

Taking Steps to Implement School Food Safety Programs Based on HACCP Principles



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Objectives



- Purpose and advantages of a school food safety program
- Developing a school food safety program based on HACCP principles
- Food safety compliance
- Additional resources

Consider this...



- More than 28 million children receive meals daily through the National School Lunch Program and School Breakfast Program.
- An analysis of CDC data showed that 195 foodborne outbreaks in U.S. schools were reported from 1990-1999 – representing about 3% of the 7,390 reported outbreaks during that period. These outbreaks involved 12,000 individuals.

Source: U.S. General Accounting Office,
SCHOOL MEAL PROGRAMS: Few instances of Foodborne Outbreaks
Reported, but Opportunities Exist to Enhance Outbreak Data and Food
Safety Practices, May 2003

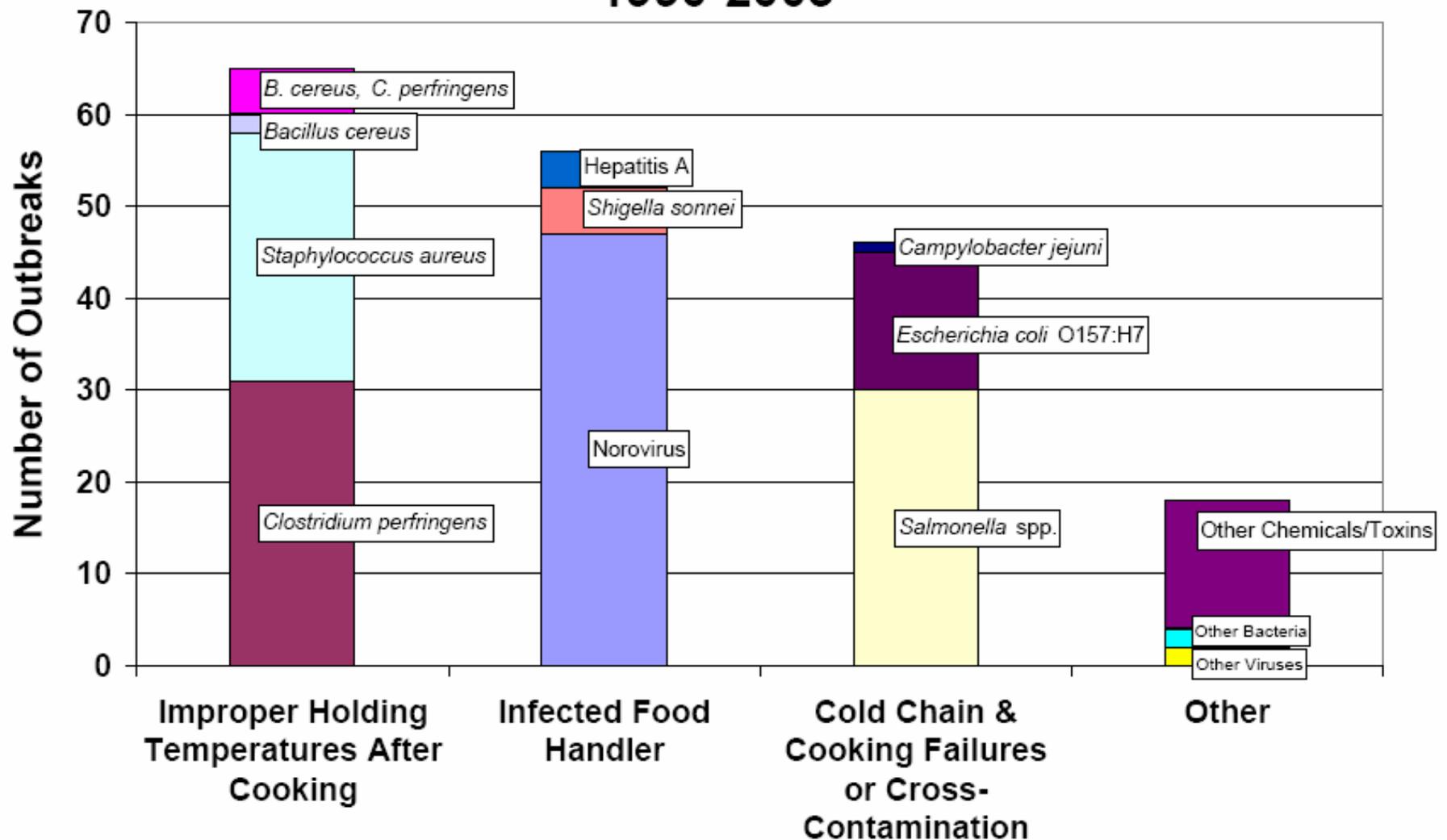
(<http://www.gao.gov/new.items/d03530.pdf>)

Consider this...

- ❑ 40 of the 59 large outbreaks (involving 50 or more people) were associated with meals served through the federal school meal programs. These outbreaks affected 5,500 individuals.
- ❑ 19 of the 40 outbreaks resulted from **improper food preparation and handling practices within the schools**, while 8 outbreaks were due to foods contaminated before delivery to schools, or to a combination of both.

