

A Caterer's Guide to Meeting Food Safety Challenges

David Z. McSwane, HSD, REHS, CP-FS



NACE Annual Meeting

Reno, NV

July 25, 2011



Topics to Cover

- Increased incidence and impact of foodborne illness
- Changing demographics and consumption patterns in America
- Potential threat of intentional contamination of food.
- Regulating food safety from farm to table.
- Interventions off-premise caterers can use to protect food, customers and the bottom line.

Incidence and Impact of Foodborne Illness (FBI)

- FBI causes 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths each year.

Source: Centers for Disease Control and Prevention (CDC)



- Costs \$152 billion dollars annually in the form of medical expenses, lost productivity, loss of business, lawsuits, and loss of reputation

Source: Produce Safety Project, Pew Charitable Trusts



CDC Estimates of Illnesses, Hospitalizations, and Deaths due to Agents Transmitted Through Food¹

Hazard	Annual # of Cases	Annual # of Hospitalizations	Annual # of Deaths
31 known pathogens	9.4 million	55,961	1,351
Unspecified Agents	38.4 million	71,878	1,686
Total	47.8 million	127,839	3,037

Source: CDC - 2011

Top 8 Pathogens Causing Foodborne Illness in the U.S.

Pathogen	Estimated # of Illnesses	Percentage of Illnesses
Norovirus	5,461,731	58
<i>Salmonella</i> , non-typhoidal	1,027,561	11
<i>Clostridium perfringens</i>	965,958	10
<i>Campylobacter</i> spp.	845,024	9
<i>Staphylococcus aureus</i>	241,148	3
<i>Shigella</i> spp.	131,254	1.4
<i>Yersinia enterocolitica</i>	97,656	1.0
<i>Toxoplasma gondii</i>	86,686	1.0
Sub Total		94.4

(Source: CDC)

Recent, Large Outbreaks of Foodborne Illness

- 2,000 illnesses were caused by *Salmonella* in eggs produced at two Iowa farms in 2010.
 - More than 500 million eggs were recalled as a result of this outbreak.
- In 2010-11, 140 people from 26 states and the District of Columbia infected with *Salmonella* 14,[5],12:i:- in alfalfa sprouts.



Pathogens Linked to Different Food Products



- *Salmonella* has been found in peanut butter, alfalfa sprouts, and jalapeño peppers.



- *STEC* has been found in spinach, lettuce, raw cookie dough, Gouda cheese, and hazelnuts.



- Botulism in chili sauce and olives.

Salmonella Typhimurium in Peanut Butter

- In 2008-09, 714 persons from 49 states were infected with *Salmonella* Typhimurium in peanut products produced by Peanut Corporation of America.



- 9 deaths were reported.

- The outbreak was caused by contaminated peanut butter sold in bulk packages used in institutions and peanut butter and peanut paste used as ingredients in food products.



Salmonella Typhimurium in Peanut Butter

- More than 2,100 products in 17 categories were voluntarily recalled by more than 200 companies.



- The total cost of the recall exceeded \$1 Billion



E. Coli in Lettuce and Spinach

- In 2010, there were 26 confirmed and 7 probable cases of *Shiga toxin-producing E. coli* O145 in five states.
 - First reported outbreak in the U.S. due to STEC O145.
- In 2006, *E. coli* in fresh spinach infected at least 204 people in 26 states.
 - Half of those who became ill required hospitalization and 31 developed hemolytic-uremic syndrome (HUS) leading to three deaths.



Reports of Foodborne Outbreaks and Product Recalls Lower Consumer Confidence



- News travels fast through traditional and social media outlets.
- Facts can be distorted.
- Foodborne illness and product recalls hurt the entire food industry.

Changing Demographics

- In 1980, 15% of the U.S. population was 60 or older. By 2025, that number will be 25%.
- In 2007, 25% of the U.S. population was considered to be highly susceptible to foodborne illness (young, old, pregnant, and immunocompromised).
 - These individuals are at greatest risk of contracting foodborne illness and frequently experience the most severe symptoms and death.



Increased Incidence of Food Allergies

- Approximately 12 million Americans suffer from one or more food allergies
- 5-8% of children and 1-2% of adults.
- 90% of all allergies are caused by:



Milk
Egg



Wheat
Soybeans

Peanuts
Tree nuts



Fish
Crustacean Shellfish

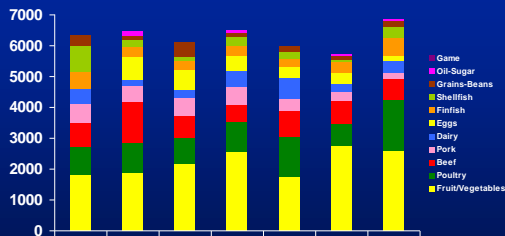


Changing Consumer Habits

- Americans consume more foods that are prepared outside the home – many are considered “ready-to-eat” foods.
- Per capita consumption of fresh fruits and vegetables increased 36% from 1981-2000.
- Consumption of exotic foods such as raw milk is on the rise.



