


FoodHandler **SafeBites**

FOODBORNE PATHOGENS AND FOODSERVICE



Catherine Strohbehn, PhD, RD, CP-FS



Specific Objectives

- Identify foods at greater risk for causing a foodborne illness.
- **Recognize** factors that contribute to the risk for foodborne illness from these foods.
- Consider potential risk of the operation causing a foodborne illness outbreak.

Identify the foods most often associated with foodborne illness, and the **foodservice practices** that can **prevent** the spread of foodborne pathogens when **handling** these foods.



PURPOSE



Goals for Today

- Identify two foods prepared in **YOUR** operation that can cause FBI.
- List two procedural changes that can be made in **YOUR** operation to reduce the risk of a FBI.

FBI Outbreak In The US

48 Million

Cases Reported Annually
(1 in 6 Americans)

128,000
Annual Hospitalizations

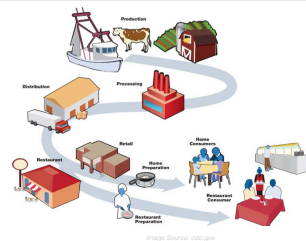
3,000
Deaths

Statistics Per cdc.gov

Foodborne Illnesses

- Under Reporting of Illnesses
- Researchers have identified 250+ foodborne diseases
- Disease causing micro-organisms are called pathogens
- Most are infections from bacteria, viruses, and parasites
- Other causes include harmful toxins and chemicals
- Glitch anywhere along the food chain

- Production
- Processing
- Distribution
- Preparation
- Service



FOOD PRODUCTION CHAIN

- Human Factors
 - Health Issues
 - Hygiene Practices
 - Best Practices not followed
- Environmental Factors
 - Intentional Contamination
 - Contamination
 - Cross-Contamination



WHAT CAN GO WRONG?

How Do I Know?

Common Symptoms

- Diarrhea - Stomach Pain
- Vomiting - High Fever (101°F)
- Nausea

- Onset Times: 30 minutes to days
- Pathogen specific symptoms/onset times
- Stool sample needed to confirm an FBI



- Seek medical attention
- Take a stool sample
- Contact health department and location of consumption/sale
- Epidemiology and Environmental Investigations
 - Identify outbreaks
 - Stop the spread
 - Learn how to prevent the next one

WHAT DO I DO?

- Research with consumers and healthcare professionals
- Surveys and Focus Groups
- Findings identified need to create a social media campaign
 - Emoji of Ralph
 - Hotline Number
 - Iowa Sic



REPORTING INITIATIVES

- **EVERYONE!**
- Some groups of people more susceptible:
 - Pregnant women (specific pathogens)
 - Young children
 - Older adults
 - People with chronic illness



WHO SHOULD WORRY?

• Norovirus
 • Salmonella
 • Clostridium Perfringens
 • Campylobacter
 • Staphylococcus Aureus

"TOP 5" PATHOGENS

- Causes **half** of FBI outbreaks
- Very easily spread
- Hardy "shelf life"
- Low infectious dose
- Symptoms: Projectile vomiting, cramps, diarrhea
- Incubation: 12 to 48 Hours

NOROVIRUS


- Special cleaning protocols
- Foods implicated:
 - Fresh Produce
 - Shellfish

NOROVIRUS

- Foods Implicated:
 - Eggs
 - Raw or undercooked poultry or meat
 - Unpasteurized milk or dairy products and juice
 - Sprouts
 - Raw fruits and vegetables
- Symptoms: Diarrhea, Fever, Stomach Cramps, Vomiting
- Incubation: 12 to 72 Hours


SALMONELLA SPP.

- **Foods Implicated:**
 - Beef or Poultry
 - Gravies
 - Dried or precooked foods
- **Symptoms:** Sudden, short-term diarrhea and stomach cramps
- **Incubation:** 6 to 24 Hours




CLOSTRIDIUM PERFRINGENS

- **Foods Implicated:**
 - Contaminated water
 - Raw or undercooked poultry
 - Unpasteurized milk/dairy
- **Symptoms:** Diarrhea (often bloody), Stomach Cramps/Pain, Fever
- **Incubation:** 2 to 5 Days



CAMPYLOBACTER SPP.

