The Centers for Disease Control and Prevention’s Vessel Sanitation Program is proud to bring to you the following session:

**Foodborne Illness**

While this presentation is primarily intended for cruise vessels under the jurisdiction of the Vessel Sanitation Program it may also be used by anyone who is interested in this topic.

This session should not be used as a replacement for existing interactive training but should be used as an adjunct to a comprehensive training program.
Foodborne Illness
Causes and Prevention

Vessel Sanitation Program
2007
Learning Objectives

• List individuals who are considered “high risk”
• List the ways in which we can control outbreaks of illness associated with spore forming bacteria
• Give an example of a bacteria that produces a heat labile, fatal toxin
• Give an example of a bacteria that produces a heat stable toxin
Learning Objective

• List the pathogens associated with foodborne illness and the control measures associated with each
• List some of the signs and symptoms supervisors should observe food employees for
• List the isolation time for food employees and non-food employees
High Risk Individuals

- Elderly
- Very Young
- Immunocompromised
- Pregnant Women
- Underlying Illness
Carriers

- Asymptomatic carriers
  - Mary Mallon - Salmonella typhi
- Symptomatic carriers
Pathogen Categories

- Viruses
- Bacteria
- Parasites
Transmission of Pathogens

- Fecal contamination
- Cross-contamination
- Animals or animal waste
  - Flies, roaches, rodents, birds, cattle, etc
Major Causes of Foodborne Illness

- Improper holding
- Improper cooling
- Improper cooking/reheating
- Infected employees
- Poor personal hygiene
- Cross-contamination
Norovirus (Norwalk Virus)

- Foods contaminated by feces
  - Source
  - Food handler
- Water

Personal hygiene, source protection
Hepatitis A Virus

- Foods contaminated by feces
  - Source
  - Food handler
- Water

Personal hygiene, source protection
Bacterial Illness Characterization

- Infection
- Intoxication
- Toxicoinfection
Clostridium botulinum

- Intoxication
- Low acid canned foods
- Oil infused with garlic
- Foil wrapped baked potatoes

- Can be fatal
- Spore former

Prohibit home canned foods, temperature control
Campylobacter jejuni

- Infection
- Food
  - poultry
- Raw milk

Cross-contamination, Cooking, Hands
Staphylococcus aureus

- Intoxication
- Cold protein salads
- Meats
- Cream pastries
- Humans-skin

Time and temperature control, personal hygiene
E. Coli 0157:H7

- Toxicoinfection
- Ground beef
- Raw milk
- Water

Cooking, cross-contamination, personal hygiene
Clostridium perfringens

- Toxicoinfection
- Spore former
- Meats
- Gravies
- Stews

Time/temperature (cooking, cooling, reheating)
Salmonella spp

- Infection
- Meats, poultry, eggs
- Humans and other animals are reservoirs

Cooking, cross-contamination, personal hygiene
Listeria monocytogenes

- Infection
- Soft cheeses (raw milk)
- Cold cuts, hot dogs
- Unpasteurized milk
- Grows at less than 5 C

Cross-contamination, pasteurization
Toxins

- Fish Toxins
- Shellfish Toxins
- Aflatoxins
Seafood Toxins

- Heat stable
- Toxic algae
- Spoilage bacteria
Plant Toxins

- Mushrooms—certain species
- Aflatoxins—fungi contaminated grains
- Hemlock, Jimson Weed
Parasites

- Anisakis simplex and related worms
- Trichina
- Herring, cod, haddock, fluke, pacific salmon, flounder
- Wild boar, bear, moose
Toxic Chemicals and Metals

• Metals (zinc, copper, antimony, lead,)
• Cleansers, sanitizers, polish, etc
• Pesticides
Physical Contaminants

- Glass
- Metal
- Hair
- Nail polish
- Bandages
- Cigarette butts
Allergens

- Milk
- Eggs
- Legumes
- Tree nuts
- Wheat
- Crustacean
- Fish
- Mollusks

Undeclared allergens result in thousands of recalls/year
Food Employee Health

- Salmonella typhi
- Shigella spp.
- Escherichia coli 0157:H7
- Hepatitis A virus
- Norovirus (2005 FDA Food Code)
- Others
Observe **Food Employees** For Signs and Symptoms

- Cuts, sores, open wounds
- Diarrhea or vomiting
- Jaundice
- Coughing, sneezing, nasal discharge
Food Employee Restriction

- Diagnosis
- Suspect
- Symptomatic
- Exposed

- Return to Work
  - Follow-up required
  - Free from symptoms
  - In writing
Isolation-How Long?

- Food Employees
  - 48 hours
- Non-food Employees
  - 24 hours

- 2005 FDA Food Code
  - Provides more detailed information on exclusions and restrictions
Asymptomatic cabin mates and immediate contacts

- Restrict exposure
- Verbal interviews
- Advise on hygiene
- Continue for 48 hours after onset
- Document
Passenger Illness

- Encourage isolation for 24 hours
- Handwashing tips and personal hygiene information sheet
References and Resources

- www.cdc.gov
  - www.cdc.gov/nceh/vsp
- www.fda.gov
  - www.cfsan.fda.gov
    - Bad bug book
- www.usda.gov
  - www.fsis.usda.gov