# THE SCIENCE
# BEHIND THE PIC FOOD SAFETY RULES


**SCIENCE, CULTURE & EVALUATION OF THE 'PERSON IN CHARGE' PROGRAMME**
**3 MARCH 2011, 11:00 AM to 12:30 PM**
**Al Bustan Rotana Hotel**

**http://www.hi-tm.com/Documents2011/Dubai-Sci-behind-PIC-Mar3-wksp.pdf**

**O. Peter Snyder, Jr., Ph.D.**
**Hospitality Institute of Technology and Management**
**670 Transfer Road, Suite 21A; St. Paul, MN 55114**
**TEL 651 646 7077 FAX 651 646 5984**
**e-mail: info@hi-tm.com website: http://www.hi-tm.com**

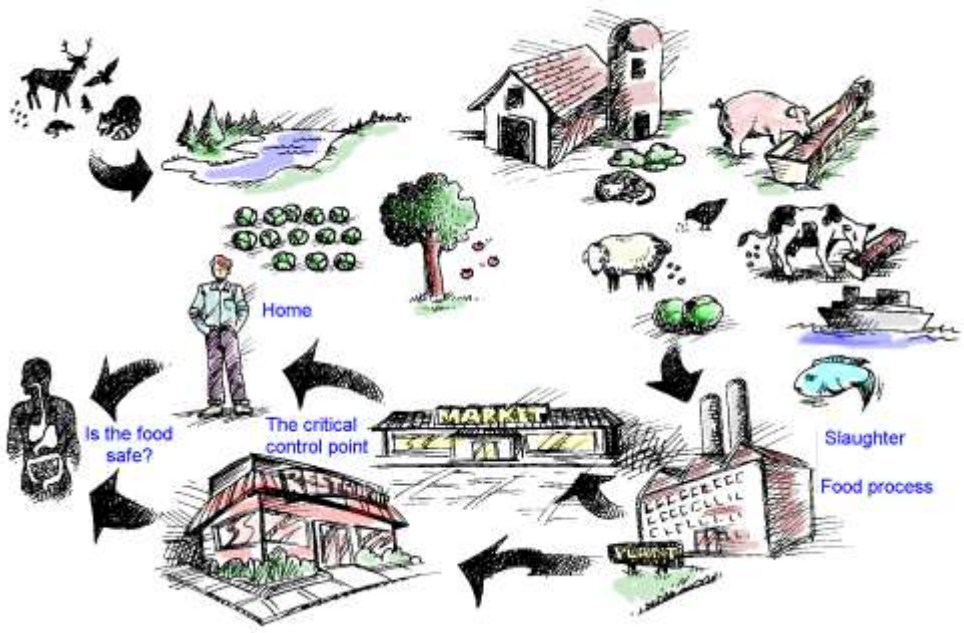
# THE FOOD HAZARDS:

## Chemical

## Physical

## Biological

**The farmer / supplier and the cook are the principal hazard controllers.**




# ACTIVE MANAGERIAL CONTROL HACCP:

**There will be a Person In Charge of food safety on duty at all times, who will:**

1. Identify hazards in the daily operation of the establishment.
2. Develop and implement policies, procedures, and standards to prevent foodborne illness.
3. Coordinate employee training so that they can demonstrate food safety knowledge; take corrective action as needed to protect consumer health.
4. Conduct periodic self-inspections of daily operations to ensure that food safety policies and procedures are followed.

**The regulator approves the manager's HACCP plan and employee control.**

# QUALITY VS. SAFETY


| QUALITY<br>Focus on sensory | SAFETY<br>Focus on process control<br>(because hazards do not taste or smell) |
|---|---|
| Freshness / spoilage sensory smell, taste, color, texture.<br>Clean facilities.<br>Clean uniforms, hair restraint, jewelry.<br>Clean toilets.<br>Clean rugs, customer seating.<br>Pets in dining room.<br>Cooking to soften food such as stewing beef.<br>Heating precooked hot dogs. | Raw food spoilage does not indicate that it is unsafe. (Fermented vegetables, yeast bread, sour milk, yogurt are safe because of fermentation.)<br>Double washing fingertips after using toilet.<br>Cook chicken to 165ºF (73.9ºC), 15 seconds to change red blood brown.<br>Fecal pathogens on fingertips after using toilet paper. |

# THE UNIT AS A FOOD PROCESS SYSTEM

**INPUT $H_0$**
• Baseline hazards

1. **MANAGEMENT** ← Feedback
**(Control of antecedents for safe behavior by training)**
**+ ΣI - ΣR =**

**OUTPUT**
**• FSO / ALOP**

**Prerequisite Process**

**2. PERSONNEL** ➔
Illness

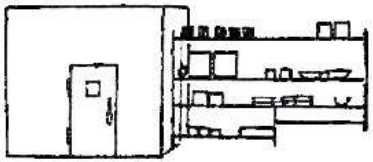
**3. ENVIRONMENT / FACILITIES** ➔
Rodents, insects
Air, water
Waste, sewage

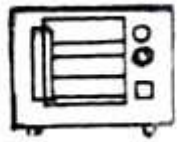
**4. EQUIPMENT** ➔
Cleanable
Adequate, capable

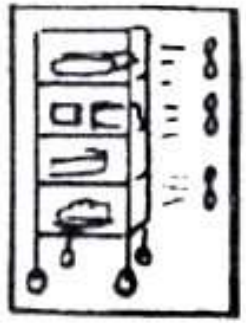
**5. SUPPLIES / FOOD** ➔
Chem., Phys., Biol. hazards
Supplier / cook made safe

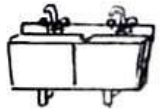
**6. FOOD PRODUCTS / PROCESS HACCP**

**Store – Pre-prep** → **Pasteurization** → **Cool / Serve**

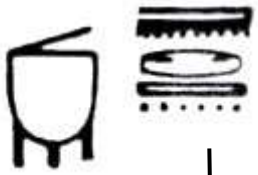


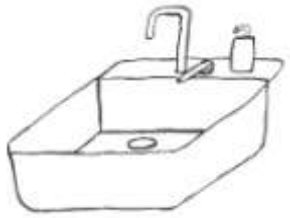






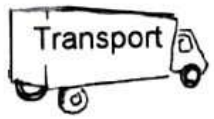






USDA / FDA

→ Package →

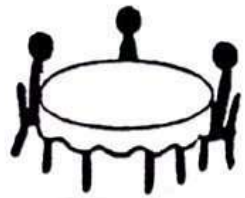



Refrigerate / Freeze

Sewage, waste ↓

MENU
_____
_____
_____
_____

**7. CUSTOMERS**



Leftovers
Catering

pictures:unit-food-proc-sys-5-19-09

# HAND WASHING HACCP

## Hazard:

Toilet paper slips and tears, and a person can get 6 log fecal pathogens on fingertips.

## Control (gloves or the following):

When coming from the toilet, do the double wash with a nail brush for a 6 log reduction by dilution.