- **Throat and Nasal Passages and Open Cuts**
- **Foods Implicated:**
 - Ready-To-Eat Foods
- **Symptoms:** Diarrhea, Nausea, Stomach Cramps, Vomiting
- **Incubation:** 30 Minutes to 6 Hours



STAPHYLOCOCCUS AUREUS

- **Other germs** don't cause high numbers of illness, **BUT** illnesses are more likely to lead to:
 - Hospitalization
 - Long-Term Health Problems
 - Death
- **Those germs include:**
 - Clostridium botulinum (botulism)
 - Listeria monocytogenes
 - Escherichia coli (E. coli - Shiga toxin or STEC)

BUT WAIT...

- Del Monte Fresh Produce Vegetable Trays
 - 237 Lab confirmed cases in 4 states
 - 7 people hospitalized
 - Investigation is ongoing
- McDonalds Salads
 - 90 cases
 - Five midwest states




Image Source: Del Monte / McDonalds


CYCLOSPORA (SUMMER 2018)

- Usual Suspects: Raw Foods of Animal Origin
 - Raw or undercooked meat and poultry
 - Raw or lightly cooked eggs
 - Unpasteurized (raw) milk
 - Raw shellfish



WHICH FOODS?

- Fresh Fruits and Vegetables
 - Sprouts
 - Cut Tomatoes
 - Sliced Melons
 - Leafy Greens (Washed and Chopped)
- Rice and grain products
- **Any Food** improperly handled in the field, during processing, while in transit, or other links in the food chain, including your



WHICH FOODS?


MY OWN STORY

BACILLUS CEREUS

PREVALENT IN CEREAL AND GRAINS

VERY SHORT INCUBATION PERIOD

UNREPORTED



Foods In Notable Outbreaks

| | |
|----------------------------|----------------------|
| Processed Luncheon Meats | Frozen Vegetables |
| Bagged Salad Greens | Ice Cream |
| Canned Green Beans | Seafood |
| Cantaloupes | Raw Shellfish |
| Raspberries | Soft Cheeses |
| Raw Milk | Shell Eggs |
| Flour | Beef |
| Sprouts | Pork |
| Tomatoes | Chicken |
| Cabbage | Turkey |
| Peppers | Crackers |
| | Peanuts |



- Unsafe Sources
- Time-Temperature Abuse (TDZ=41°F to 135°F)
- Poor Personal Hygiene
- Cross-Contamination
- Improper Cleaning and Sanitizing



RESULTS OF OUTBREAK INVESTIGATIONS

- Health and Hygiene of Staff
- Time and Temperature Controls
- Cleaning and Sanitizing Practices



FOODSERVICE ACTIONS

<https://www.fda.gov/downloads/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/UCM595140.pdf>

Food Code

U.S. Public Health Service




2017

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service • Food and Drug Administration
College Park, MD 20740

2017 FOOD CODE LINK

Ideal Characteristics of Foodservice Staff


- Enthusiastic
- People persons
- Organized
- Efficient
- Thrifty



GOOD INTENTIONS ARE NOT ENOUGH

Sound Familiar?

- *Tammy the waitress is in charge for the next two hours.*
- *We don't really need to follow the rules – here is a shortcut.*
- *Rules, schmules.*
- *They don't pay me to do that.*
- *That's not my job.*



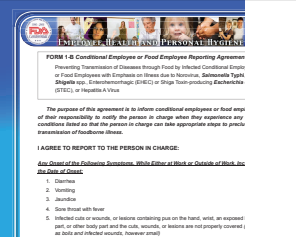
WHERE IS THE LEADERSHIP?