Source: U.S. General Accounting Office,
(<http://www.gao.gov/new.items/d03530.pdf>)

School-Related Foodborne Illness Outbreaks by Cause, 1990-2003

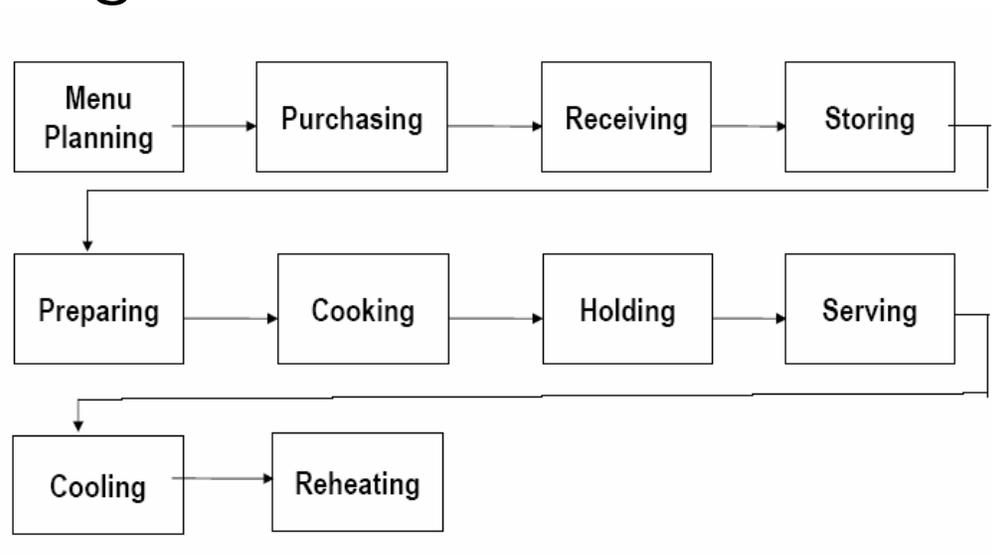


n = 185 outbreaks

Likely Error in Food Safety Practices

Purpose of a HACCP-Based School Food Safety Program

- Ensures the delivery of safe foods to children in school meal programs by controlling hazards to foods



- Maintains compliance with government regulations

Section 111 of the Child Nutrition and WIC Reauthorization Act of 2004

- ❑ Requires school food authorities (SFAs) to implement a food safety program for the preparation and service of school meals served to children beginning July 1, 2005
- ❑ Program must be based on [HACCP](#) principles
- ❑ SFAs must have a fully implemented food safety program that complies with [HACCP](#) principles no later than the end of the 2005-2006 school year

What is HACCP?

Hazard

Analysis

Critical

Control

Point

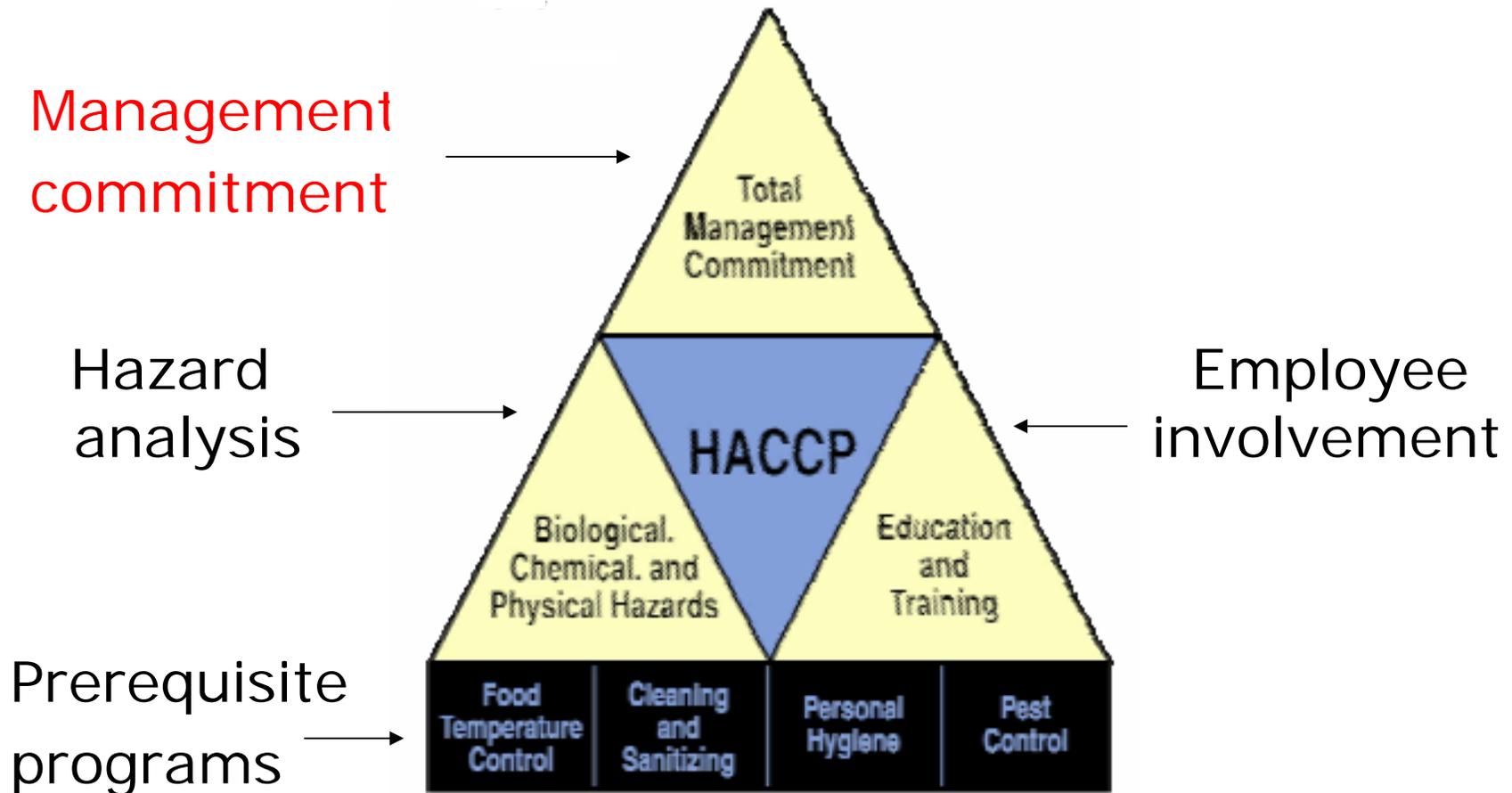
A systematic approach to identification, assessment, and control of foodborne hazards throughout the flow of service