1. Nail brush friction, detergent, and warm water, 3 log reduction
2. Second wash, no nail brush, 2 log reduction
3. Paper towel dry, 1 log reduction
4. Water flow, no splash, 2 gallons (7.6 liters) / minute
5. No touch controls are not necessary

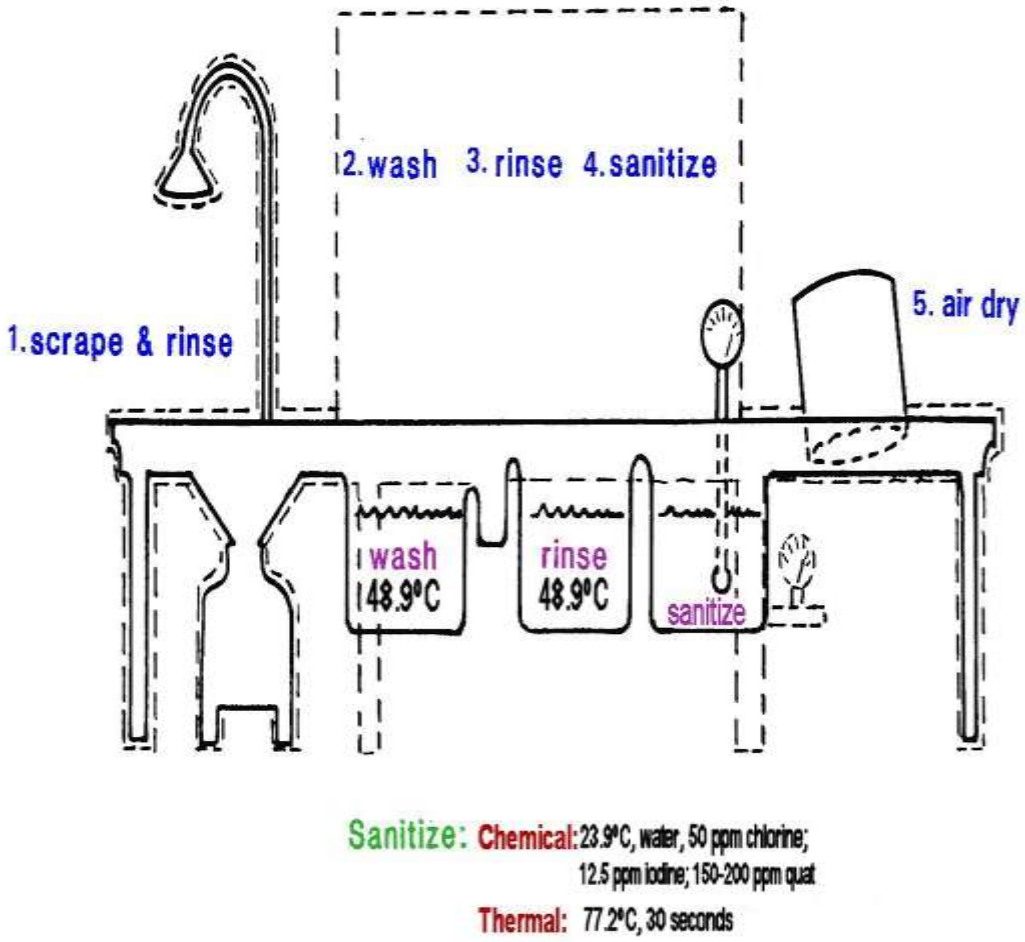
## Validation:

1. Contaminate fingertips 7 log with non-pathogenic *E. coli* ATCC 25922
2. Double fingertip wash, 6 log reduction
3. Petrifilm™ recovery *E. coli* <10 total

# PERSONAL HYGIENE ISSUES

| Personal hygiene | Facts |
|---|---|
| Exclude food handlers with diarrhea/vomiting/food poisoning until symptom free for 48 hours | 70% of food handlers who cause an outbreak are asymptomatic and show no illness. Excluding ill employees is an ineffective control. Correct hand washing is 100% effective and can be monitored. |
| Exclude food handlers with boils / septic cuts / skin infection | The skin is always a source of *Staphylococcus aureus*. Low levels of *S. aureus* are not a food safety issues. Clean and bandaged the cut and do not touch the face, and the risk is controlled. |
| When it is critical to double wash hands with nail brush | After using the toilet, there can be high levels of fecal pathogens on fingertips. The nail brush gives friction, and the water provides dilution, to reduce the fecal organisms to a safe level. |
| Why it is safe to use a nail brush (minimize the risk of cross-contamination) | The bristles of a proper nail brush are very smooth. Tests have shown that pathogens from the fingertips do not stick to the nail brush and are diluted on the brush to a safe level. |
| Bactericidal vs. non bactericidal soap | Bacteria vary in their reduction by antibacterial soap and can build up resistance to kill. Twenty-second contact gives poor reduction. There is almost no reduction of viruses and parasites. Use a good liquid soap. Do not refill soap containers, because *Pseudomonas* grows in soap. |
| Alcohol and other chemical disinfectants | These chemicals do not uniformly reduce pathogens, whereas soap, friction, and water dilution provide consistent reduction, 2 to 3 log. |
| Water temperature | A research study by Michaels et al. (Dairy Food Environ. Sanit. 21(12):997) showed that water temperature from 45 to 115ºF (7 to 46ºC) made no difference in removal of bacteria. |
| Gloves | Gloves encourage cross-contamination. The government prescribes gloves to cover up feces on fingertips from the toilet when employees do not wash their fingertips. Double hand washing with a nail brush is the effective control. |

# FOOD CONTACT SURFACE WASHING HACCP
## (cutting boards, knives)




(120°F = 48.9°C  75°F = 23.9°C  171°F = 77.2°C)

### Hazard:

*Campylobacter jejuni* from chicken (1,000 to 10,000 on surface) and *Vibrio* from seafood; scarred surface not a risk

### Control:

1. With warm water running over the cutting board into a disposal, scrub with a brush for a few seconds; 3 log reduction by dilution
2. In the pot and pan sink, scrub again; 2 log reduction by dilution
3. Rinse to remove soap
4. Sanitize (not a CCP), air dry

