful bacteria or viruses that are needed to cause illness.
**Jaundice**: Yellowing of the skin and eyes; a symptom of various diseases including hepatitis A.
**Norovirus**: A group of viruses that can cause foodborne illness.
**Personal hygiene**: Maintaining cleanliness of one's body and clothing to preserve overall health and well-being.
**Ready-to-eat food**: Food that will be eaten without any more preparation, washing or cooking.
***Salmonella***: A group of bacteria, some of which can cause foodborne illness.
**Sanitize**: Reduce the number of microorganisms on a surface to safe levels.
***Shigella***: A group of bacteria, some of which can cause foodborne illness by producing Shiga toxins.
**Shiga toxins:** One of the most potent bacterial toxins produced by the bacterium Shigella dysenteriae and some serogroups of E. coli, causing dysentery in humans.
**Spore**: A form that some bacteria can take to protect themselves in unfavorable conditions.

**Temperature danger zone**: The temperature range between 41 and 135 degrees Fahrenheit; many bacteria that cause foodborne illness grow fastest within this temperature range.
**Time-temperature abuse**: Allowing food to remain too long at a temperature which supports the growth of harmful bacteria.
**Time/temperature control for safety foods (TCS foods)**: Foods that support the growth of harmful bacteria, and therefore require time and temperature control to limit the growth of harmful bacteria.
**Toxin**: A poison that is produced by living cells or organisms.
**Virus**: A very small infectious agent that can only multiply inside a living cell.

## FOOD SAFETY WEBSITES

**Food safety for older adults**
https://www.foodsafety.gov/risk/olderadults/index.html
https://www.fda.gov/downloads/Food/FoodborneIllnessContaminants/UCM312790.pdf
**Federal food safety gateway**
www.foodsafety.gov
**U.S. Department of Agriculture (USDA) Food Safety and Inspection Service**
www.fsis.usda.gov
**U.S. Food and Drug Administration (FDA) education resource library and retail food protection**
https://epublication.fda.gov/epub/
https://www.fda.gov/food/guidanceregulation/retailfoodprotection/ucm2006807.htm
**Partnership for Food Safety Education**
www.fightbac.org
**Iowa State University Extension food safety project**
http://www.extension.iastate.edu/foodsafety/educators/index.cfm?articleID=295&parent=2
**UC Davis food safety music**
http://foodsafe.ucdavis.edu/index.html#

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