- Proper Handwashing
 - When, Where and How
- Correct Glove Use
- Worker Attire
- Symptoms of Illness



HEALTH AND HYGIENE

- Big Six Illnesses
 - Food worker diagnosed
 - Exposure (Household Member)
- Communicated?
 - Orientation
 - Employee Handbook
 - SOP



REPORTING REQUIREMENTS

135° AND ABOVE
Hot Foods Hot

DANGER ZONE:
2 Hours Max.
During Preparation

41° AND BELOW
Cold Foods Cold

Use batch cooking or just-in-time preparation

<https://www.foodhandler.com/food-safety-resources/>

TIME AND TEMPERATURE CONTROL

Cleaning and Sanitizing

- **Cleaning:** the removal of food or soil from the surface to which it clings.
- **Sanitizing:** a reduction of the microbial population on equipment, utensils or work surfaces.

Before cleaning and sanitizing

CLEANING AND SANITIZING VISUAL

Cleaning & Sanitizing Nuts and Bolts

- Rinse / Scrape / Soak
- Wash
- Rinse
- Sanitize
- Air Dry
- Avoid recontamination by hands

MAKE IT HAPPEN
RECIPE FOR SUCCESS

- Time
- Skills
- Space
- Attitude
- Knowledge
- Tools/Supplies

BEST PRACTICE

Recap

Control Risks at Each Step of Food Flow:

- Employees Health and Hygiene
- Temperature abuse
- Cleaning and Sanitizing

Goals for Today

- Identify two foods prepared in YOUR operation that can cause FBI.
- List two procedural changes that can be made in YOUR operation to reduce the risk of an FBI.

THANK YOU!
QUESTIONS?

CATHERINE STROHBEHN
PhD, RD, CP-FS

cstrohbehn@gmail.com

Adjunct Professor Emeritus
 Iowa State University Extension and Outreach

FoodHandler® **SafeBites**

JOIN US FOR FUTURE WEBINARS!
WEDNESDAYS @ 1 PM (CT)

REMAINING 2018 WEBINARS

| | |
|---|---|
| OCT 17 – Glove Do's and Don'ts Presented By: Jeannie Sneed, PhD, RD | Each are preapproved for 1 hour of Continuing Education Credit by the School Nutrition Association (SNA) and the Certifying Board for Dietary Managers (CBDM) |
| NOV 14 – Holiday Health and Food Safety Presented By: Catherine Strohbehn, Ph.D., R.D., CP-FS | |

FoodHandler® **SafeBites**

JOIN US FOR FUTURE WEBINARS!
WEDNESDAYS @ 1 PM (CT)


2019 WEBINARS

| | | |
|----------------|--|---|
| JAN 16 | Shiga-Toxin Producing Escherichia Coli | Each are preapproved for 1 hour of Continuing Education Credit by the School Nutrition Association (SNA) and the Certifying Board for Dietary Managers (CBDM) |
| MAR 27 | Workforce Development in Food Safety | |
| MAY 15 | Food Storage | |
| SEPT 11 | Communication | |
| OCT 16 | Controlling Costs | |
| NOV 13 | Preparing For An Emergency/Disaster | |

FoodHandler® **SafeBites**

COMPLETION CERTIFICATES

Certificates will be mailed out within 5-7 business days, following today's webinar.



For more information and to register:
WWW.FOODHANDLER.COM/EDUCATION-TRAINING



WEBINAR RESOURCE
INFORMATION & REGISTRATION

Videos

- Handwashing
- Why To Glove
- When To Glove
- How To Glove

Documents

- Daily Temperature Logs
- Temperature Chart For Safe Food
- Refrigerator Storage Chart
- Food Safety Doesn't Happen By Accident



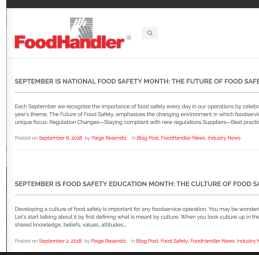
FOODHANDLER RESOURCES

Past Blogs

- Temperature Control
- Produce Safety
- The Culture of Food Safety

Upcoming Blogs

- Food Defense
- Politics of Food Safety
- Norovirus
- Employee Health



FOODHANDLER RESOURCES

Please Send Us Your Thoughts At:
FOODSAFETY@FOODHANDLER.COM



HOW DID WE DO?
FEEDBACK AND COMMENTS