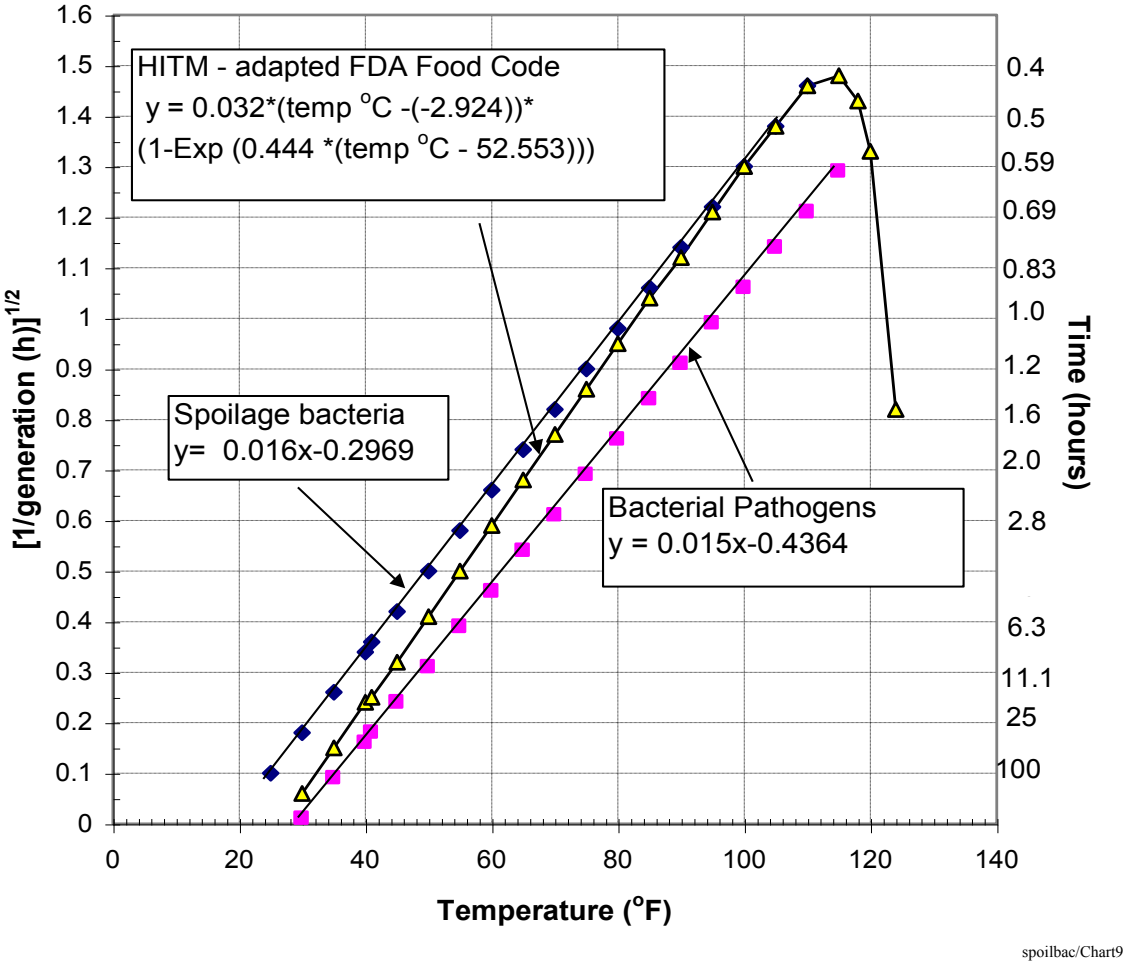
### Validation:

1. Put 7 log *E. coli* on the cutting board / dish
2. Wash and sanitize
3. Swab 50 sq cm (8 sq in), <100 *E. coli*, 5-log reduction

# CLEANING AND SANITIZING ISSUES

| Cleaning and sanitizing a food contact surface | Facts |
|---|---|
| Handling ready to eat food with bare hands vs. gloves | If you properly double wash hands, fecal contamination is controlled, and you can touch ready-to-eat food with bare fingers that have been washed. |
| Only food contact and hand contact surfaces need cleaning and disinfecting (sanitizing). Floors / drains / toilet bowls in restaurants only need to be cleaned (exception in factories because of *Listeria*) | Raw foods, especially chicken with perhaps 10,000 *Campylobacter*, but also beef and lamb, are excellent sources of pathogens. It is easy to transfer an infectious dose of *Campylobacter* from a raw poultry cutting board to ready-to-eat food and make customers ill.<br>On the other hand, we do not eat off of the floor, which is mostly contaminated by spoilage microorganisms. *Listeria* is a concern, but only if you want to store refrigerated food more than 7 days. Ready-to-eat food that has been dropped on the floor for a few seconds picks up very few (a safe level) of pathogens. |
| Hardwood cutting boards vs. plastic | Both are rough and give pathogens places to hide. They must be cleaned with a brush and water to be safe. A scarred cutting board is no more difficult to clean than new. Washing is the CCP, because sanitizer cannot get by the surface to kill pathogens under the surface of the cutting board. |
| Number of sinks compartments | Washing / dilution is the CCP. Bacteria grow in used dishwater. Two sinks is enough. Rinsing and sanitizing not critical. |
| Towel drying | No scientific evidence of a risk. |

# GROWTH OF BACTERIA IN FOOD BASED ON FDA FOOD CODE HOLDING / STORAGE RECOMMENDATIONS




spoilbac/Chart9

| Temp. °C (°F) | 1 Generation | 10 Generations / 3-log increase |
|---|---|---|
| -1.1 (30) | 297.14 hr. | 123.8 days |
| 1.7 (35) | 46.34 hr. | 19.3 days |
| 4.4 (40) | 17.99 hr. | 7.5 days |
| 5.0 (41) | 15.55 hr. | 6.5 days |
| 7.2 (45) | 9.49 hr. | 4.0 days |
| 10.0 (50) | 5.85 hr. | 2.4 days |
| 12.8 (55) | 3.96 hr. | 1.7 days |
| 15.6 (60) | 2.86 hr. | 1.2 days |
| 21.1 (70) | 1.69 hr. | 16.9 hr. |
| 26.7 (80) | 1.12 hr. | 11.1 hr. |
| 32.2 (90) | 0.79 hr. | 7.9 hr. |
| 37.8 (100) | 0.59 hr. | 5.9 hr. |
| 43.3 (110) | 0.47 hr. | 4.7 hr. |
| 46.1 (115) | 0.46 hr. | 4.6 hr. |
| 48.9 (120) | 0.56 hr. | 5.6 hr. |
| 41.7 (125) | 3.10 hr. | 31.0 hr. |

1382

# FOOD RECEIVING AND STORAGE HACCP

## Hazard:

Pathogens from raw food can cross-contaminate ready-to-eat food.

