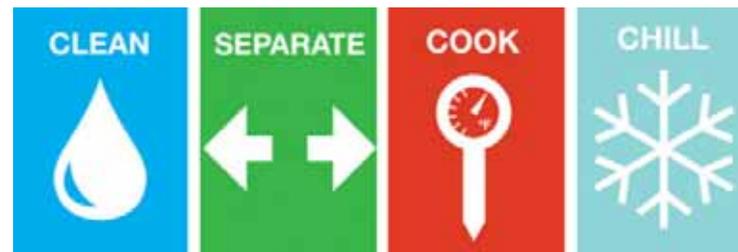


Safe Food Handling Seminar

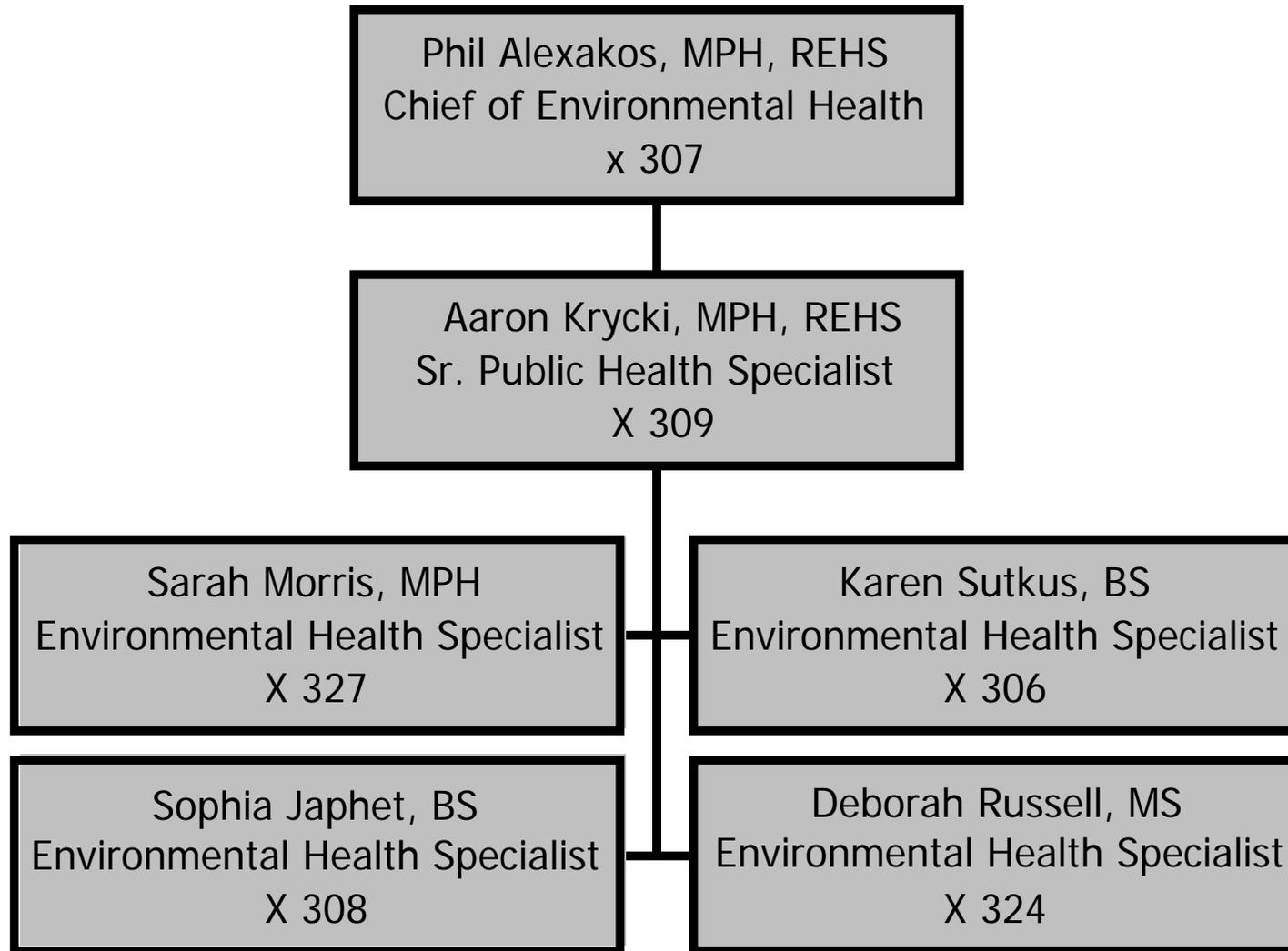


October 25th, 2016

Manchester Health Department

Environmental Health Division

Environmental Health



PREVENTING FOODBORNE ILLNESS



The Five Major Risk Factors

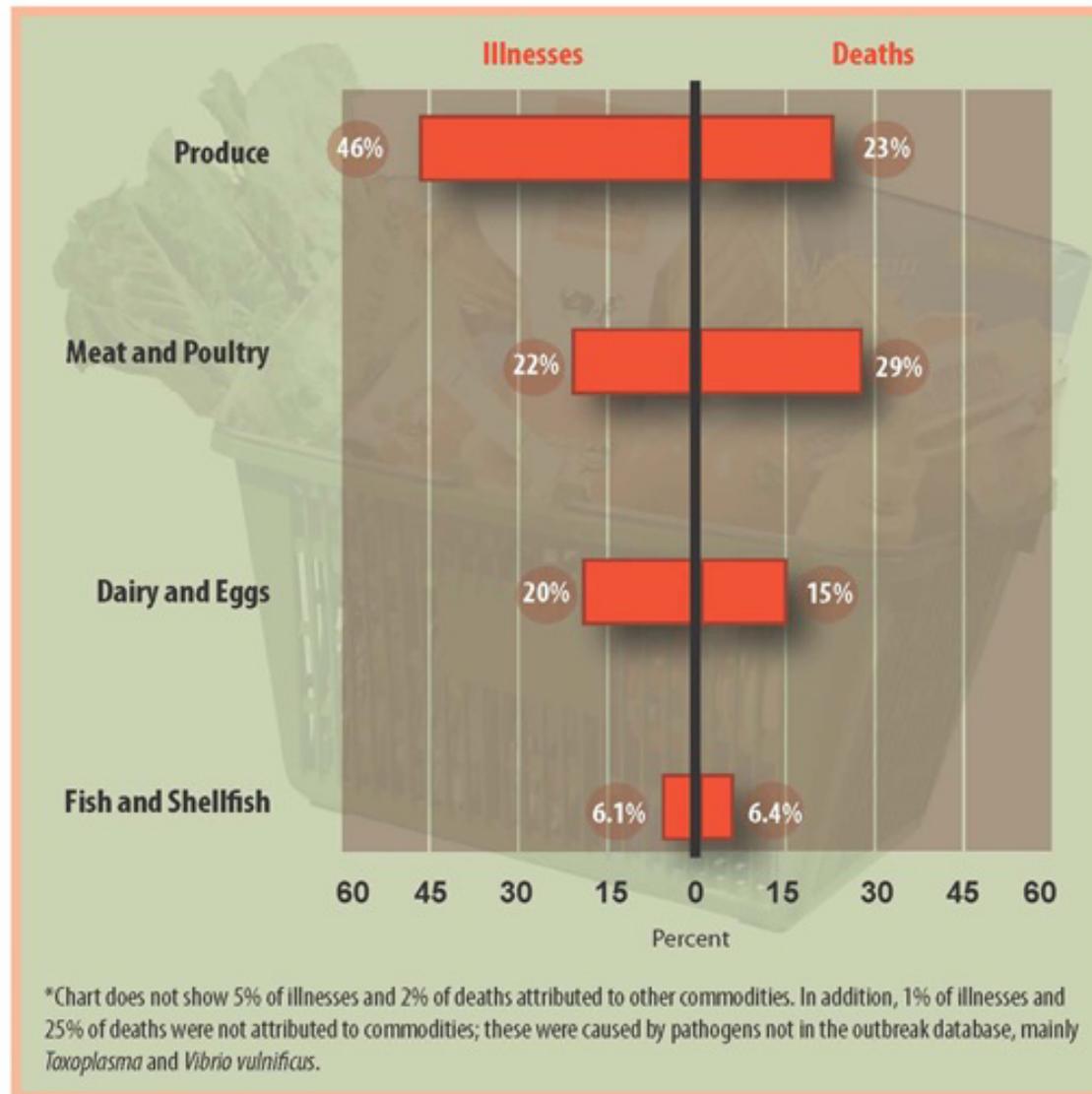
- **Food from unsafe/unapproved sources**
- **Poor Personal Hygiene**
- **Lack of Temperature Control**
- **Cross Contamination/Contaminated Ingredients**
- **Poor Sanitation/Contaminated equipment**

Foodborne Illness in the USA

The Center for Disease Control (CDC) estimates that each year roughly 1 in 6 Americans (or **48 million people**) gets sick, **128,000** are hospitalized, and **3,000** die of foodborne diseases.