What is HACCP?

- HACCP is a “preventative” approach to food safety.
- A HACCP approach helps to:
 - Identify foods and procedures most likely to cause foodborne illness
 - Develop procedures to reduce the risk of an outbreak
 - Monitor processes to keep food safe
 - Verify that food served is consistently safe

HACCP Pyramid



Adapted from Gravani, 1997

Advantages of Implementing a School Food Safety Program

- Protects consumers
- Improves the control of the food process in the facility
- Provides a defense against complaints and legal action
- Keeps a school food authority continually involved in self-inspection and thus self improvement
- Opportunity for staff to work as a team
- Raises professionalism to the next level



Requirements of a HACCP-Based School Food Safety Program

- A written food safety plan is required for every school building in a district
- A modified version of the “Process Approach” to HACCP will be the minimum required food safety system for SFAs.

Requirements of a School food Safety Program

1. Documented standard operating procedures (SOPs)
2. A written school food safety plan for applying HACCP Principles:
 - Documenting menu items in the appropriate HACCP process category
 - Documenting Critical Control Points of food production
 - Monitoring
 - Establishing and documenting corrective actions
 - Recordkeeping
 - Reviewing and revising the overall food safety program periodically



How Do You Accomplish This?

Take a deep breath

and then

follow the steps.

Getting Ready for a School Food Safety Program

- Establish a food safety team
 - One person as the lead, but engage all employees in the process

- Develop an operational description
 - Collect information about the facility, equipment, purchasing, and the operation

RESOURCE from the School Nutrition Association

www.schoolnutrition.org

Keys to Food Safety Publication

Suggested Content for Program Description (Appendix A)

Getting Ready for a School Food Safety Program

- Assess current operation
 - Assess and strengthen prerequisite programs
 - Assess SOPs that support prerequisite programs

RESOURCE from the School Nutrition Association
www.schoolnutrition.org
Keys to Food Safety Publication
Prerequisite Program Assessment (Appendix B)



Activity 1. Prerequisite Program Assessment

Does your school have prerequisite programs necessary for HACCP implementation?



Steps to Developing a School Food Safety Program

1. Develop, document in writing, and implement SOPs.
2. Identify and document in writing all menu items according to the Process Approach to HACCP.
3. Identify and document control measures and critical limits.
4. Establish monitoring procedures.
5. Establish corrective actions.
6. Keep records.
7. Review and revise your overall food safety program periodically.

1. Develop, document in writing, and implement SOPs.

- ❑ SOPs lay the foundation for the School Food Safety Program
- ❑ Provide step-by-step written instructions for routine foodservice task
- ❑ Include instructions on monitoring, documenting, and taking corrective actions.
- ❑ Allow managers and employees to effectively control and prevent hazards

Main Categories of SOPs

- General safety consideration
- Personnel
- Product procurement
- Receiving
- Storing
- Transporting
- Holding
- Preparation
- Cleaning/
sanitizing
- Cooling
- Reheating

Example SOP for Handwashing

Appendix D Sample Standard Operating Procedures

Handwashing

Policy: All food production personnel will follow proper handwashing practices to ensure the safety of food served to children.

Procedures: All employees in school foodservice should wash hands using the following steps:

1. Wash hands (including under the fingernails) and forearms vigorously and thoroughly with soap and warm water (a temperature of at least 110°F is required) for a minimum of 20 seconds.
2. Wash with soap – either liquid or powder soap.
3. Use a sanitary nail-brush to get under fingernails.
4. Wash between fingers thoroughly.
5. Use only hand sinks designed for that purpose. Do not wash hands in sinks in the production area.
6. Dry hands with single use towels or a mechanical hot dryer. (Retractable cloth towel dispenser systems are not recommended.) Turn off faucets in a sanitary fashion using a paper towel in order to prevent recontamination of clean hands.

The unit supervisor will:

1. Monitor all employees to ensure that they are following proper procedures.
2. Ensure adequate supplies are available for proper handwashing.
3. Follow up as necessary.

Source: www.schoolnutrition.org

Activity 2. Standard Operating Procedure Checklist

Does your school have WRITTEN standard operating procedures (SOPs) related to food safety?