## Control:

- Raw food: time and temperature not CCP; washing or cooking makes food safe
- Ready-to-eat food on top, raw on bottom
- Air flow: 5 feet (15 meters) per minute holding; 1,000 feet per minute cooling; 41ºF (5°C), 7 days; 45ºF (7.2°C), 4 days; 50ºF (10°C), 2.5 days; 70ºF (21.1°C), 18 hours; 110ºF (43.3°C), 4 hours
- Humidity 70% to prevent mold growth; 95% to prevent drying of fruits and vegetables

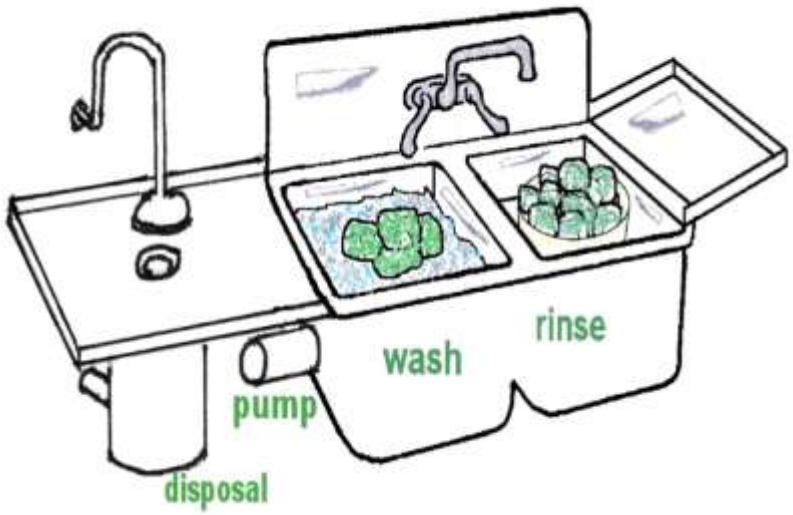
## Validation of temperature:

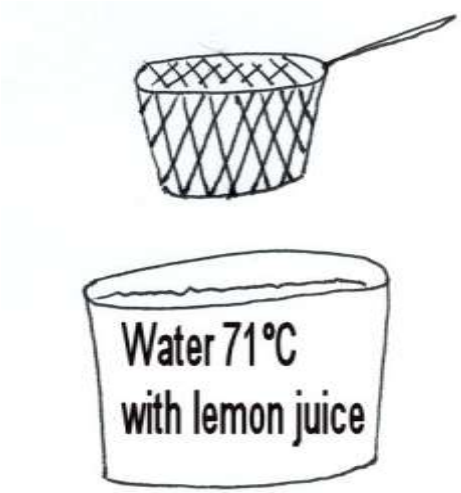
- Cup of salt in refrigerator and freezer

# FOOD RECEIVING AND STORAGE ISSUES

| Food receiving and storage | Facts |
|---|---|
| Frozen food considered safe as long as it is frozen solid, <0ºC (<32ºF) | Yes. The lowest temperature growing pathogens are *Listeria monocytogenes*, *Aeromonas hydrophila*, and *Yersinia enterocolitica* at -1ºC (30ºF), the freezing point of food. If food is hard / frozen, there is no growth of pathogens. Some spoilers still grow. |
| Separation of raw food from ready to eat food | This is important for food contact surfaces. However, when stacking food in a refrigerator, there is no example of raw chicken juice dripping into ready-to-eat food. There is no significant risk. Stacking order is not necessary. |

# WASHING AND BLANCHING FRUITS AND VEGETABLES
## (VEGETATIVE BACTERIA) HACCP




**71ºC = 160ºF**

### Hazard:
Raw fruits and vegetables are contaminated in the pores of the surface. Chemicals do not affect pathogens in the surface.

### Control:
The bacteria must be removed by brush friction or water turbulence. The following reduces bacteria, parasites, and viruses about 2 log by dilution.

1. Trim.
2. Wash in turbulent water. Transfer to 2nd sink.
3. Rinse in turbulent water, 2nd sink.
4. Spin dry.

Chemicals can be used in a 3rd sink, but have a limited effect, 1 log.

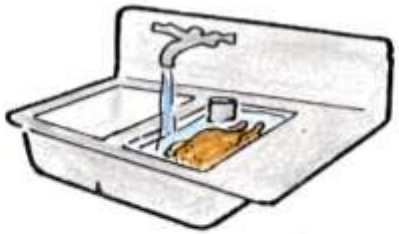
Blanch fruit or vegetable in 160ºF (71°C) water, 1 minute, for a 5-log reduction.

Electrolized water is good.

### Validation:
Put *E. coli* on food and measure before and after treatment, using *E. coli* Petrifilm™.

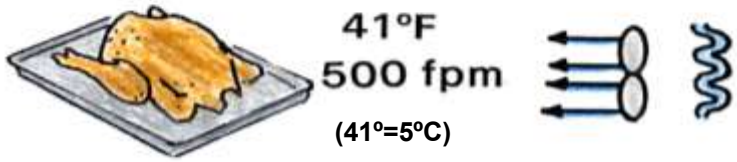
# THAWING

**Flowing water**
<70ºF (<21.1ºC)

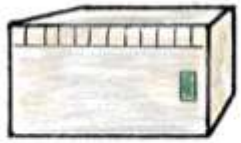


**Refrigerator**
<41ºF (<5ºC)
Below cooked food, uncovered

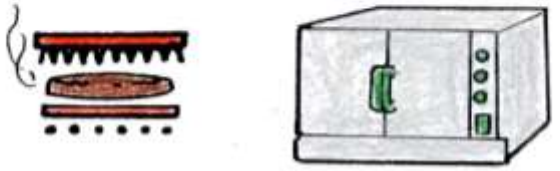
**Microwave**
When followed by immediate cooking




**Cook from the frozen**
1/3 more time
Roast beef, turkey, steak, hamburger, prepared food



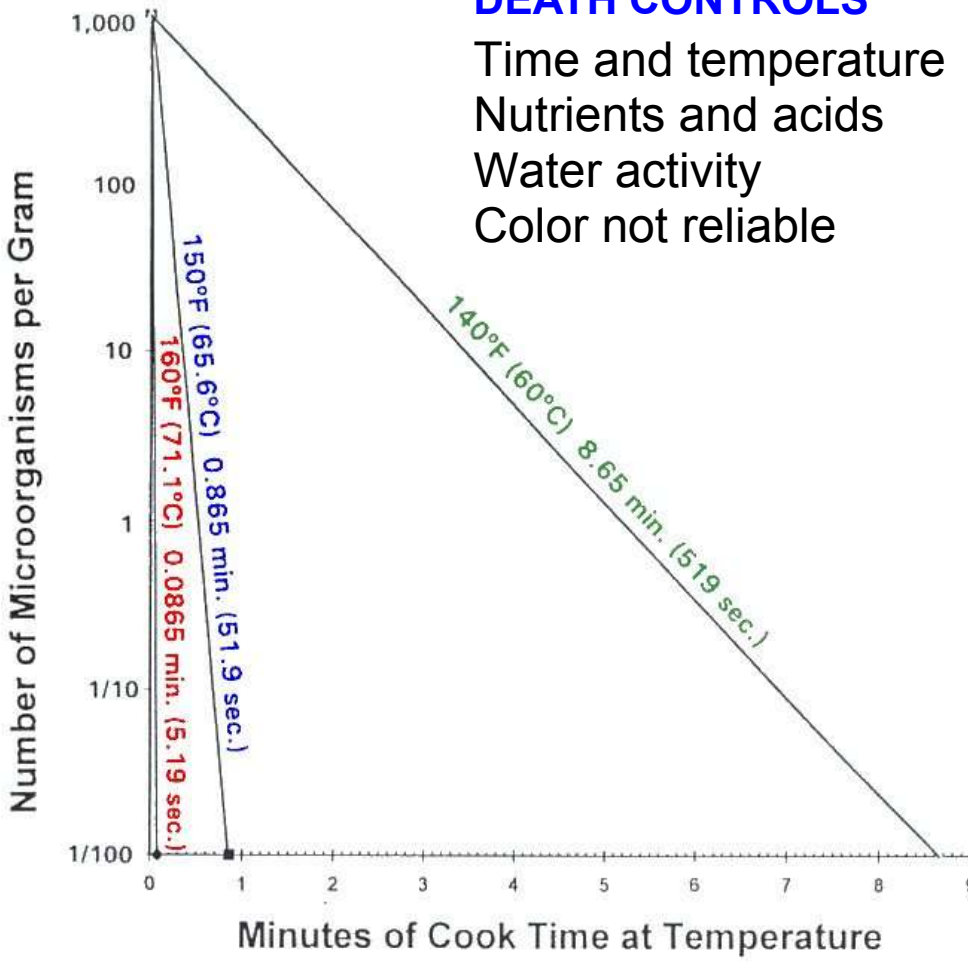
**HACCP validates thawing on the counter as safe.** At 70ºF (21.1ºC), air thawing takes about 11 to 12 hours for a 25-lb (11.34 kg) turkey. The surface gets to about 55 to 60ºF (13 to 16ºC), and there is approximately 1 multiplication of *Salmonella*.