According to the 2011 estimates, the most common foodborne illnesses are caused by *norovirus* and by the bacteria *Salmonella*, *Clostridium perfringens*, and *Campylobacter*.

Figure 1. Contribution of different food categories to estimated domestically-acquired illnesses and deaths, 1998-2008*



Source: Painter JA, Hoekstra RM, Ayers T, Tauxe RV, Braden CR, Angulo FJ, Griffin PM. Attribution of foodborne illnesses, hospitalizations, and deaths to food commodities by using outbreak data, United States, 1998–2008. *Emerg Infect Dis* [Internet]. 2013 Mar [date cited]. <http://dx.doi.org/10.3201/eid1903.111866>

Microorganisms such as bacteria and viruses cause food borne illnesses

Salmonella spp. – poultry, melons, pet reptiles

E-coli – ground meats, apple cider

Listeria spp. – hot dogs, cold cuts, soft cheese

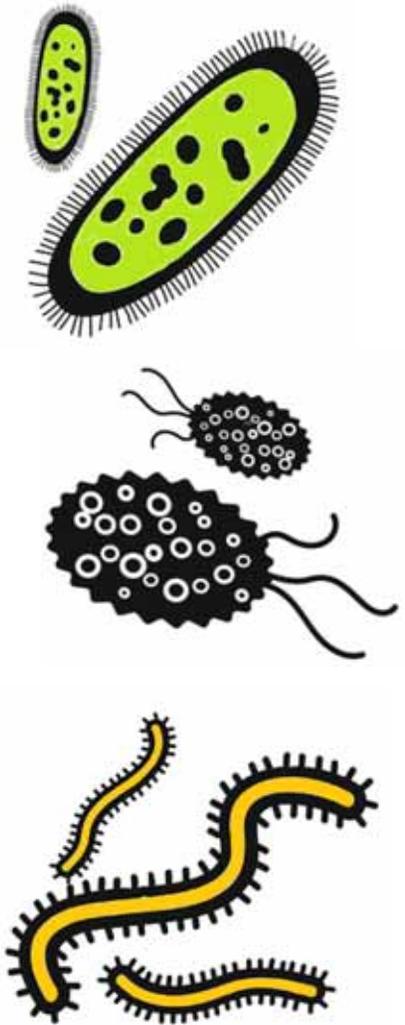
Campylobacter spp. – chicken, milk, water

