

Safe Food Handling



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23 September 2008

Safe Food Handling

A few opening words about this PowerPoint deck

- it was developed from information provided by federal government sources
- it was reviewed and vetted by NCAC leadership
- I am solely responsible for the content of this deck – if you have comments or concerns, please direct them to me: dominick.caridi@dhs.gov or dscaridi@aol.com

If you want additional information, go to:

- www.cfsan.fda.gov
- <http://www.foodsafety.gov/~fsg/cookit.html>

BSA Guidelines: for Youth Protection

- **Adult screening**
- **Two (2) deep leadership**
- **No one-on-one sessions**
- **Respect Privacy**
- **Separate accommodations**
- **Proper preparation for activities -- skills**
- **Proper preparation for activities – equipment & clothing**
- **Constructive discipline**
- **No secret organizations**
- **No hazing initiations**
- **Junior leader Training & supervision**

BSA Guidelines: for Youth Protection

Where Safe Food Fits



- Adult screening
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Safe Food Handling

Five Critical Areas of Focus

- **Acquisition**
- **Storage**
- **Preparation**
- **Cooking**
- **Clean-up**

Safe Food Handling

The Culprits

- **Bacteria**
- **Viruses**
- **Parasites**
- **Fungi – Mold & Yeast**

Safe Food Handling

Food-borne illnesses caused by bacteria

- Salmonellosis
- Shigellosis
- *E. coli* O157:H7 EHEC
- Staphylococcal food poisoning
- Clostridium perfringens Enteritis
- Bacillus cereus gastroenteritis
- Botulism
- Listeriosis
- Campylobacteriosis
- Vibrio gastroenteritis
- Yersiniosis

Food-borne illnesses caused by viruses

- Hepatitis A
- Norovirus Gastroenteritis
- Rotavirus Gastroenteritis

Safe Food Handling

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The Key 4

Food-borne illnesses caused by viruses

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Safe Food Handling

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Infectivity & Virulence

Food-borne illnesses caused by viruses

4. Hepatitis A
- Norovirus Gastroenteritis
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Safe Food Handling

What Bacteria Need to Grow

- **Food – moist, high protein**
- pH – neutral or low acid
- **Temperature – 41°F to 140°F**
- Time – 4 hours (farm to plate)
- **Oxygen – requirements vary**
- Moisture – needs water in food to ingest

Best example – our hands, everything is there!

Foods that fall within these ranges are considered Potentially Hazardous Foods – PHF

Safe Food Handling

Controlling Growth of Microorganisms

- **Make the food more acidic or base**
- **Lower the water activity**
- **Raise or lower the temperature of the food (below 41°F above 140°F)**
- **Lessen the time in the Temperature Danger Zone (TDZ)**

Safe Food Handling

What Bacteria Need to Grow – *pH*

Type of Product

pH

Vinegar

2.2

Cola Drinks

2.3

Commercial Mayo

3.0

Orange Juice

3.7

Buttermilk

4.5

Tuna

6.0

Chicken

6.2

Corn

6.3

Milk

6.6

↑
G
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O
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B
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What Bacteria Need to Grow – *water*

Type of Product	Water Activity (A_w)
Fresh meat & fish	.99
Bread	.95
Aged Cheddar	.85
Jams and jellies	.8
Plum pudding	.8
Dried Fruit	.6
Biscuits	.3
Milk powder	.2
Instant coffee	.2

Safe Food Handling

What Bacteria Need to Grow – *temperature the TDZ*

Temperature

Bad Stuff

86 – 113 F

Campylobacter

41 – 115

Salmonellae

45 – 121

E. coli

30 – 108

Yersinia

31 – 113

Listeria monocytogenes

50 – 125

C. perfringens

Safe Food Handling – Acquisition

- Approved sources
- **Labeled and in original containers**
- Sell by/Use by dates
- **Package integrity**
- Condition of product
- **Proper temperature at least 41° F, cooler for milk, shell eggs, shellfish**

Safe Food Handling – Storage



- Proper temperatures -- 41°F for cold foods
- Separation and packaging to avoid cross-contamination
- Use careful labeling to avoid “rummaging” thru packages in the cooler
- Prevent contamination from ice used as a coolant – try “dry” ice instead but observe the necessary precautions.

Safe Food Handling – Preparation

- Prevent contamination from hands
 - Wash hands & finger nails
 - before preparing
 - between food types (20 seconds w/ soap & hot H₂O)
- Prevent contamination from tools
 - Knives & other tools
- Prevent contamination from surfaces
 - Cutting surfaces & mixing bowls (cracks & crevices)
- Watch succession
 - salad → beef → chicken = OK
 - chicken → beef → salad = NO
 - beef → chicken → salad = NO
- No one who is sick should handle food

Safe Food Handling – Preparation

A few words about using gloves

- The Maginot Line of safe food handling – a false sense of security
- Putting on gloves does not prevent cross contamination and improperly cooked foods – only following the correct procedures can do that
- Allergies
 - Some folks react to latex
 - Vinyl gloves are safest

Safe Food Handling - Cooking

- Intact meat or fish – internal temp 145 F
- **Ground meats – internal temp 160 F**
- Eggs – internal temp 160 F
- **Poultry, casseroles, stuffing, leftovers – internal temp 165 F**
- Always use a thermometer –

Safe Food Handling – Cooking & Serving

- 1st utensil for preparation
 - Prep utensil places food into pot / on fire
 - Prep utensil and bowl/plates to KP
- **2nd utensil used during initial cooking**
 - Pierces raw side with the first turn
 - Initial cooking utensil and bowl/plates to KP
- 3rd utensil used in final cooking and removal
- **4th utensil used for plating & serving**
- **The same utensil can be used but must be properly washed between uses**
- Always use clean serving plates & bowls