1228

Klose, A.A., Lineweaver, H., and Palmer, H.H. 1968. Thawing turkeys at ambient air temperatures. Food Technol. 22: 1310-1314.

# DESTRUCTION OF *SALMONELLA* IN FOOD




## DEATH CONTROLS

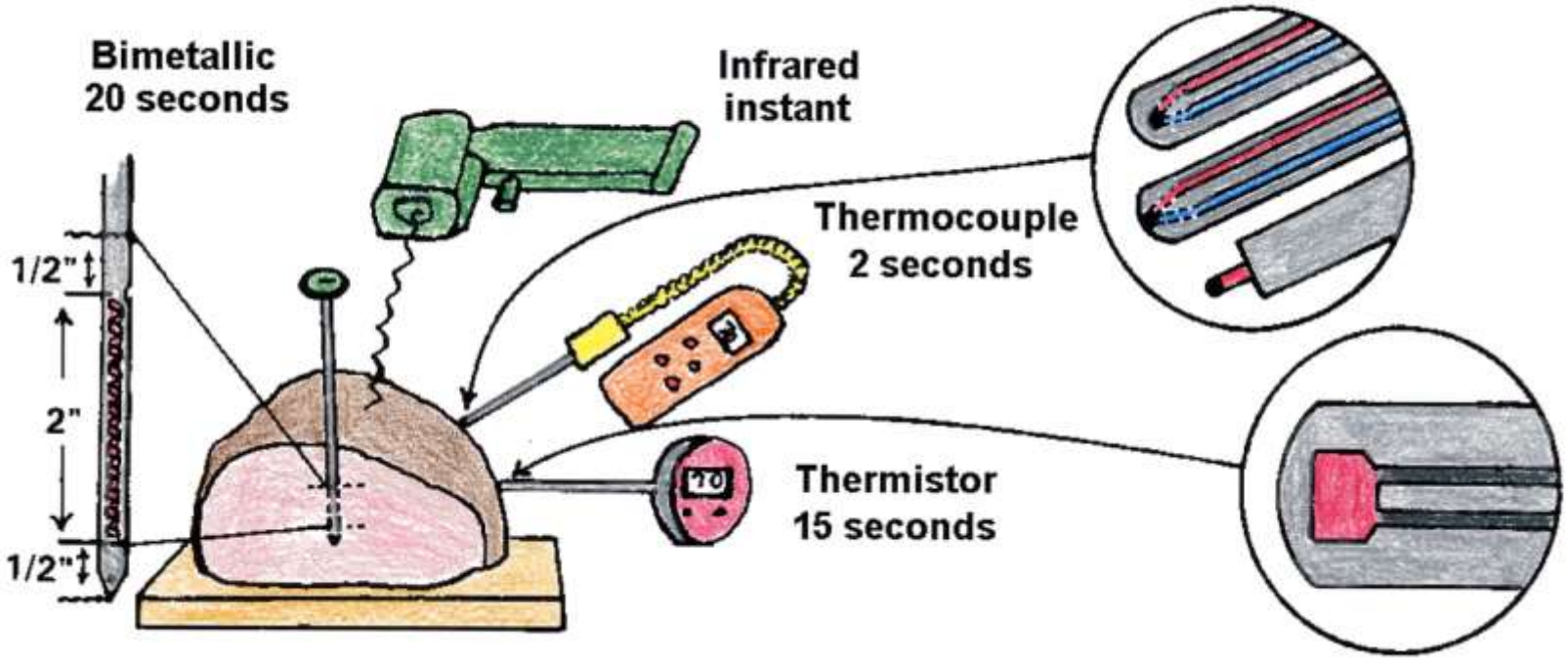
Time and temperature
Nutrients and acids
Water activity
Color not reliable

## DESTRUCTION OF *SALMONELLA* SPP. IN FOOD

| Temp. °F (°C) | 5D FDA Hamburger (100,000:1) | 6.5D USDA Roast beef (3,160,000:1) | 7D USDA Poultry with 12% fat |
|---|---|---|---|
| 130 (54.4) | 86 min. | 112 min | --- |
| 135 (57.2) | 27 min. | 35 min. | --- |
| 140 (60.0) | 8.7 min. | 11.2 min. | 35 min. |
| 145 (62.8) | 2.7 min. | 3.5 min. | 13.8 min. |
| 150 (65.6) | 52 sec. | 67 sec. | 4.9 min. |
| 155 (68.3) | 16 sec. | 21 sec. | 1.3 min. |
| 160 (71.1) | 5.2 sec. | 6.7 sec. | 26.9 sec. |
| 165 (73.8) | Instant | Instant | <10 sec. |

1326

# TEMPERATURE MONITORING
# that the process is in control




Bimetallic Coil Thermometer = **Average temperature over 7.6 cm (3 inches) (from tip to dimple)**

Thermocouple **[1 mm (0.040-inch) diameter or less] = Temperature at tip**

Thermistor **[1.6 mm (0.0625-inch) diameter] = Average temperature from tip up 0.6 cm (0.25 inch)**