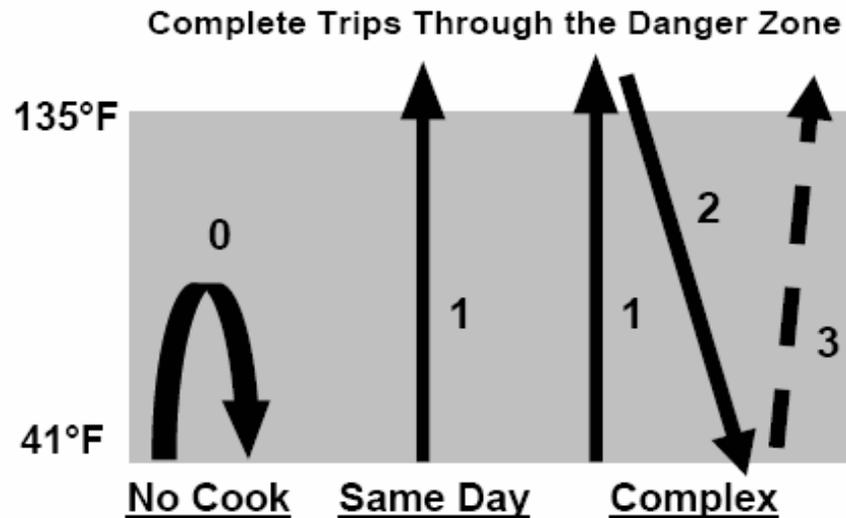
Resources

- Standard Operating Procedures Checklist and Sample SOPs
(School Nutrition Association)
www.schoolnutrition.org
Keys to Food Safety Publication
Standard Operating Procedures Checklist (Appendix C)
Sample Standard Operating Procedures (Appendix D)
- More examples of HACCP-based SOPs
(NFSMI)
<http://sop.nfsmi.org/HACCPBasedSOPs.php>
(Iowa State)
<http://www.iowahaccp.iastate.edu/sections/foodservice.cfm>
(USDA)
<http://www.fns.usda.gov/cnd/Lunch/Downloadable/HACCPGuidance.pdf>

2. Identify and document in writing all menu items according to the Process Approach to HACCP

Classify all menu items into three categories

1. Process #1 – No cook
2. Process #2 – Same Day Service
3. Process #3 - Complex Food Preparation



Process #1 – No Cook

- ❑ The menu item does not go completely through the danger zone in either direction
- ❑ Does NOT include cooking
- ❑ Examples:
 - Salads (Green, Coleslaw)
 - Fresh Fruits
 - Vegetables
 - Deli Sandwiches
 - Pre-cooked, Sliced Meats and Cheeses
 - Cottage Cheese

Process 1: NO COOK

Example: Fruit Salad

RECEIVE

Control Measures: Known Source, Receiving Temperatures



STORE

Control Measures: Proper Storage Temperatures, Prevent Cross Contamination, Store away from chemicals



PREPARE

Control Measures: Personal Hygiene, Restrict Ill Employees, Prevent Cross Contamination

CCP: COLD HOLDING

Critical Limit: Hold at 41°F or Below.*
Check and record temperatures.



SERVE

Control Measures: No Bare Hand Contact with Ready to Eat Food, Personal Hygiene, Restrict Ill Employees



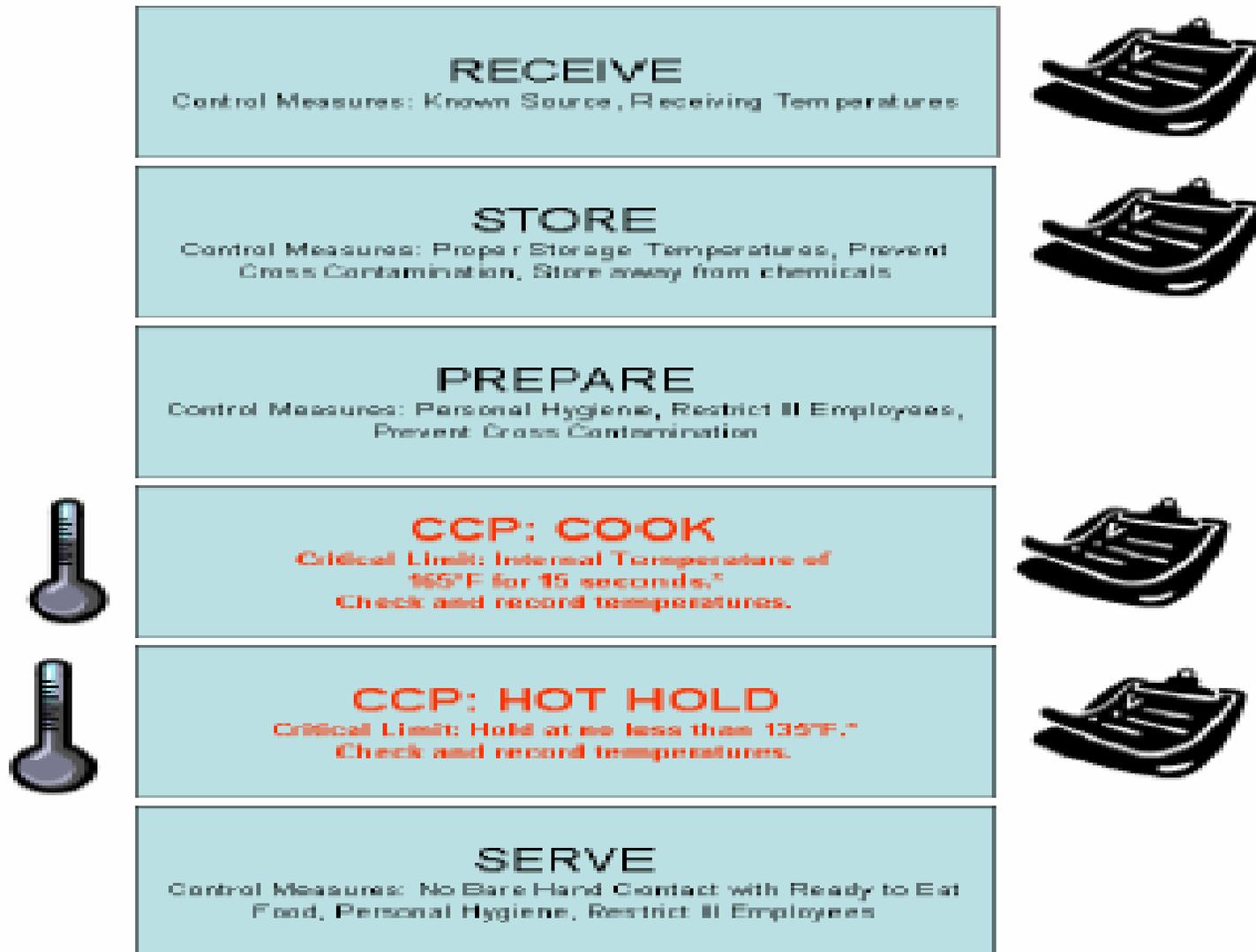
Thermometer icon means that taking a temperature is necessary.