Clostridium perfringens – improper cooling

Clostridium botulinum – low acid foods

Hepatitis A – shellfish, ill food handlers

Norovirus – shellfish, ill food handlers, ice



Potentially Hazardous Food

- Any food - natural or synthetic - that is capable of supporting the rapid growth of pathogenic organisms, toxins or other harmful substances

Eggs, meat, cheese, poultry, fish, milk, sprouts, cut melon, cooked rice, beef, garlic and oil

- **ANY** food, if mishandled

Conditions for Growth

- **Food**: Proteins and carbohydrates
- **Acidity**: 4.6 to 7.5 pH
- **Temperature**: 41 to 135° F
- **Time**: Four hour rule
- **Oxygen**: Aerobic vs. anaerobic
- **Moisture**: 0.85 to 0.97 water activity



Bacterial Growth



For every 15 minutes in the temperature danger zone:

- 1 hour: 1 ► 16
- 1 ½ hours: 16 ► 64
- 2 hours: 64 ► 256
- 2 hours 45 minutes: 256 ► 2046

PERSONAL HYGIENE



Personal Hygiene

- **This video will demonstrate the key focal points of personal hygiene in relation to food preparation and service**

Hand Washing – When should you wash your hands?

https://www.youtube.com/watch?v=Cb_R59_-0zU&index=8&list=PLbzFaC-RG2LhuWyw8Xk8JVj99cpOAvKPN

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Personal Hygiene

- Employees must report illness, such as vomiting, diarrhea, sore throat with fever to their manager
- It is recommended that all establishments maintain a written employee illness policy document
- These employees will not be allowed to handle food or utensils
- Wounds and open sores must be protected with water-tight covers
- Managers/owners **MUST** report certain illnesses to the Health Department

Personal Hygiene: Reportable Diseases

- *E.coli* 0157:H7
- *Salmonellosis*
- *Shigellosis*
- *Hepatitis A*

Personal Hygiene: Hand Washing Frequency

Before starting work

After...

- using the restroom
- coughing, sneezing, or blowing nose
- touching or handling raw foods
- smoking, eating or drinking
- touching head, hair or other body parts
- handling chemicals



Personal Hygiene: Hand Washing Sinks

- Must be accessible and working at ALL times
- Spring loaded or automatic shutoff (metered) faucets in bathrooms must be “on” for at least 15 seconds
- MUST have dispensed soap and paper towels at all times - bar soap and cloth towels are not allowed



GOOD – clean
and ready to use



BAD – Blocked
with equipment

Personal Hygiene: Thorough Hand Washing

- Using **Hot Water (110°F)**, soap, and paper towels; for a duration of **20** seconds
 - Paying special attention to nails, backside of hands, and exposed portions of arms,
 - Use paper towels to turn off faucets
 - At hand sinks **only!**
- Keep hand sinks clean – remember to clean and sanitize faucet handles too!



Hand sinks may NOT be used for rinsing equipment, dumping of food or drinks or storing equipment – This is a critical item violation

Personal Hygiene: Hand Washing Frequency

When changing tasks, such as....

- between handling dirty dishes and clean dishes
- between clearing a table and resetting the table
- between sweeping the floor and handling food
- between handling money and handling food
- between handling meats and handling vegetables

Glove Use – When do you need gloves?

https://www.youtube.com/watch?v=i_BzyUCm9js&list=PLbzFaC-RG2LhuWyw8Xk8JVj99cpOAvKPN&index=9

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Personal Hygiene

- Only a plain wedding band is allowed
- Artificial nails and nail polish are NOT recommended
- **No bare hand contact** of ready-to-eat foods
- Tongs, gloves, wax paper or other utensils must be used when handling or preparing ready-to-eat foods

CASE STUDY: Boise Co-Op Deli Idaho (2015)

WHO: 290 cases

WHAT: *Salmonella*

WHY: Cross contamination (improper food storage and handling)

HOW: *Salmonella* found in raw turkey, tomatoes and onion



* Several lawsuits filed against deli. A press release was issued to discard all foods purchased from the deli after June 1st. Restaurant temporarily closed

CASE STUDY: Tarheel Q Restaurant North Carolina (2015)

WHO: 280 sick, 1 death

WHAT: *Salmonella typhimurium*



WHY: Improper temperature control, cross contamination, poor personal hygiene

HOW: *Salmonella* found in BBQ sample, patients

* Numerous lawsuits filed, including a wrongful death lawsuit. Restaurant had a history of critical item violations.

CASE STUDY: Retail Deli Slicers

Maple Leaf Foods, Canada (2008)

WHO: 57 ill, 22 deaths = 39% fatality rate

WHAT: *Lysteria monocytogenes*

WHY: Cross contamination, poor sanitation practices

HOW: Slicers were not washed, rinsed and sanitized every 4 hours as required. Ensure that slicers are fully disassembled for cleaning



* Many class action lawsuits were filed, loss of business and revenue. Studies show 54.2% of delis fail to clean their slicers every 4 hours.