Infrared Heat Detector = **Surface measurement**

1261

# TEMPERATURE MONITORING ISSUES

| Measuring food temperatures | Facts |
|---|---|
| Use of bimetallic coil thermometer | Do not use the bimetallic. Sensor is from 2 1/2 inches (6 1/3 cm) up the stem. Impossible to measure food less than 2 1/2 inches (6 1/3 cm) thick. Must be calibrated in slush / crushed ice. Boiling water not a fixed temperature. Cannot be trusted. |
| Use of infrared thermometer | Measures only surface temperature. Does not indicate center temperature of thin foods such as hamburgers, sausage, fish, eggs. Very expensive to calibrate. OK as a survey tool. Cannot be trusted. |
| Thermistors and thermocouples<br><br>Temperature measurement is made by pushing the tip-sensitive thermometer slowly through food as it cooks. The temperature goes from hot when touching the surface to colder in the center, then hot again as the tip gets near the other side of the food. (Do cooling same way.) | Thermocouples are tip-sensitive and come to food temperature in 2 to 3 seconds. Thermistors take 5 to 10 seconds. Both have ±2ºF (1ºC) accuracy and seldom require verification. The thermocouple can be as small a diameter as 0.01 inch (0.25 mm). |
| Color / sensory control vs. use of thermometer to monitor cooking / pasteurization (beef, pork, poultry) | Color is not a reliable indicator of temperature. If you use a tip-sensitive thermometer, you can exactly predict the customer-desired doneness. [Rare roast beef 48.9ºC (120ºF); steak 54.4ºC (130ºF); pork / fish 62.8ºC (145ºF); chicken breast 62.8ºC (145ºF); thigh 73.9ºC (165ºF) (blood)] |

# FOOD PASTEURIZATION HACCP
## (VEGETATIVE BACTERIA)

**Hazard:**

Pathogens contaminate raw meat, fish, and poultry.

**Control:**

*Salmonella* is the target pathogen.
Reduce *Salmonella* 5 log / 7 log.
(Assumes the food is contaminated with about 1,000 / gram, and must be reduced to 1 per 100 grams.) Color not reliable.
Do not need 165ºF (73.9ºC)
150ºF (65.6ºC), 1 minute.

**Validation:**

- Contaminate with non-pathogenic *E. coli*. Take sample before heating, <68ºF (<20°C).
- Take samples about 130ºF, 140ºF, and 150ºF (55°C, 60°C, and 65°C) and count survivors. By 150ºF (65°C), there should be >5-log reduction.

# FOOD HOT HOLD HACCP (SPORE CONTROL)

## Hazard:

- The surface of food with a center temperature of 140ºF (60°C) in a steam table exposed to air with a relative humidity of 50% will be about 117ºF (47.2°C) because of evaporative surface cooling.
- *Clostridium perfringens* will grow <125ºF (<51.7°C). Hot hold >125ºF (>51.7ºC).
- Heat lamps dry food, reduce quality.

## Control:

Keep food covered; keep high humidity, >90%, above food; or cover food with something like a butter sauce or cheese.

## Validation:

- Make a pan of instant mashed potatoes with cooked ground beef and *C. perfringens* on the surface.
- Measure temperature. Hold in a steam table for 4 hours. Measure *C. perfringens* growth on the surface.

# FOOD COOLING HACCP (SPORE CONTROL)

## Hazard:

*Clostridium botulinum*, *Bacillus cereus*, and *Clostridium perfringens* spores survive pasteurization and will germinate and multiply if cooling is too slow between 125 and 80ºF (51.7 and 26.7°C).

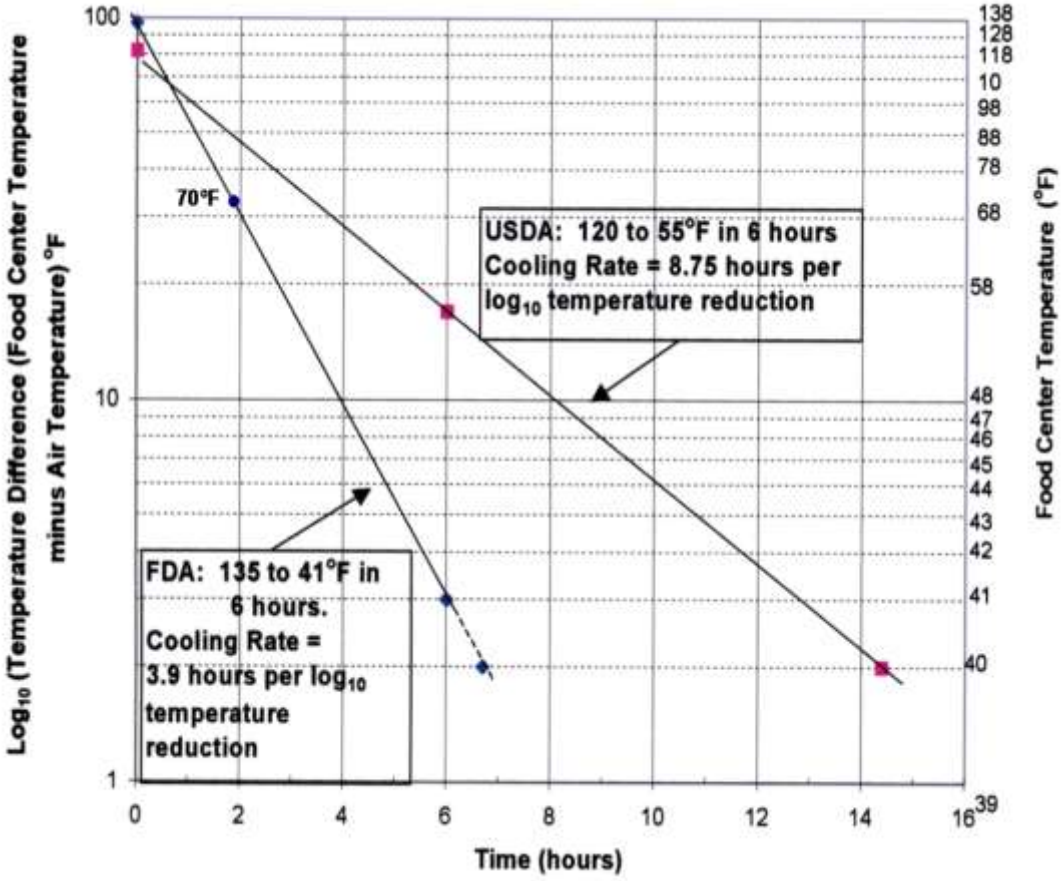
## Control:

- Cool fast enough between 120 and 80ºF (48.9 and 26.7°C) to prevent outgrowth of spores <1 log.
- Pre-cool to 120ºF (48.9ºC) at room temperature.
- Blast cooler 300 meters per minute air, 38ºF (3.3°C), 2-inch (5-cm) pan, 6 hours.
- Ordinary reach-in refrigerator 50 feet (15 meters) per minute air, 2-inch (5-cm) pan, covered. Takes 15 hours to cool in the center.

## Validation:

- Cook hamburger to 150ºF (65.6°C), 1 minute, to pasteurize the food and activate the spore. Put in a test container.
- Cool. Take a center sample before and after cooling. Determine if there is growth.