Foods that Cause Illness



(Source: CDC)

Fresh and Fresh-cut Produce Safety

- “Approximately 1/3 of recent foodborne outbreaks were associated with fresh fruits and vegetables.”

- CDC

- “Fresh produce is responsible for more illnesses, by far, than any other commodity we regulate”

- FDA

Produce Outbreaks by Commodity - 1996-2006

- Sprouts 27
- Leafy Greens 24
- Tomatoes 12
- Cut melons 11
- Berries 6



Consumption of Raw Milk is on the Rise

- Raw milk comes from cows, sheep and goats.
 - It commonly contains pathogens such as *Salmonella*, *E. coli*, and *Listeria*.
- Raw milk poses a special risk for people in immunocompromised populations.



Risk Posed by Raw Milk

- In 2010, 38 people in 5 states became ill when they consumed Gouda cheese made from raw milk that was contaminated with *E. coli* O157:H7 bacteria.



- The CDC reported 45 outbreaks of foodborne illness from unpasteurized milk or cheese between 1998 and 2005.
 - These outbreaks caused 1007 illnesses, 104 hospitalizations, and 2 deaths.

Threat of Intentional Food Contamination

- Intentional contamination of food can result in human or animal illnesses and deaths as well as economic losses.
- Typically involves higher concentrations of contaminants and pathogens.
- Intentional outbreaks likely would be more rapid in onset and cause more severe symptoms in victims than a natural outbreak.

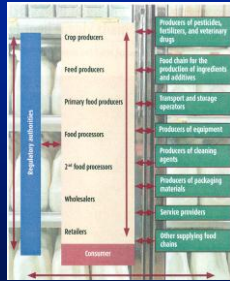
Agro-terrorism

- The deliberate introduction (as well as the threat or simulation of use) of an animal or plant disease with the goal of generating fear over the safety of food, causing economic losses, and undermining national stability.
- The qualities that have made the American food supply system efficient are the same qualities that make the system attractive to a terrorist attack.



Regulating Food Safety From Farm to Table

Food safety must occur at many levels from production to consumption both domestically and abroad.



Federal Oversight of Food Safety

- Federal oversight of food safety is fragmented among 15 agencies that administer more than 35 major laws related to food safety.
- The two primary agencies are the U.S. Department of Agriculture and the Food and Drug Administration.





USDA Duties



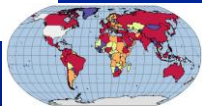
- USDA is responsible for meat, poultry and eggs.
- USDA's Food Safety Inspection Service plans to use a risk-based approach for meat and poultry plant inspections where inspectors will be deployed in accordance with a product, process, or food-safety program.
- All plants will remain subject to daily inspection, though such frequent inspections are likely to occur only where the threat of pathogens is high or where past visits have found unsafe practices.

FDA Duties

- FDA oversees a full range of domestic and imported products, including food and animal feed.
- FDA has jurisdiction over 80% of the nation's food supply, including seafood, dairy and produce.



Global Food Supply



The U.S. trades with over 150 countries and territories, with products coming into over 300 U.S. ports.

Image Source: U.S. Census Bureau, Foreign Trade Division (2009).

Imported Food

- Approximately 15% of the U.S. food supply by volume is imported.
- Approximately 60% of fresh fruits and vegetables consumed in the U.S. is imported.
- Imports of seafood rose from less than 50% in 1980 to more than 75% today.



Declining Resources

- In the 1970s, FDA's food safety arm claimed about 50% of the agency's budget and personnel. Today, it is about 25%.
- FDA identified 51,229 food facilities that were in business and subject to inspection between FY 2004 and 2008.
- During this period, FDA inspected an average of 24 percent of these facilities annually, but 56 percent were not inspected at all.

The Food Safety Modernization Act (FSMA) of 2010.

- First major overhaul of America's food safety system in nearly 75 years.
- Under the new law, FDA will have new prevention-focused tools and a clear regulatory framework to help make substantial improvements in our approach to food safety.



FSMA Changes the Way FDA Regulates Foods

- Puts prevention up front.
- FDA will establish science-based "minimum" standards for the safe production and harvesting of fruits and vegetables.
- Food facilities will implement a written preventive control plan, monitor the performance of controls, and specify the corrective actions taken when necessary.
- FDA has authority to order a recall of food.
- FDA can administratively detain food when there is "reason to believe" it is adulterated or misbranded.