CASE STUDY: Daycare Center Alabama (2015)

WHO: 86 ill children, 30 hospitalized

WHAT: *Staph aureus* toxin

WHY: Improper hot/cold holding of food delivered to the center from a off-site kitchen (beans, chicken & pasta, bologna sandwiches)

HOW: Temperature abuse, poor personal hygiene



* Staph toxin cannot be destroyed by cooking. Staph aureus can be found on workers hands, nasal cavities. Daycare center was closed for investigation

CASE STUDY: Mariscos San Juan California (2015)

WHO: 190 cases, 92 lab confirmed. Many visited the ER with fever (104°F), vomiting & diarrhea

WHAT: *Shigella*

WHY: Potential ill food handler, food source

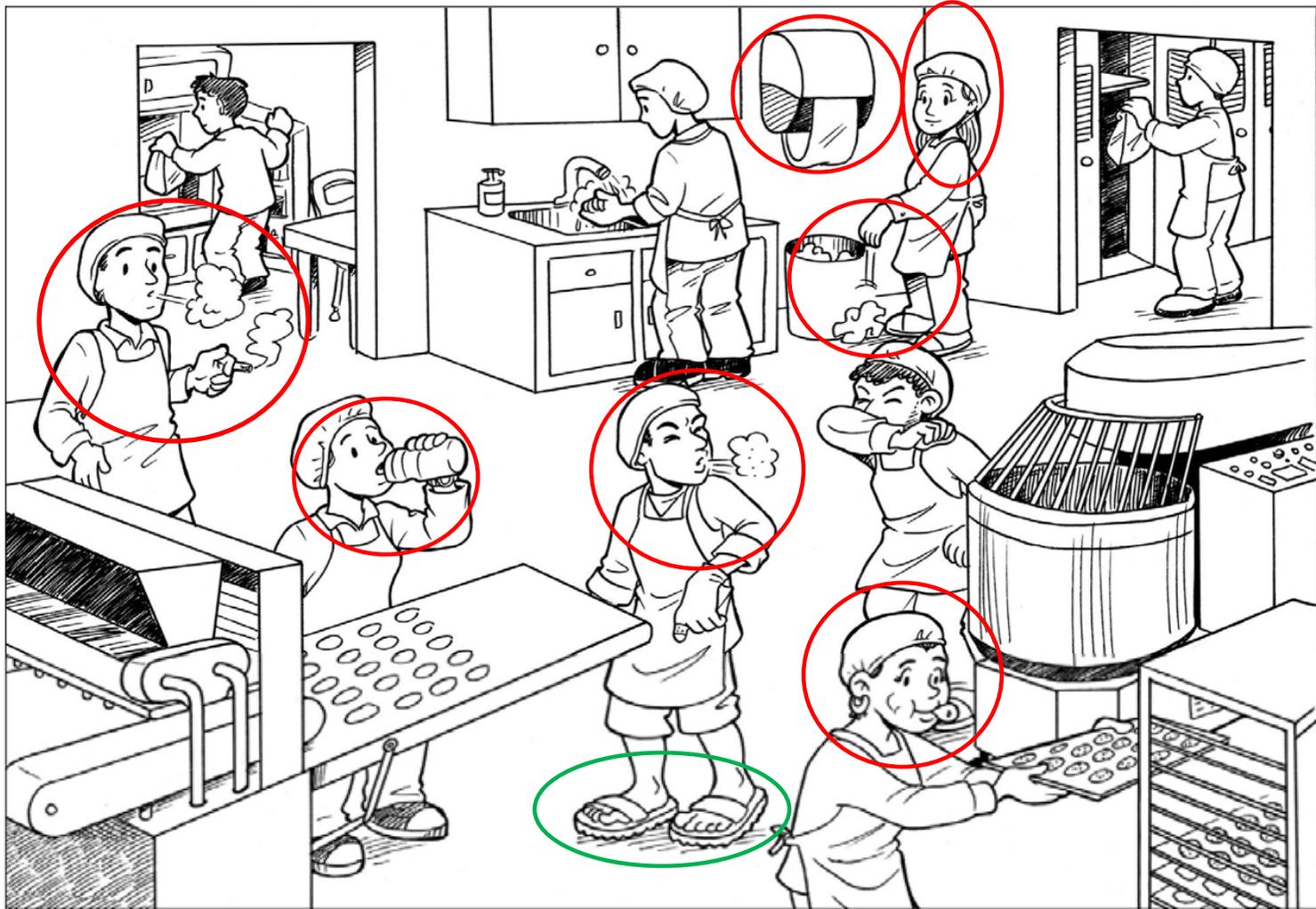
HOW: Poor hygienic practices (hand washing, bare hand contact with ready to eat foods)



* 3 lawsuits filed, restaurant temporarily closed

Personal Hygiene Quiz

Please circle all the items that do not demonstrate good personal hygiene practices



Employee Illness

- This video will demonstrate the importance of excluding and restricting ill employees from food handling and service

- Excluding and restricting ill employees from food handling and service

<https://www.youtube.com/watch?v=YaKZwCOhAcs>

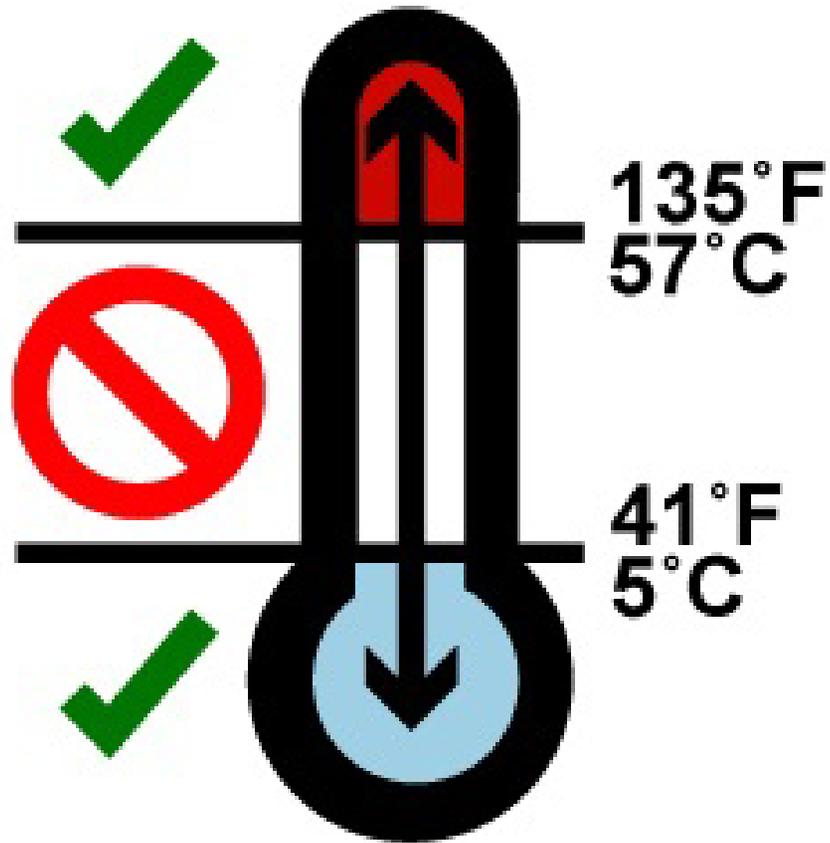
Produced by the Central District Health Department, Boise, ID.