# COOLING FOOD FROM 48.9 TO 12.8°C (120 TO 55ºF) IN 6 HOURS (USDA GUIDELINES) COMPARED TO FDA 6-HOUR COOLING RECOMMENDATION




pictures:cooling-USDA-FDA-addedpoint-2-15-11

## COOLING TIMES AND TEMPERATURES

| FDA 6-Hour Cooling 57.2 to 5.0 °C (135 to 41ºF) [3.3°C (38ºF) Environment] | | USDA Cooling 48.9 to 12.8°C (120 to 55ºF) in 6 hours, followed by cooling to 4.4°C (40ºF) [3.3°C (38ºF) Environment] | |
|---|---|---|---|
| Hr. | °C (°F) | Hr. | °C (°F) |
| 0 | 57.2 (135) | 0 | 48.9 (120) |
| 1 | 34.4 (94) | 1 | 38.3 (101) |
| 2 | 21.1 (70) | 2 | 30.0 (86) |
| 3 | 13.2 (55.8) | 3 | 23.9 (75) |
| 4 | 48.9 (8.0) | 4 | 18.9 (66) |
| 5 | 6.39 (43.5) | 5 | 15.6 (60) |
| 6 | 5.0 (41) | 6 | 12.8 (55) |
| | | 7 | 10.6 (51) |
| | | 8 | 8.9 (48) |
| | | 9 | 7.5 (45.5) |
| | | 10 | 6.61 (43.9) |
| | | 11 | 5.83 (42.5) |
| | | 12.6 | 5.0 (41) |
| | | 14.16 | 4.4 (40) |

1342

# RAPID COOLING METHODS

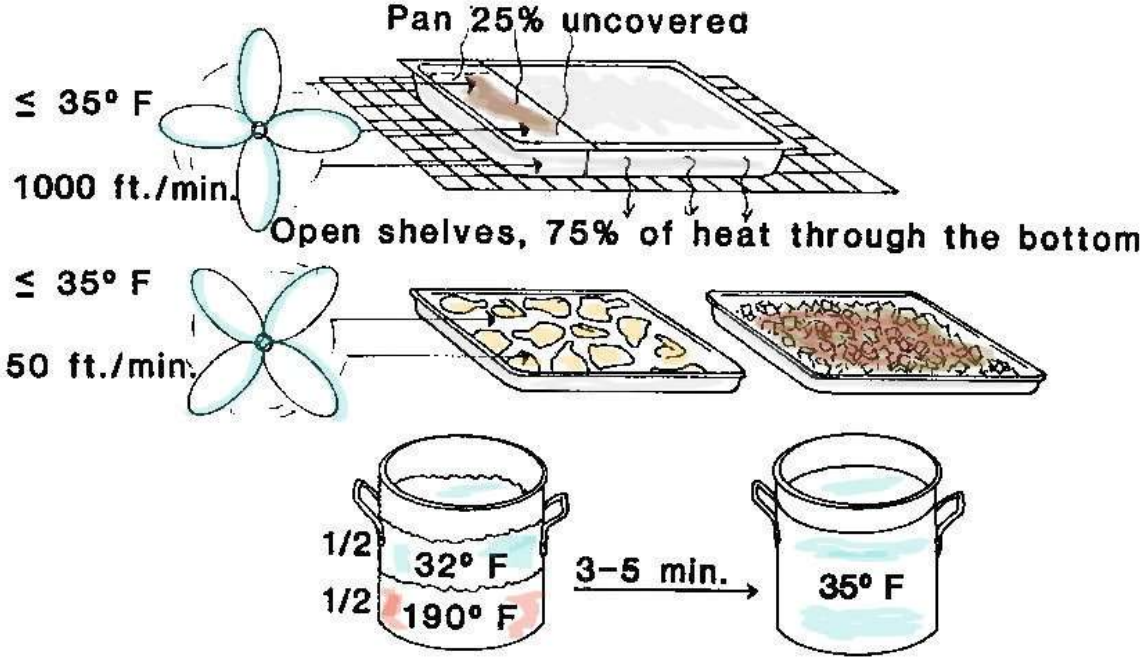
## 6 hr. to 5°C (41°F) (FDA) 48.9 to 12.8°C (120 to 55°F), 6 hr. (USDA)

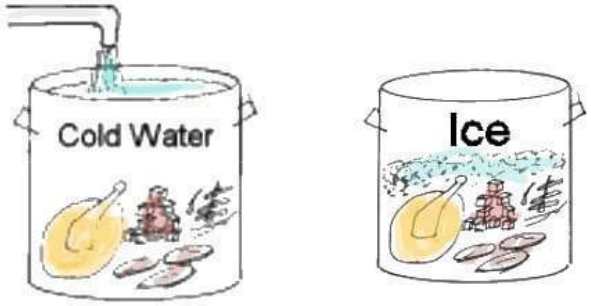
**Blast chilling**
- 2" thick

**Thin layers**
- 3/4" and less

**Frozen**
- Water
- Stock
- $CO_2$

**Water and ice**
- Cubed potatoes
- Pasta, Rice
- Chicken, Turkey
- Roast beef

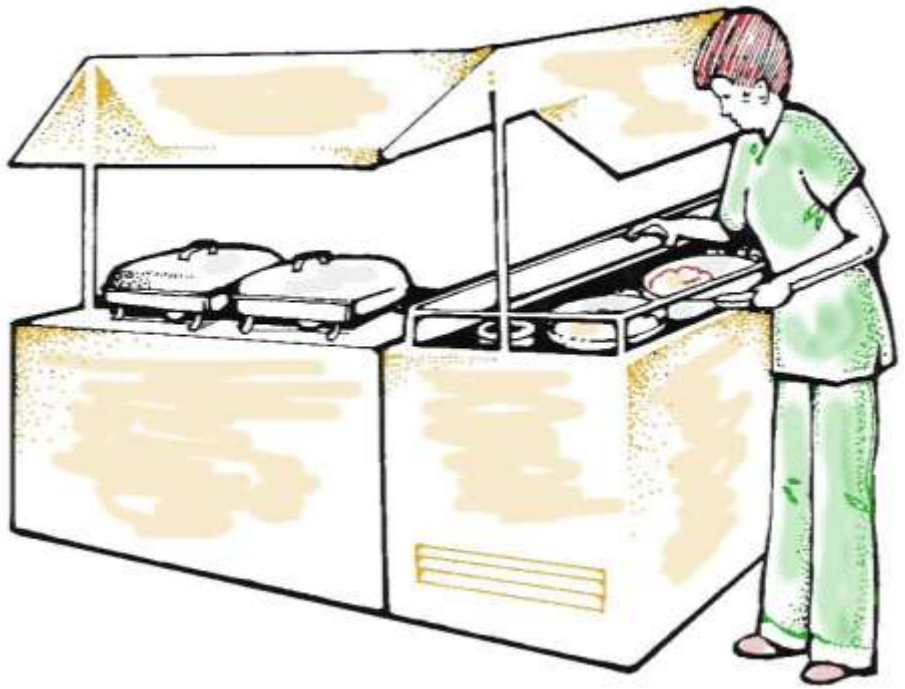



32°F = 0°C
35°F = 1.7°C
190°F = 87.8°C
1,000 ft = 300 meters
50 ft = 15.25 meters

915

# BUFFETS – BANQUETS



## Hazard Analysis

- Customer sneezing *Staphylococcus* or *Streptococcus* on food.
  Not a significant risk, because bacteria must multiply to an infectious dose, and the food is old, spoiled, and thrown out first.
- Customer getting fingers in food.
  Not significant. No evidence of an outbreak.
- Customer cross-contaminating allergens.
  This is possible, but highly unlikely.
- Customer cross-contamination if customer does not use clean plate and utensils.
  Not a significant risk, because there are too few pathogens to be an infective dose, and mouth bacteria are not a significant risk.

