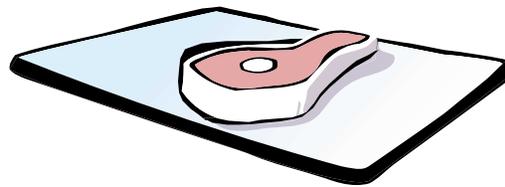




Separate!



**Don't Cross-  
Contaminate**

# Cross- Contamination

# Lesson Three: Cross-Contamination

## Purpose

The purpose of Lesson Three is to help Summer Food Service Program staff and volunteers implement practices to keep the facility clean and sanitary and to prevent cross-contamination.

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## Supporting Materials for this Lesson

### Supplies

- White PVC foam board with dimensions of 24" by 36" (1/4" or 1/2" thick)
- Fight BAC! Poster with dimensions of 27" x 19" (Note: Posters can be ordered by visiting the FightBAC! Web site <http://fightbac.org> and clicking on "Store")
- Scissors
- Double-sided mounting tape
- Green fabric for bean bags
- Sewing machine or needle and thread
- Rice to fill the bean bags
- Funnel



### Handouts

#### For staff and volunteers:

- Handout 1: To Prevent Hand-to-Food Cross-Contamination
- Handout 2: To Prevent Food-to-Food Cross-Contamination
- Handout 3: To Prevent Equipment-to-Food Cross-Contamination
- Handout 4: Checklist for Preventing Cross-Contamination and Keeping the Facility Clean and Sanitary

#### For children:

- Handout 5: Keeping the Kitchen Clean Coloring Page
- Handout 6: Finding the Six Food Safety Mistakes Activity Page

### NFSMI Posters

- Produce/Salad Area...Avoid Cross-Contamination

## Educational Objectives

**At the completion of this lesson, staff and volunteers will be able to:**

- Explain the difference between clean and sanitary
- Describe how cross-contamination occurs and ways to prevent it
- Describe ways to keep the facility clean and sanitary
- Teach children how they can help to prevent cross-contamination

## Key Words

*Cross-Contamination* - The transfer of harmful microorganisms from a surface (hand or food contact) to food or from one food to another food.

*Microorganisms* - Molds, bacteria, and yeasts that grow in and on food and can make food unsafe.

*Sanitary* - The condition that exists after certain chemicals or heat have been used to reduce microorganisms.

*Sanitize* - To use either a chemical or heat on a clean surface to reduce the number of bacteria or other microorganisms to a level that is not harmful.

*Clean* - No visible sign of soil.

*Ready-to-Eat-Food* - Food that is in an edible form without washing, cooking, or additional preparation and is generally consumed in that form. Some examples include raw, washed, cut fruit and vegetables; deli meats; and cheeses.

# Lesson Content

## Cross-Contamination

One of the biggest dangers foodservice operations face is cross-contamination, the transfer of microorganisms from:

- Hand to food
- Food to food
- Equipment to food

Microorganisms live throughout the kitchen and can easily move around by attaching themselves to people, food, and equipment. Cross-contamination can occur anywhere in a foodservice operation but can be prevented by proper food safety procedures.

## Hand-to-Food Cross-Contamination

Hand-to-food contamination occurs when hands handle cooked or ready-to-eat-foods. Bacteria are found throughout the body - on hair, skin, and clothing; in the mouth, nose, and throat; in the intestinal tract; and on open wounds, sores, scabs, or scars. These bacteria often end up on the hands where they can easily spread to food. People can also pick up bacteria by touching raw food and then handling cooked or ready-to-eat foods. To prevent hand-to-food contamination, wash hands often and use gloves appropriately when preparing or serving ready-to-eat foods.



### **To prevent hand-to-food cross-contamination, staff and volunteers can:**

- Wash hands properly and at appropriate times.
- Wash hands before putting on single-use gloves and change gloves frequently, especially when activity changes.
- Cover cuts, sores, and wounds.
- Avoid wearing jewelry except for a plain ring such as a wedding band.
- Avoid wearing nail polish and artificial nails.

Distribute Handout 1: **To Prevent Hand-to-Food Cross-Contamination** to reinforce the principles discussed. Post the handout in the facility.

## Food-to-Food Cross-Contamination

Food-to-food contamination happens when harmful microorganisms from one food, such as unwashed produce, contaminate other foods. Bacteria in raw meat and poultry can be spread to other foods, utensils, and surfaces. A common mistake is to leave thawing meat on a top shelf in the refrigerator where it can drip onto foods stored below.