Uploaded on Jul 13, 2007

Part 3: Poor Personal Hygiene.

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TEMPERATURE CONTROL



Time and Temperature Control

- This video will cover time and temperature control and its role in food safety

Part II – Food Born Illnesses: Holding Time and Temperature

<https://www.youtube.com/watch?v=DXmgTeu74bY>

Produced by the Central District Health Department, Boise, ID.

Uploaded on Jul 13, 2007

Part 2: Holding Time and Temperature.

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Temperature Control

- **Cold** foods shall be kept at or below **41°F**
- **Hot** foods shall be held at or above **135°F**
- **Frozen** foods shall be frozen, preferably **under 0°F**
- All refrigerators and freezers must have accurate internal thermometers that are easy to locate
- Use thermometers to measure temperature of foods...**Be sure to sanitize thermometers before and after use!**



Temperature Control: Thawing

- Plan ahead, place under refrigeration
 - Stored properly in the cooler to prevent possible cross contamination
- Use prep sink; **cool**, forceful, running water (submerged) at **70°F** or less
- Using the microwave and immediate cooking
- Direct cooking

Thawing on the counter is NOT an approved method!

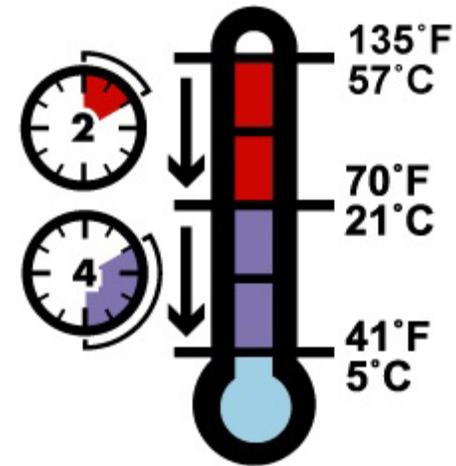


Temperature Control: Cooking

- Poultry (turkey, chicken) - 165°F
- Stuffed foods - 165°F
- Ground poultry - 165°F
- Microwave cooked foods - 165°F
- Ground beef - 155°F for 15 seconds
- Pork & beef roasts - 145°F
- Other potentially hazardous foods (fish, game meat etc.) - 145°F
- **Cooked** fruits and vegetables - 140°F
- Beef Roast (rare; for 121 min) - 130°F

Temperature Control: Cooling

- Once cooked product reaches 135°F, potentially hazardous foods shall be cooled to 41°F within 6 hours (cooled to 70°F within 2hrs, to 41°F within an additional 4 hours)
- Divide foods into shallow pans
- Use stirring, ice baths, ice or frozen ingredients or other approved methods to quickly cool food
- Avoid overstocking refrigerators to allow for proper circulation of cool air



Temperature Control: Re-Heating

- All potentially hazardous food must be re-heated within 2 hours to a minimum of **165°F** for 15 seconds
- All PHFs reheated in a microwave shall be heated to 165°F, stirred, covered and allowed to stand for 2 minutes before serving
- Thermometers must be used to verify cooking and reheating temperatures are achieved

Temperature Control: Preparation and Service

- Mix pre-chilled ingredients – (tuna and mayonnaise) to achieve proper temperature
- Sandwich table bins should not be filled more than 2/3 full to allow for proper air flow around the product
- Using stainless steel pans rather than plastic helps to keep foods cooler
- Only remove enough food for preparation that can be processed within 30 minutes

Temperature Control: Reminders

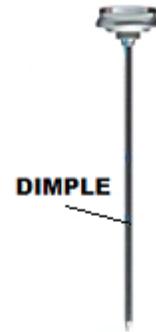
- Keep at least daily temperature logs of your cold & hot holding units
- Take temperatures of incoming products
- Check steam tables and holding cabinet air and food temperatures every 2 hours
- Take grilled product temperatures to ensure that you don't have “cold spots”



Types of Thermometers



Dial Stem thermometers are good for taking temperatures of thick cuts of meat, or prepared food items. Note: when testing food items, the thermometer must be inserted up to the “dimple”, at least 2 inches into the product



Probe thermometers are good for taking temperatures of any food item – including thin cuts of meat or burgers. The reading is in the tip of the thermometer



Infrared thermometers are good for taking surface temperatures of food items or grill tops to ensure there aren't any “cold spots”. They are good for a quick assessment, but further testing with a probe should be done

CROSS CONTAMINATION



Preventing Contamination: Purchasing

- Food is received from an approved source
- Licensed commercial facility, not from home
- No spoilage or contamination
- No dented, rusted, leaking or bulging cans
- Labeling and dating of food
- Shellfish tags – must be kept for 90 days



CEDAR KEY SEAFOOD DISTRIBUTORS, INC.	
P.O. Box 979, Cedar Key, FL 32625	
PERISHABLE	Phone: (352) 543-6000 Fax: (352) 543-6642
KEEP REFRIGERATED	Wholesale # WD-8672 Cert. # FL-1435-SS
ORIGINAL SHIPPER'S CERT. No. IF OTHER THAN ABOVE:	
HARVEST DATE:	10/7/2014
HARVEST LOCATION:	FL3012 "PRODUCT OF USA" FARM RAISED
TYPE OF SHELLFISH:	PASTA CLAMS
QUANTITY OF SHELLFISH:	58 UNIT
SELL BY:	CA 398 SS
THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR IS RETAGGED AND THEREAFTER KEPT ON FILE FOR 90 DAYS.	