Process #2 – Same Day Service

- ❑ Food passes through temperature danger zone only once.
- ❑ Food is prepared and cooked the same day it is served
- ❑ Cooking is a kill step to eliminate bacteria, parasites, or viruses
- ❑ Examples:
 - Hamburgers
 - Casseroles
 - Soups
 - Chicken Nuggets
 - Meat Loaf
 - Egg Bacon Biscuit

Process 2: SAME DAY SERVICE

Example: Baked Chicken



Thermometer icon means that taking a temperature is necessary.

Process #3 – Complex Food Preparation

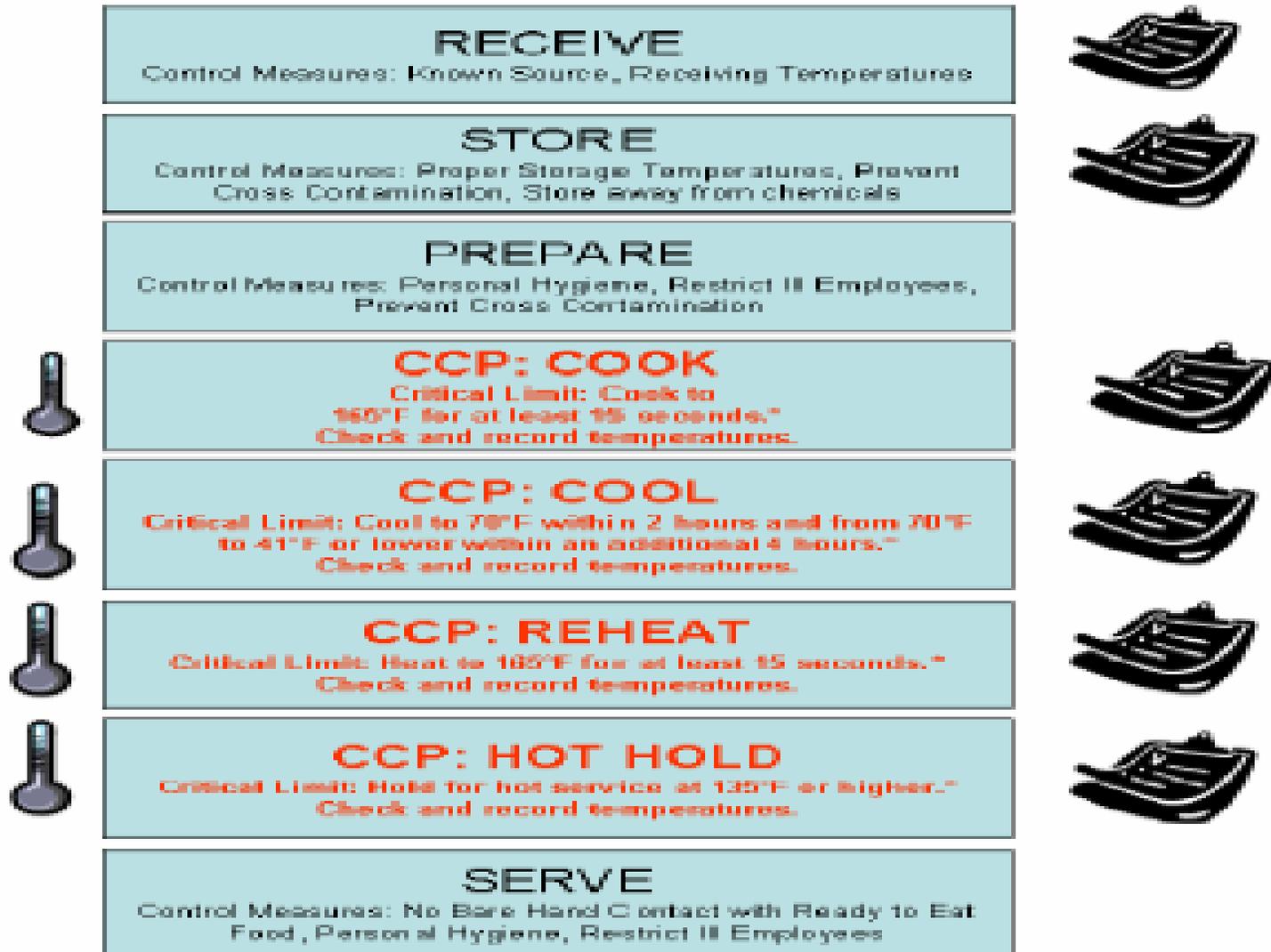
- ❑ Food goes through both heating and cooling, taking two or more complete trips through the danger zone.
- ❑ Food is prepared and cooked a day or so in advance of being served.
- ❑ Food is cooled and stored then reheated the day it is served.