### **To prevent food-to-food cross-contamination staff and volunteers can:**

- Store cooked foods and ready-to-eat foods above raw foods in the refrigerator.
- Wash fresh fruits and vegetables in cold running water.
- Avoid preparing meats on the same surface as fresh fruits and vegetables.

Distribute Handout 2, **To Prevent Food-to-Food Contamination** to reinforce the principles discussed. Post the handout in the facility.

## Equipment-to-Food Cross-Contamination

Bacteria may pass from equipment to food when the food equipment has not been properly cleaned and sanitized before being used to prepare food. For example, cross-contamination can occur when a meat slicer used for slicing deli meats is then used for slicing fresh tomatoes without proper cleaning and sanitizing in between each usage.

### **To prevent equipment-to-food contamination, staff and volunteers can:**

- Use separate cutting boards for different foods, such as meats and fresh fruits and vegetables.
- Clean and sanitize cutting boards after each use.
- Clean and sanitize food preparation equipment, work surfaces, and utensils after each use.
- Follow State and local health department guidelines for the use of cleaning cloths.
- Make sure cloths or towels used for wiping spills are not used for any other purpose.
- Use specific containers for various types of food products. Clearly label the containers with contents and date.
- Wash and sanitize the can opener on a regular schedule.
- Never reuse single-use containers, such as mayonnaise jars or single-use plastic containers.
- Never reuse plastic wrap or aluminum foil after its initial use.
- Touch dishes, trays, flatware, glasses, or serving utensils by contacting only the outside surface; never touch the surface where food will be placed or where a person's mouth will touch.
- Use a clean, sanitized utensil when a new pan of food is added to the steam table.

Distribute Handout 3: **To Prevent Equipment-to-Food Contamination** to reinforce the principles discussed. Post the handout in the facility.

## A Clean and Sanitary Facility

To help keep facilities free of harmful levels of bacteria or other contaminants, it is necessary to clean and sanitize all surfaces that will come into contact with food. A table, dish, or sink may look clean but cannot be considered sanitary until bacteria and other harmful contaminants have been reduced to safe levels.

Using recommended levels of a commercial sanitizing solution will help prevent the spread of harmful bacteria. Household bleach can be used as a sanitizer only if the label indicates it is EPA registered. The three most common types of sanitizers used in Summer Food Service Programs are chlorine, iodine and quaternary ammonium compounds. Use only EPA (Environmental Protection Agency) approved chemical sanitizers for food-contact surfaces.

Use the manufacturer's label directions for specific information on mixing, storing, and first aid. Sanitizing solution concentrations may vary depending on water and outside temperatures. Always check the sanitizing solution with test strips.

### **Rule-of-thumb mixtures for chlorine sanitizing solutions**

50 PPM solution for immersion: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with four gallons of water

The solution should be in contact with the surface to be sanitized for seven seconds at a temperature between 75 °F and 115 °F. Be aware that very hot water may prevent chlorine bleach from sanitizing. Sanitizing solution can be used to sanitize a food thermometer after every use.

100 PPM solution: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with two gallons of water

200 PPM solution: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with one gallon of water

**Clean and sanitize  
all surfaces that will come  
into contact with food!**

If not handled properly, chemicals can also contaminate food and make people sick. Only persons who are properly trained should use chemicals. Chemicals should be stored properly in original containers away from food. Physical contaminants that are a threat to food safety include dirt, hair, nail polish flakes, broken glass and crockery, nails, staples, metal fragments, and bits of packaging materials. Staff and volunteers wearing proper attire and following safety precautions can prevent most physical food contamination.

It is important to handle garbage appropriately. Place garbage in a covered trash container and remove from food preparation and serving area. Remove boxes and containers from the site and make sure dumpster lids are tightly closed.

Note: Be sure to follow State and local health department guidelines to ensure that food is kept safe from chemical, physical and biological threats.

## Activity 1 Staff and Volunteers

### Case Study: The Difference Between Clean and Sanitary

**Read the following scenario and hold a discussion about what Mary did wrong.**

Mary was assigned to wash pots and pans after the lunch service. She was concerned about making a good first impression so she made sure she had plenty of soap and scrubbed the equipment totally clean of food particles. She changed the wash water and the rinse water to keep both looking clean. Then she went on to wash a cutting board that had been used to chop ham for the ham salad sandwiches.