Preventing Contamination: Receiving

- Schedule deliveries on off-peak hours
- Inspect all products to ensure they are of sound condition and received at the proper temperature
- Reject any unacceptable goods
 - check all use by/expiration dates
 - wet or stained packaging indicates possible contamination or leaking has occurred
 - ice crystals on meat indicate a thawing and refreeze has taken place
- Promptly refrigerate perishable foods and safely store dry goods



Labeling of Food Items

- All prepared food items must be used within **7 days** from preparation or opening a factory seal, and properly labeled with preparation/discard by dates. Your establishment may choose to use less than a 7 day shelf-life for product quality reasons

Example: Commercially produced potato salad is labeled use by 1/24/17. You open it on 10/25/16. The container must be re-labeled and used by 10/31/16.

- It is recommended that along with preparation/discard by dates, the employee preparing the food item put their initials on the label. Helpful in foodborne illness outbreaks or in the case of ill food handlers
- If food items are not in their original container, the container must be properly labeled with correct contents

MONDAY	
Item: _____	
Name: _____	Qty: _____
Date: _____	<input type="checkbox"/> AM <input type="checkbox"/> PM
Use By: _____	<input type="checkbox"/> AM <input type="checkbox"/> PM
REMOVABLE	



Labeling of Food Items

If your establishment offers prepared food items as “Grab and Go” for customer self service, each item must be properly labeled with the following:

- The common name of the food item
- The name and address of the packaging facility
- The ingredients in descending order of predominance by weight
- The net weight or numerical count in both US customary and metric
- A product code which includes date of manufacture, container size, and product lot or batch number to aid in a recall of product in case of a public health hazard

A list of common allergens is a good and suggested practice



Preventing Contamination: Storage of Prepared and Raw Food



**Ready-to-eat foods
and vegetables**



Raw seafood



Raw whole meats



Raw ground meats



Raw poultry

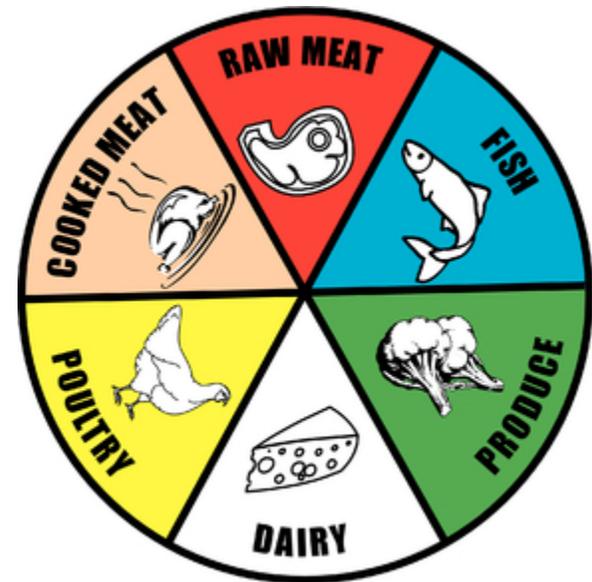
Preventing Contamination: Preparation

- Hands must be washed prior to any food handling or preparation
- Thoroughly wash all fruits and vegetables in the *food prep sink* – sink with air gap. For some establishments, this may be your sanitizing bay of the 3bay sink – it may NOT take place in the wash or rinse bins.

X INCORRECT



Use different utensils/cutting board for different types of foods. Color coded boards and knives are available.





Egg flats are designed for single-use storage of whole shell eggs.

They may not be reused for draining of cooked food products (bacon, French fries, egg rolls for example), or for the storage of in-use cooking utensils. Eggs should be inspected upon delivery and broken or damaged eggs discarded.



Eggs are often dirty on the outside and may be received cracked or damaged. This can lead to potential contamination of the cardboard egg flats with harmful bacteria such as Salmonella or Campylobacter.

The same goes for cardboard boxes – especially ones that previously contained raw food items, such as, poultry. These boxes should not be reused for the storage of prepared foods or food service equipment.

Cardboard boxes may also harbor pests, their eggs and excrement – definitely not something you want in your establishment or coming in contact with your food!



Preventing Contamination: Storage of Food & Food Service items

- 6 inches off the floor
- Above and not next to chemicals and other toxic items
- Away from sewer pipes
- Separate from damaged or contaminated foods
- Pots, bowls, single-service ware upside down
- **FIFO**



Keep dry storage rooms cool and dry.
Bulk food items must be dispensed
with handled scoops

Preventing Contamination: Storage of Food & Food Service items



Shelving must be maintained in good condition – NO chipping paint or cardboard lining shelves

Containers holding clean equipment and utensils must be kept clean and free of debris



Ensure that all food service and preparation equipment is maintained in good condition – not chipped, cracked or melted





Food should be stored in approved food-grade containers only. Containers should not be larger than wash bins of 3bay sink or dishwasher capacity



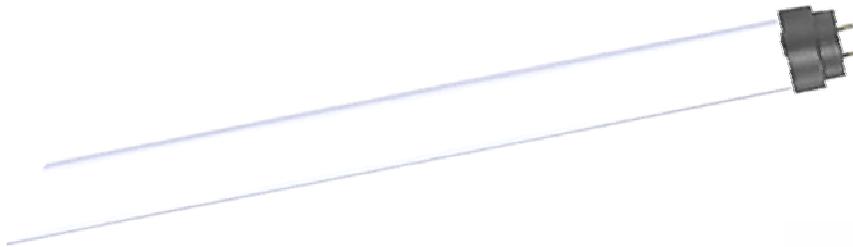
Buckets for household use or chemical storage are not permitted.