Process #3 – Complex Food Preparation

- ❑ Requires proper equipment and facilities to handle volume.
- ❑ Examples:
 - Chili
 - Turkey gravy
 - Casseroles (if meat cooked ahead)
 - Roast turkey
 - Pork or beef cutlets
 - Items prepared in central kitchen

Process 3: Complex Food Preparation

Example: Beef and Bean Tamale Pie



Thermometer icon means that taking a temperature is necessary.

Activity 3. Identify the Process

- ❑ Three Bean Salad
 - No Cook
- ❑ Lasagna for tomorrow's lunch
 - Complex
- ❑ Baked Beans
 - Same Day Service
- ❑ Sliced Peaches
 - No cook

Resources

- ❑ Worksheets for each process (NFSMI)

<http://sop.nfsmi.org/HACCPBasedSOPs.php>

HACCP-Based SOPs

No-Cook Process Worksheet		
Directions: Review the standardized recipe for each of your menu items. Write the name of the menu item, the recipe number, and any specific instructions in the appropriate columns. Follow your HACCP-based standard operating procedures for facility-wide, receiving, storing, preparing, holding, and serving.		
Menu Item	Recipe Number	Specific Instructions

3. Identify and document control measures and critical limits

□ Terminology

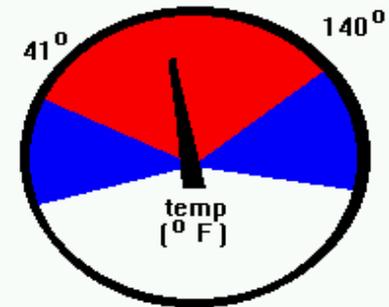
- **Control measure-** Any steps taken to prevent, eliminate, or reduce hazards. Includes SOPs, Critical Control Points, and the critical limits established in each of the three processes.
- **Critical Control Point (CCP)-** Points in food preparation and processing where controlling a step (such as cooking) is essential to assure food safety.
- **Critical Limit-** The time and/or temperatures that must be achieved or maintained to ensure that a CCP effectively controls a hazard.

Example

- *Salmonella* in raw chicken is a **hazard**
- Various SOPs serve as **control measures** to controlling this hazard
- Cooking is the **critical control point** to eliminate the hazard of *Salmonella*
- **165°F for 15 seconds** is the **critical limit** that must be met to ensure the hazard has been eliminated

Critical Control Points and their Critical Limits in Food Service

- ❑ Cooking – proper internal temperature
- ❑ Cooling – 70°F within 2 hours and from 70°F to 41°F or lower within an additional 4 hours
- ❑ Reheating – 165°F for 15 seconds
- ❑ Hot Holding- 135°F or higher
- ❑ Cold Holding- 41°F or lower



Documenting CCPs and Critical Limits

- ❑ CCPs and Critical Limits must be documented in writing for each process category
- ❑ Each process has specific CCPs
- ❑ The CCPs will remain the same regardless of the menu item, but the critical limits will vary depending on the menu item
- ❑ Include CCPs and critical limits on your standardized recipes

CCPs for Process #1 – No cook

- ❑ Cold holding or limiting time in the danger zone to inhibit bacterial growth and toxin production (e.g., limiting time would be holding at room temperature for 4 hours and then discarding)

Broccoli Salad

Vegetable/Fruit

Salads and Salad Dressings

E-17

Ingredients	50 Servings		100 Servings		Directions
	Weight	Measure	Weight	Measure	
Reduced calorie salad dressing OR Lowfat mayonnaise	2 lb	1 qt	4 lb	2 qt	1. For dressing: Combine salad dressing or mayonnaise, sugar, vinegar, and milk. Mix well.
	OR	OR	OR	OR	
	2 lb	1 qt	4 lb	2 qt	
Sugar	1 lb	2 cups	2 lb	1 qt	
White vinegar		¼ cup		¼ cup	
Lowfat 1% milk		¼ cup		¼ cup	
*Fresh broccoli, florets	3 lb 8 oz	1 gal 2 ¼ qt	7 lb	3 gal 2 cups	2. Cut broccoli into bite-size pieces. Add dressing.
Raisins	2 lb 4 oz	1 qt 3 ¼ cups	4 lb 8 oz	3 qt 2 ½ cups	3. Add raisins, walnuts (optional), and onions (optional) to broccoli mixture. Stir to coat all pieces with dressing. Spread 4 lb 9 oz (approximately 3 qt ¼ cup) into each shallow pan (12" x 20" x 2 ½") to a product depth of 2" or less. For 50 servings, use 2 pans. For 100 servings, use 4 pans.
Walnuts, chopped (optional)	1 lb	3 ¾ cups	2 lb	1 qt 3 ¼ cups	
*Fresh red onions, sliced (optional)	6 oz	1 cup	12 oz	2 cups	4. CCP: Cool to 41° F or lower within 4 hours.
					Cover. Refrigerate until service.
					5. Portion with No. 8 scoop (¼ cup).