**What did Mary do wrong?**

*Answer:* The equipment Mary washed was clean but she did not sanitize. Remember, a dish, utensil or table may look clean, but it cannot be considered sanitary until bacteria and other harmful contaminants have been reduced to safe levels. Mary should have sanitized the equipment with a commercial sanitizing solution following manufacturer's directions. Reinforce this case study by showing the NFSMI poster **Produce/Salad Area...Avoid Cross-Contamination.**

## Activity 2 Staff and Volunteers

### Checklist for Preventing Cross-Contamination and Keeping the Facility Clean and Sanitary

Distribute Handout 4: **Checklist for Preventing Cross-Contamination and Keeping the Facility Clean and Sanitary**. Ask the staff and volunteers to fill out the checklist. Discuss in a general way the outcome of what staff and volunteers checked. Use this checklist as a summary and recap of the lesson.

## Focus on Children

Children like to take responsibility for helping to prepare meals. Basic food safety principles are important for children as they learn to keep food safe. The following activities will help children learn more about keeping food safe.

## Activity 1 Children

### Coloring **Keeping the Kitchen Clean Coloring Page** and **Finding the Six Food Safety Mistakes Activity Page**

(This activity is appropriate for children in grades K-3.)

Distribute Handout 5: **Keeping The Kitchen Clean** and Handout 6: **Find The Six Food Safety Mistakes**. Allow time for the children to color the pictures. Discuss why it is important to keep the kitchen clean and safe and how children can help at home.



## Activity 2 Children

### Fight BAC! Bean Bag Toss Game

(This activity is appropriate for children in grades 4-6.)

The following is an activity that children who are a little older might enjoy.

#### How to Make a Fight BAC! Bean Bag Toss Game

##### **Materials needed:**

- White PVC foam board with dimensions of 24" by 36" (1/4" or 1/2" thick)
- Fight BAC! Poster with dimensions of 27" x 19" (Note: Posters can be ordered by visiting the FightBAC! Web site <http://fightbac.org> and clicking on "Store")
- Scissors
- Double-sided mounting tape
- Green fabric for bean bags
- Sewing machine or needle and thread
- Rice to fill the bean bags
- Funnel

##### **Steps for Game Board:**

1. Obtain white PVC foam board from a plastics manufacturer.
2. Have the manufacturer cut one 6" hole in the center of the board.
3. Laminate the Fight BAC! poster in plastic sleeve. (This service is offered by most office supply stores for a small fee).
4. Trim edges of poster to remove excess plastic laminate.
5. Cut a hole in the poster on the inside of the red circle taking care to keep the cutout piece intact when cutting the hole.
6. Save the cutout of the inside of circle with BAC on it.
7. Mount the laminated poster on board with double-sided tape around the circular cutout in the center of the board.
8. Mount the inside of the circle with BAC on it to a sturdy piece of cardboard with double-sided tape.
9. Line up the flap with BAC on it behind the board so that it resembles the original alignment.
10. Attach only the top of the flap to the back of the board using heavy-duty duct tape to act as a hinge.

## Steps for Bean Bags:

1. Cut green material into eight square pieces of equal size.
2. Match two pieces of material up edge to edge, right sides together.
3. Sew the two pieces together into a square with the seam 1/4 inch inside the edge leaving a small opening in one seam in order to fill the bag with rice.
4. Repeat steps 3 and 4 to make a total of four bean bags.
5. Use a funnel inserted into the opening in the seam to fill each bean bag 3/4 full with rice.
6. Sew the opening of each beanbag closed.

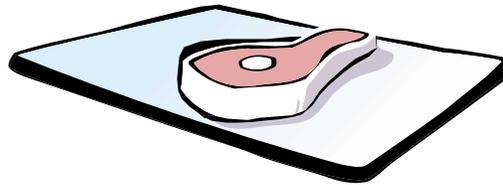
You now have a game board and four square bean bags and are ready to Fight BAC! Prop the game board up against a sturdy vertical surface. You may want to tape the base of the game board to the floor for additional stability. Establish a throw line for the players to stand behind. Challenge the players to toss the beanbags through the hole at BAC.

Source: San Diego Department of Environmental Health and the FightBAC!  
Retrieved January 29, 2003 from <http://www.fightbac.org>





Separate!