Safe Food Handling – thermometers

- check the stem of the thermometer for an indentation, or “dimple” that’s how deep it must penetrate the meat
- **must penetrate 2 to 3 inches into the food**
- most thermometers available will give an accurate reading within 2 to 4 °F
- **should be placed in the thickest part of the food away from bone, fat or gristle.**
- whole poultry, insert in the inner thigh.
- **irregularly shaped food, check the temperature in several places.**
- meat patty, insert the thermometer in sideways.
- **calibrate the thermometer – place the stem in ice water (touching nothing but the water) for 30 seconds, when it reads 32 F, adjust calibration nut so that pointer indicates 32 F**
- disinfect after each use

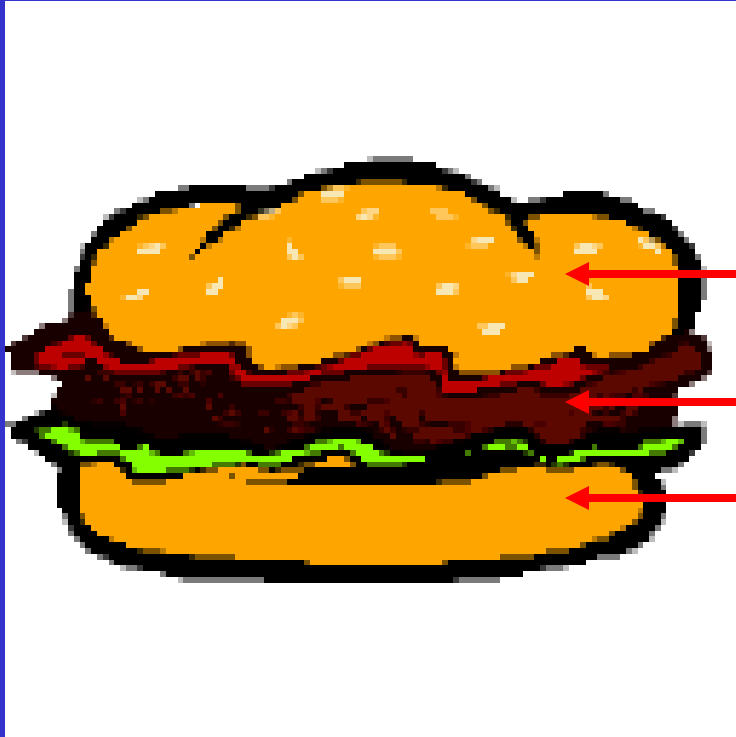
Safe Food Handling – Clean-up

- The 3-pot method
 - Wash-rinse-sanitize
- **Hot water sanitization**
 - **30 seconds, 171° F**
- Chemical sanitization
 - 30 seconds, 75° F
 - Concentration, varies with chemical and ambient environmental conditions
- **Bleach (most common chemical)**
 - 50ppm is adequate;
 - 1 Tbls. in 1 Gal. room temp water is 200ppm
 - use test strips to be sure!
<http://www.allqa.com/ChlorineSanitizing.htm>
- Air dry or lots of paper towels – no cloth dish towels

Safe Food Handling – Venues

- The information in this is appropriate for Troop and Patrol cooking (and at home)
- The information in this presentation is not sufficient for mess hall operations
 - these operations must adhere to the state regulations governing the retail food service industry within that state
 - require certification by that state and successful participation in a state-sponsored training program
- The information in this presentation is appropriate for backpacking applications; however, there are key differences:
 - storage temperature is not an issue – typically food is dehydrated or freeze dried and packaging is air- and water-tight
 - usually no preparation required – add water, heat, serve
 - almost always a one-pot meal
 - usually only one cooking/serving spoon
 - the 3C's still apply -- cleanliness, cross contamination clean-up
 - complicated by the need to pack-out “wet” garbage
 - wet garbage is a breeding ground for bad stuff – double bag it!

The Sandwich Principle Applies to Safe Food Handling too!



Qualified Supervision

Program-specific guidelines

Discipline

Safe Food Handling – Cheat Sheet

1. What do you think is a potentially hazardous food?

High moisture content, usually proteins.

2. What do you have the most control over in the field?

Time and Temperature. Automatically assume all raw food is contaminated and handle it as such.

3. What are the three (3) most important items in your field kitchen?

- Thermometer
- Bleach
- Cooler

4. What is the #1 transmitter of bacteria?

Human hands. Thoroughly washing with soap and warm water is the best thing.

5. What is cross contamination?

Transfer of bacteria from one food to another via a cutting board, utensils, coolers, knives, or hands.

6. Planning Your Meals

Preplan meals to prevent problems — cooking, transporting, storing, and holding. Assure enough time to cook for the size of the group and for scheduled activities. Assure that you have enough pots and pans for the size of the to cook food properly and in a timely manner — keeping cooked food at temperature can be hard in the field.

7. Onset of Illness

Most food borne illnesses do not start showing symptoms right away. Staph infections are the most rapid — about 4-5 hours. Most others take anywhere from 9 to 24 hours for the first symptoms to appear.

8. Cleaning

Washing with soap and warm water and should be done each time a different food is handled.

Three-pot method — wash, rinse, sanitize — water should be changed when it gets murky.

Air-dry everything if possible. If not, use 1 paper towel per pot, plate, etc.

NO ONE WHO IS SICK SHOULD HANDLE FOOD FOR THE GROUP