CCPs for Process #2 – Same Day Service

- ❑ Cooking to destroy bacteria and other pathogens
- ❑ Hot holding or limiting time in the danger zone to prevent the outgrowth of spore-forming bacteria

Tuna and Noodles

Meat/Meat Alternate-Grains/Breads

Main Dishes

D-37

Ingredients	50 Servings		100 Servings		Directions
	Weight	Measure	Weight	Measure	
Water		2 gal		4 gal	1. Heat water to rolling boil.
Enriched noodles	2 lb 8 oz	1 gal 3 1/4 qt	5 lb	3 gal 3 qt	2. Slowly add noodles. Stir constantly, until water boils again. Cook for 6 minutes. Drain well. DO NOT OVERCOOK. Reserve for step 6.
Margarine or butter	8 oz	1 cup	1 lb	2 cups	3. Melt margarine or butter. Add celery and onions. Cook over medium heat for 5-6 minutes.
*Fresh celery, chopped	1 lb	3 1/4 cups	2 lb	1 qt 3 1/4 cups	
*Fresh onions, chopped OR Dehydrated onions	14 oz OR 2 1/2 oz	2 1/4 cups OR 1 1/4 cups	1 lb 12 oz OR 5 oz	1 qt 1/2 cup OR 2 1/2 cups	
Enriched all-purpose flour	8 oz	1 1/4 cups 2 Tbsp	1 lb	3 1/4 cups	4. Add flour and stir until smooth.
Instant nonfat dry milk, reconstituted, hot		1 gal		2 gal	5. Add milk, chicken stock, pepper, parsley, and salt. Cook over medium heat, stirring occasionally until thickened, 8-10 minutes.
Chicken stock, non-MBG, hot		1 gal		2 gal	
Ground black or white pepper		1 1/2 tsp		1 Tbsp	
Dried parsley		1/2 cup		1 cup	
Salt		1 tsp		2 tsp	
Canned chunk style, water packed tuna, drained and flaked	6 lb 6 oz	1 gal 3 cups (2 66%-oz cans)	12 lb 12 oz	2 gal 1 1/4 qt (4 66%-oz cans)	6. Add cooked noodles, tuna, and lemon juice. Stir gently to combine. Cook over medium heat for 6-8 minutes. CCP: Heat to 165° F or higher for at least 15 seconds.
Frozen lemon juice concentrate, reconstituted		1/2 cup		1 1/4 cups	
					7. Pour into medium half-steamtable pans (10" x 12" x 4"). For 50 servings, use 3 pans. For 100 servings, use 6 pans. Hold for 30 minutes on a 180-190° F to allow sufficient time for mixture to set up properly.
					8. CCP: Hold for hot service at 135° F or higher. Portion with 8 oz ladle (1 cup).

CCPs for Process #3 – Complex Food Preparation

- ❑ Cooking to destroy bacteria and other pathogens
- ❑ Cooling to prevent the outgrowth of spore-forming bacteria
- ❑ Hot and cold holding or limiting time in the danger zone to inhibit bacterial growth and toxin formation
- ❑ Reheating for hot holding, if applicable

Use SOPs to complement the process approach

- Applicable SOPs should be followed for the preparation and service of all menu items in addition to CCPs and Critical Limits

Cooking Potentially Hazardous Foods (Sample SOP)

PURPOSE: To prevent foodborne illness by ensuring that all foods are cooked to the appropriate internal temperature.

SCOPE: This procedure applies to foodservice employees who prepare or serve food.

KEY WORDS: Cross-Contamination, Temperatures, Cooking

INSTRUCTIONS:

1. Train foodservice employees on using the procedures in this SOP. Refer to the Using and Calibrating Thermometers SOP.
 2. Follow State or local health department requirements.
 3. If a recipe contains a combination of meat products, cook the product to the highest required temperature.
 4. If State or local health department requirements are based on the *2001 FDA Food Code*, cook products to the following temperatures:
 - a. 145 °F for 15 seconds
 - Seafood, beef, and pork
 - Eggs cooked to order that are placed onto a plate and immediately served
 - b. 155 °F for 15 seconds
-

4. Establish Monitoring Procedures

- ❑ **Monitoring**– the act of determining that proper procedures are being followed and that critical limits are being met
- ❑ Example:
 - *Salmonella* in raw chicken is a **hazard**
 - Various SOPs serve as **control measures** to controlling this hazard
 - Cooking is the **critical control point** to eliminate the hazard of *Salmonella*
 - **165°F for 15 seconds** is the **critical limit** that must be met to ensure the hazard has been eliminated
 - **Monitoring** is by calibrated thermometer
 - **Documented monitoring** is what the cook writes down

4. Establish Monitoring Procedures

- ❑ Occurs at each step in the food flow
 - SOPs
 - Critical Control Points
- ❑ Monitoring will identify when there is a loss of control so a corrective action may be taken
- ❑ Focus on critical limits
- ❑ Keep records for at least 1 year

HACCP-Based SOPs

Cooking and Reheating Temperature Log

Instructions: Record product name, time, the two temperatures/times, and any corrective action taken on this form. The foodservice manager will verify that foodservice employees have taken the required cooking temperatures by visually monitoring foodservice employees and preparation procedures during the shift and reviewing, initialing, and dating this log daily. Maintain this log for a minimum of 1 year.