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# Handouts

## To Prevent Hand-to-Food Cross-Contamination:

- Wash hands properly and at appropriate times.
- Wash hands before putting on single-use gloves and change gloves frequently, especially when activity changes.
- Cover cuts, sores, and wounds.
- Avoid wearing jewelry except for a plain ring, such as a wedding band.
- Avoid wearing nail polish and artificial nails.



## To Prevent Food-to-Food Cross-Contamination:

- Store cooked foods and ready-to-eat foods above raw foods in the refrigerator.
- Wash fresh fruits and vegetables in cold running water.
- Avoid preparing meats on the same surface as fresh fruits and vegetables.



Separate!



**Don't Cross-Contaminate**

## **To Prevent Equipment-to-Food Cross-Contamination:**

- Use separate cutting boards for different foods, such as meats and fresh fruits and vegetables. Cutting boards should be cleaned and sanitized after each use.
- Clean and sanitize food preparation equipment, work surfaces, and utensils after each use.
- Use specific containers for specific types of food products. Clearly label the containers with contents and date.
- Follow State and local health department guidelines for the use of cleaning cloths.
- Make sure cloths or towels used for wiping spills are not used for any other purpose.
- Wash and sanitize the can opener on a regular schedule.
- Never re-use single-use containers such as old mayonnaise jars or single-use plastic containers.
- Never reuse plastic wrap or aluminum foil after its initial use.
- Touch dishes, trays, flatware, glasses, or serving utensils by contacting only the outside surface; never touch the surface where food will be placed or where a person's mouth will touch.
- Use a clean, sanitized utensil when a new pan of food is added to the steam table.

# Checklist for Preventing Cross-Contamination and Keeping the Facility Clean and Sanitary

Complete the following checklist to see how food safety practices in your facility measure up:

1. Food contact surfaces are properly washed, rinsed, and sanitized after each use.
2. Procedures are in place to prevent cross-contamination.
3. Food is handled with utensils, single-use gloves or clean hands.
4. Utensils are used to avoid touching parts that will be in direct contact with food or a person's mouth.
5. Reusable towels are used only for sanitizing equipment surfaces and not for drying hands, utensils, floor, etc.
6. Work surfaces are clean to sight.
7. All food preparation equipment and utensils, including cutting boards, are cleaned and sanitized between uses.
8. Manufacturer's directions are used when mixing commercial chemical sanitizers, and a sanitizer test strip is used to test chemical concentration.
9. Garbage is removed and placed in appropriate container.
10. Garbage cans are clean and covered.

OK	Need to Improve
<input type="checkbox"/>	<input type="checkbox"/>

## Keeping the Kitchen Clean

Put backpacks on the floor, not on the counter.  
Keep everything in the kitchen clean.



Source: *Food Safety at Home, School and When Eating Out*. U.S. Department of Agriculture, Food Safety and Inspection Service and The Chef and the Child Foundation, American Culinary Federation, Inc.

# Find the Six Food Safety Mistakes Activity Page

Find the six food safety mistakes.



Source: *Food Safety at Home, School and When Eating Out*. U.S. Department of Agriculture, Food Safety and Inspection Service and The Chef and the Child Foundation, American Culinary Federation, Inc.

## World Wide Web Resources

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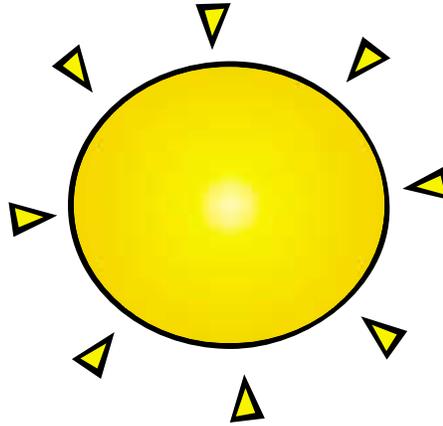
National Food Service Management Institute  
[www.nfsmi.org](http://www.nfsmi.org)

Partnership for Food Safety Education  
[www.fightbac.org](http://www.fightbac.org)

United States Department of Agriculture, Food Safety and Inspection Service  
[www.fsis.usda.gov](http://www.fsis.usda.gov)

Thermy™  
[www.fsis.usda.gov/thermy](http://www.fsis.usda.gov/thermy)

Web sites were accurate on February 19, 2003.



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