Containers that previously held chemicals should NEVER be used to store food items



Light bulbs must be shielded or shatterproof in all food storage and preparation areas



Plastic sleeves may be installed over fluorescent lighting. Some bulbs come pre-wrapped



Preventing Contamination: Chemical storage and use



Improper labeling/failure to label chemical spray bottles



Chemicals improperly stored over food and food service items



Ice is a ready-to-eat food – and must not be handled with bare hands. Use scoops with a handle - not glasses or cups. Scoops must be stored out of ice in a clean, dry location



Ice used for cooling of food must **NOT** be used for consumption



Be sure to clean and sanitize handles of equipment, touch screen menus, cash registers, telephones and equipment on a frequent basis to prevent cross contamination and spreading of illnesses.





- Mop water must be disposed of in the designated mop sink or toilet and **MAY NOT** be disposed of in the 3 bay sink or out the back door of the establishment!

- Cleaning of floors throughout the establishment is an important task to maintain clean and sanitary working conditions – don't forget your floor drains
- Ensure that mop water is clean and disposed of properly
- Change mop heads frequently to prevent growth of mildew and bacteria
- Hang mops so they may dry properly



DON'T BE LIKE THIS GUY!

Some sinks have a built-in
backflow preventer

Otherwise, a Watts or
Watts 8A valve style
backflow preventer is
required



A backflow preventer is
required on all hose
connections – including mop
sinks and beverage lines



Spray hose must be maintained one inch above the level of the top of the sink



GOOD – Air gap must be at least 1 inch above the waste receptor on food prep sinks and ice bins



BAD – Gap is less than 1 inch

Hose is too low – spring must be replaced

Cross-Contamination: Pests

Flies land on food and equipment and thus transfer germs



Rodents eat food - their germs, urine and fecal material are left behind

Fruit flies/drain flies can contaminate liquor and other food items – “bug lights”, screens and screened pourers at bars can help!



Fly strips are not to be used in food preparation and storage areas, or in dishwashing rooms.

Fruit fly traps may be used, but must be placed in a location that is not on or above a food preparation surface.





FRUIT FLY

Prompt cleaning of spills, covering garnish containers, removal of spoiling produce



DRAIN FLY

Regular maintenance and cleaning of drain and sewer lines. Prevent standing water



HOUSE FLY

Keep all outer openings closed/screened. Maintain trash collection areas

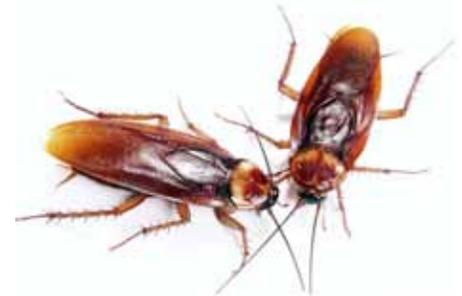
Insect and Rodent Control



- All outer openings must have tight seals (no daylight shall be visible)
- If an outer door is to remain open, a screen door must be in place

Insect and Rodent Control

- Facility must be kept so as to prevent entry of insects and rodents
- Pest control must be done in a way which prevents contamination of food and food contact surfaces
- Measures must be taken to minimize the presence of pests
- Use a licensed pest control operator for rodent or cockroach control





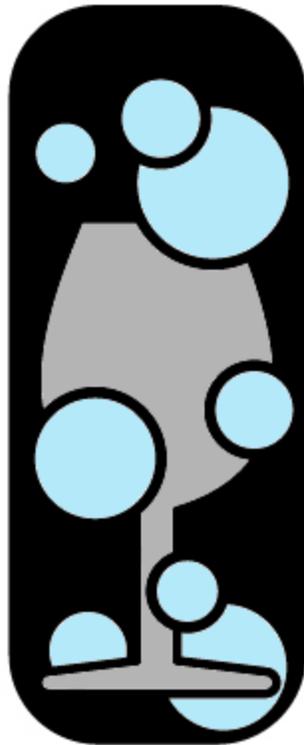
Dumpsters must be maintained in good, clean condition with covers in place. Dumpster should be placed on a non-absorptive pad – a gate and lock are suggested

Grease receptors must be also be maintained in good condition with no leaking or spillage



SANITIZING

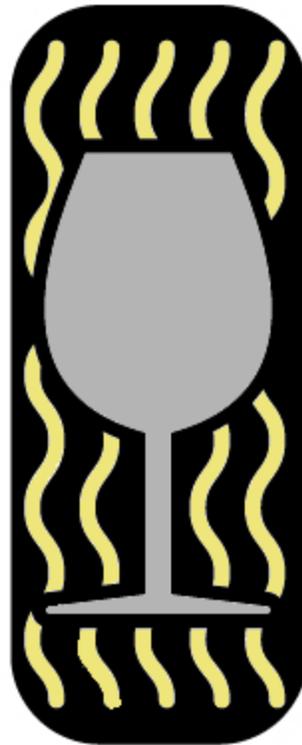
1



2



3



Sanitation

- **Clean** - free of visible dirt and filth
- **Sanitary** - reducing the amount of disease causing microorganisms to “safe” levels