Date and Time	Food Item	Internal Temperature/ Time	Internal Temperature/ Time	Corrective Action Taken	Initials	Verified By/ Date

Resources

- Examples of HACCP-Based SOP Record Keeping (NFSMI)

<http://sop.nfsmi.org/HACCPBasedSOPs.php>

(School Nutrition Association)

www.schoolnutrition.org

Keys to Food Safety Publication

Standard Operating Procedures w/ Monitoring Forms (Appendix D)

5. Establish corrective actions

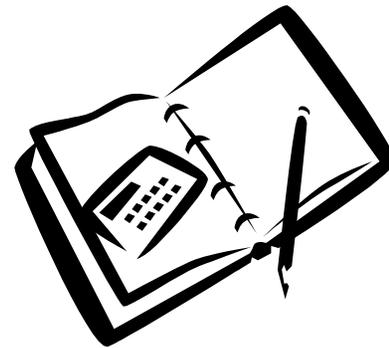
- ❑ **Corrective action-** what is done if the SOP or CCP is not met.
- ❑ Example:
 - *Salmonella* in raw chicken is a **hazard**
 - Various SOPs serve as **control measures** to controlling this hazard
 - Cooking is the **critical control point** to eliminate the hazard of *Salmonella*
 - **165°F for 15 seconds** is the **critical limit** that must be met to ensure the hazard has been eliminated
 - **Monitoring** is by calibrated thermometer
 - **Documented monitoring** is what the cook writes down
 - If the temperature is not 165°F, then a **corrective action** must be taken – continue to cook the chicken until the internal temperature reaches **165°F for 15 seconds**

6. Keep Records

- ❑ **Record**– documentation of monitoring observations and verification activities
- ❑ Recordkeeping also provides a basis for periodic reviews of the overall food safety program
- ❑ *In the event your operation is implicated in a foodborne illness, documentation of activities related to monitoring and corrective actions can provide proof that reasonable care was exercised.*

Types of Record to Keep

- ❑ Records documenting SOPs
- ❑ Time and temperature monitoring records
- ❑ Corrective action records
- ❑ Verification or review records
- ❑ Calibration records
- ❑ Training logs
- ❑ Receiving logs



Example

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- **165°F for 15 seconds** is the **critical limit** that must be met to ensure the hazard has been eliminated
- **Monitoring** is by calibrated thermometer
- **Documented monitoring** is what the cook writes down
- If the temperature is not 165°F, then a **corrective action** must be taken – the chicken is allowed to cook to a higher temperature
- **Record** is kept by the cook who provides it to the management for keeping

7. Review and revise your overall food safety program periodically

- ❑ Review and revise your food safety program at least annually or as often as necessary to reflect any changes in your facility
- ❑ May include:
 - New equipment
 - New menu items
 - Reports of health inspections
 - Reports of illness
 - Other factors indicating how well your food safety program is working
- ❑ Determine **who** will review the current plan, **when** it will be done, and **how** it will be documented

Resources

- Summary Table for Monitoring and Verifying HACCP Based SOPs (NFSMI)

<http://sop.nfsmi.org/HACCPBasedSOPs.php>

Summary Table for Monitoring and Reviewing HACCP-Based SOP Record, continued			
Directions: Identify the foodservice employee who will be responsible for monitoring and verifying records. Maintain this record for a minimum of 1 year.			
Standard Operating Procedure	Record	Monitored by Whom	Reviewed by Whom
Holding Foods	Hot and Cold Holding Temperature Log Refrigeration Log		
Personal Hygiene	Food Safety Checklist Damaged or Discarded Product Log		
Preventing Contamination at Food Bars	Food Safety Checklist		



Making HACCP Work for You

Tips:

- Take ownership
- Set aside time
- Team approach
- Working document

Food Safety Compliance

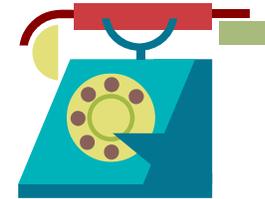


- ❑ A minimum of two inspections per year are required
- ❑ You may be asked by your health inspector to show your school food safety program plan
- ❑ Compliance will be included in the Child Nutrition Program contract

Additional Resources

- ❑ School Nutrition Association
www.schoolnutrition.org
- ❑ National Food Service Management Institute
www.nfsmi.org
- ❑ Food Code
http://www.in.gov/isdh/regsvcs/foodprot/food_laws.htm
- ❑ USDA's Guidance for School Food Authorities
<http://www.fns.usda.gov/cnd/Lunch/Downloadable/HACCPGuidance.pdf>
- ❑ Iowa State University
www.schoolhaccp.org

Who to Contact



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