872

## FOOD PROCESSING ISSUES (cont'd)

| Food processing | Facts |
|---|---|
| **Hot holding, cooling, cold holding** | |
| Hot holding food ≥60°C (≥140ºF) – no time limit | This overcooks some meat and fish. 54.4ºC (130ºF) has been shown to be adequate and scientifically, 51.7ºC (125ºF) is adequate. |
| Food hot held <60ºC (140ºF) – 2 hour time limit | This is not based on science. If the food is ≥51.7ºC (125ºF), there is no multiplication of *Clostridium perfringens*. Reheat to 60ºC (140ºF) to inactivate vegetative *Clostridium perfringens* to a safe level. |
| Cooling of food –60 to 20ºC (140 to 68ºF) in 2 hours and 20 to 5ºC (68 to 41ºF) in 4 hours | This is unnecessarily fast. It is necessary to control *Clostridium perfringens* to ≤1 log increase. Cooling from 48.9 to 12.8ºC (120 to 55ºF) in 6 hours and then, continuing to cool to 4.4ºC (40ºF) with no time limit is safe. Also, experience has shown that food can be allowed to cool to 48.9ºC (120ºF) before refrigerating. |
| Cold storage <5ºC (<41ºF) of potentially hazardous food for ≤7 days | This is not correct science. It assumes that cooked, cooled ready-to-eat food gets contaminated with *Listeria* during cooling and storage, and that *Listeria* will multiply 1 to 10 in 7 days, or about 100 CFU/g. If the ready-to-eat food area is kept clean and sanitized, this will not happen. |
| Cold display buffets, <5ºC or >5ºC (<41ºF or >41ºF) – 4-hour limit | If the buffet is at 7.2ºC (45ºF) or 10ºC (50ºF), equivalent times for 1-log increase of *Listeria* are 4 days and 2.4 days. |
| Reheating to 74ºC (165ºF) in <2 hours | This is not a correct control. Many cooked foods are re-served cold and not reheated. Eliminate this requirement. |

# EMPLOYEE FOOD HACCP TRAINING CHECKLIST

## PREREQUISITES

**Personal hygiene**

If I have vomiting or diarrhea, I will tell the PIC.

I will double wash my fingertips when coming from an "unknown location" such as the toilet.

When handling raw meat / fish / poultry, I will clean my hands and food contact surface before touching RTE food.

I do not touch my skin when working with food.

Immediately after glove use, I remove the gloves and wash my hands

**Receiving**

When receiving food / opening food, any food that is damaged or spoiled will be returned to the supplier / discarded. Refrigerate food 41ºF (5ºC).

**Storage**

I store raw food on the bottom shelves in the refrigerator and RTE food above the raw food.

I store chemicals completely separate from food.

**Equipment**

I assure that my equipment is clean before I use it.

I assure that my equipment is working correctly and calibrated before I begin preparation.

## FOOD PROCESS HAZARD CONTROLS

I double wash raw fruits and vegetables before using in menu items.

During pre-preparation, I remove physical hazards from food.

I know if any ingredient in a recipe is an allergen so that I can accurately answer customer questions. If in doubt, I refer allergen questions to the kitchen manager.

After handling raw meat / fish / poultry, I decontaminate my hands, equipment, and work area before touching ready-to-eat food.

I know how to use a thermometer or thermocouple properly.

I cook foods to the following center temperatures:

a. Solid steaks, chops, fish: 145ºF (62.8ºC), 15 seconds
b. Ground meat, fish: 155ºF (68.3ºC), 15 seconds
c. Poultry: 165ºF (73.9ºC), 15 seconds
OR: as ordered by the individual customer.

I hold hot food 135ºF (57.2ºC) or hotter, or for less than 4 hours if time is used as a control.

When cooling, I place no more than 2 inches (5 cm) of solid food in a pan, no more than 1 gallon (4 liters) of liquid in a container.

When making a cold combination such as salads, I pre-cool ingredients to 50ºF (10ºC) or colder. When mixing, I wear gloves or use a utensil.

I hold cold ready-to-eat food at 41ºF (5ºC) or colder for no more than 7 days. It is labeled.

I do not add leftovers to a fresh food.

# WEEKLY HACCP CHECKLIST

**Evaluator** _____ **Date** _____ **Time** _____

| PREREQUISITE HACCP REQUIREMENTS | PERSON / ITEM : OBSERVATION | CORR. ACT # |
|---|---|---|
| **1. Personal Hygiene**<br>(Person: Health, cleanliness, double hand washing when coming from toilet, single hand washing for raw food / RTE food control, gloves control) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **2. Environment / facilities**<br>(Item: Cleaned, maintained, pests, trash, chemicals, water, plumbing controlled) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **3. Equipment**<br>(Item: Cleanliness, temperature, maintenance, sanitizer concentration, thermometers / instrument calibration) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **4. Supplies**<br>(Food: temperature, use by; inventory rotation; approved supplier, protected, RTE on top) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **FOOD HACCP PROCESSES** | **FOOD : OBSERVATION** | **CR ACT#** |
| **1. Physical hazards**<br>(Food: hard foreign objects, choking, thermal) | 1. _____ : _____<br>2. _____ : _____ | |
| **2. Chemical hazards**<br>(Item: separate from food, used at correct level) | 1. _____ : _____<br>2. _____ : _____ | |
| **3. Allergen control**<br>(Food: allergen control; do not add fresh to old; do not combine different leftovers | 1. _____ : _____<br>2. _____ : _____ | |
| **4. Double wash fruits and vegetables**<br>(Food: adequate physical wash) | 1. _____ : _____<br>2. _____ : _____ | |
| **5. Cooking pasteurization**<br>(Food: temperature and time, pH, water activity) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **6. Hot hold, transport, serve / catering**<br>(Food: temperature 135ºF / 57.2ºC hold time, surface humidity) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **7. Cooling** (<2 inches thick, <1 gallon / <5 cm thick, 4 liters)<br>(Food: container, date) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **8. Cold hold, transport, serve / catering**<br>(Food: temperature, protection) | 1. _____ : _____<br>2. _____ : _____<br>3. _____ : _____ | |
| **9. Salads mixed with cold ingredients**<br>(Food: temperature) | 1. _____ : _____<br>2. _____ : _____ | |
| **10. Leftovers**<br>(Food: temperature, age, refrigeration, freezing) | 1. _____ : _____<br>2. _____ : _____ | |