What to Sanitize

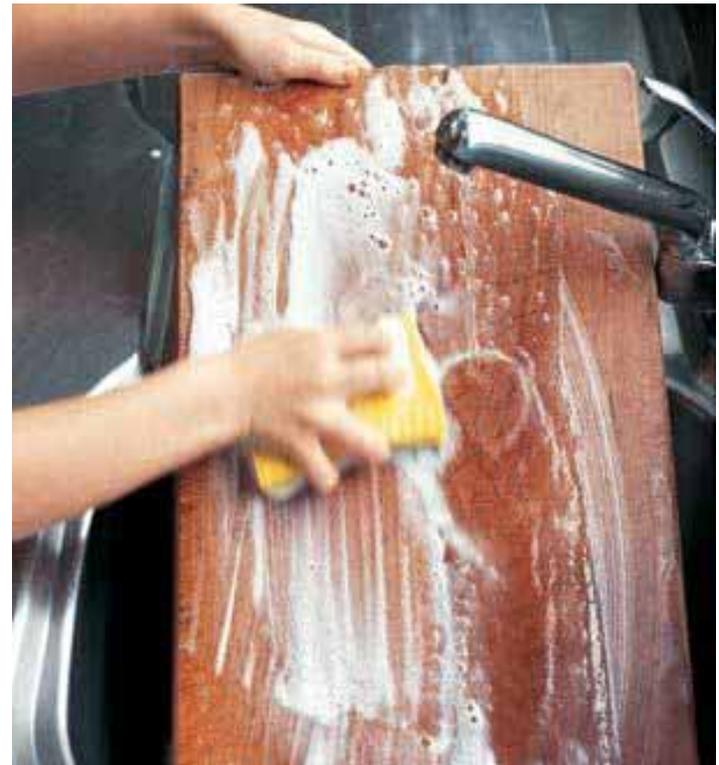
All food contact areas:

- Working surfaces & utensils
- Food cutting & preparation equipment, thermometers
- Storage & display containers, racks & shelves
- Sinks, wash areas, service ware



When to Sanitize

- All equipment - after each use
- Following a period of non-use during which contamination could have occurred
- Between processing different foods
- On a regular basis similar to that for cleaning



How to Sanitize

- Wiping cloths must be kept in sanitizer solution between uses
- Sanitizing Rinse
 - clean
 - proper concentration
 - proper temperature – at least **75°F**
 - Proper exposure time - 30 seconds
 - Allow sanitized items to air dry



Manual Sanitizing

A 3 bay sink is used to wash, rinse, and sanitize food service equipment and utensils



1st sink

Wash items in hot soapy water

2nd sink

Rinse items in clean, clear, hot water

3rd sink

Sanitize items and allow to air dry prior to stacking

Ensure that all labels and “day dots” are fully removed from food storage containers prior to washing and sanitizing. When left on, dishes are not fully sanitized, and dates of product may become confused when the container is refilled.



Allow all clean equipment to fully air dry prior to stacking. “Wet nesting” does not allow for proper sanitizer drying and can lead to mold growth.



Mechanical Sanitizing

A dishwasher may use either heat or chemical sanitizer to sanitize equipment



2 Methods to Sanitize

Heat sanitizing

Commercial dishwasher using a hot water final rinse of **180°F** minimum



Chemical sanitizing

- Residual Chlorine concentration of 50 ppm
- Quaternary Ammonium (QUAT) concentration of 200 ppm *or per manufacturer's guidelines*
- Iodine concentration of 12.5 ppm

Use proper test kits at least daily!



Sanitizing

- This video will demonstrate how to properly use the 3bay sink for sanitizing food service equipment

Three Sinks

<https://www.youtube.com/watch?v=bpp1Syx0xec&list=PLbzFaC-RG2LhuWyuw8Xk8JVj99cpOAvKPN&index=3>

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Quaternary Ammonium Sanitizer

May be in tablet or liquid form



Use the **ORANGE** test strips to check for proper concentration

Hold strip in solution for **10 seconds** and compare to chart

Testing solution must be room temperature (75°F) - take a small amount out to cool
Maintain sanitizer solution above 75°F during use



Chlorine Sanitizer



May be regular bleach or
a concentrated solution



Use the **WHITE** test strip to
check for proper concentration



Dip the strip into the
solution and immediately
compare to color chart

Solution must be maintained
above **75°F**

Sanitizer Solutions

- Sanitizer is a toxic chemical designed to kill living things
- Proper temperature
 - Between 75-100°F
- Concentration is important
 - 50-100 ppm Chlorine
 - 200 ppm Quat - or per manufacturer's label
- Automatic dispensers must be checked and calibrated often – they are not fool proof
- Ensure that all spray bottles are properly labeled with correct contents



Sanitation:

Important notes

- When using bleach, only use the UNSCENTED variety
- Make your sanitizers according to manufacturer's guidelines... *too much is not better than too little!*
- Do not store knives or utensils in sanitizer and then directly use on food... these items must be fully air dried prior to use

Reasons for Closure

Food service establishments **shall cease** operation and **notify** the Health Department when...

- There is a lack of hot water
- There is a loss of electricity
- There is a complete lack of refrigeration
- There is a sewage back-up or flooding
- There is a fire or discharge of the hood system

EXAM TIME

- Please answer the questions to the best of your ability
- Please feel free to ask ANY questions you might have – we are here to help!!

Contact Information

Manchester Health Department

1528 Elm Street (Rear Entrance)

Phone Number- 624-6466

Web Address

<http://www.manchesternh.gov/health>

email address

health@manchesternh.gov