Food Safety Modernization Act

- Ways the FSMA will make imported foods safer:
 - Importer accountability
 - Third party certification of foreign food facilities
 - Third-party certification of high risk foods
 - Additional resources for foreign inspections
 - Authority to refuse entry into the US of a food that has refused U.S. inspection.




Setting Priorities Under FSMA

- It is estimated that FDA will need \$5 billion to effectively implement the Food Safety Modernization Act.
 - FY 2011 budget provides \$1.37 billion.
- FDA will need to focus on areas of highest risk and priority such as
 - Foods that are most vulnerable,
 - Products imported from outside the US, and
 - Testing of food and feed.

Good Agricultural Practices (GAPs) Reduce Risks of Microbial Contamination

- In fields or orchards 
- During harvesting and transport 
- During processing or packing 
- In distribution and marketing 

GAPs to Reduce Risk in Fields and Orchards

Pre-plant, Production, Harvest & Post-Harvest

- Irrigation and Wash Water Sources
- Manure Source, Use, and Handling
- Employee Training and Hygiene
- Farm and Equipment Sanitation



GAPs in Packing House Sanitation

- Proper sorting and culling of produce.
- Detectable Free Chlorine in Wash Waters.
- Enforce Good Worker Hygiene.
- Exclude all animals from Packing Shed, especially insects, birds and rodents.
- Clean and Sanitize Equipment.



Good Manufacturing Practices (GMPs)

- GMPs are requirements that must be performed during processing to ensure the production of safe and wholesome food.
- Prescribed requirements for:
 - Personnel
 - Building and facilities
 - Equipment and utensils
 - Production and process controls



GMPs: Personnel

- Knowing how and when to wash hands
- Use of clean uniforms
- Proper use of hair and beard restraints
- Policy on jewelry
- Policy on chewing tobacco, smoking, and eating



GMPs: Building and Facilities

- Handwashing stations
- Storage of ingredients (refrigerated and on pallets)
- Separation of raw ingredients from processed foods
- Pest management program



GMPs: Equipment and Utensils

- Easily cleaned and sanitized
- Easily maintained
- Meet food grade standards



GMPs: Production and Process Controls

- Time/temperature control charts
- Records on food ingredients
- Lot identification and coding
- Product weight controls



Good Retail Practices (GRPs)

- FDA recently concluded a 10-year *Foodborne Illness Risk Factor Study* to identify food safety risk factors (practices and employee behaviors) that require priority attention to prevent foodborne illness.²
- The original 1998 study provides a national “Baseline”.
 - Subsequent studies in 2003 and 2008 enable FDA to show trends and assess progress at managing risk factors.

Food Safety Risk Factors

- Food from unsafe sources
- Inadequate cooking
- Improper holding/time-temperature
- Contaminated equipment/Protection from contaminants.
- Poor personal hygiene
- Other – “Chemical hazards”

Food Safety Interventions for Off-Premise Caterers

Purchase food from approved sources that are routinely inspected and follow GAPs or GMPs.

Reputable suppliers will ensure products are:

- Delivered in vehicles that are clean and in good repair
- Maintained at safe temperatures if they are perishable and PHF/TCS
- Protected from damage and pests
- Loaded in a manner that separates food from non-food items.



Food Safety Interventions for Off-Premise Caterers

Adequate Cooking

- Makes food more palatable
- Decreases the risk of foodborne illness by destroying pathogens
- Is a relationship between time and temperature
- Must be accurately measured.



Food Safety Interventions for Off-Premise Caterers

Proper Holding Time and Temperature

- Maintain proper time and temperature for PHF/TCS foods throughout preparation, transportation, storage and service.
- Keep foods out of the temperature danger zone (TDZ) [41°- 135°F (5°- 60°C)].
- Pass foods through the TDZ as quickly as possible when heating and cooling.
- Use time as a public health control



Food Safety Interventions for Off-Premise Caterers

Prevent contamination and cross contamination of food and food-contact surfaces.


- Clean and sanitize all food contact surfaces before use, between use, and as needed
- Protection food from contamination
- Separate raw animal foods from ready-to-eat foods and other raw animal foods
- Prevent transfer of allergens



Food Safety Interventions for Off-Premise Caterers

Follow good personal hygiene practices

- Promote handwashing and no bare hand contact with food.
- Exclude ill workers
- Wear proper attire including hair restraints
- Train employees and enforce a good personal hygiene program



Food Safety Interventions for Off-Premise Caterers

Chemical Hazards

- Ensure that chemicals are clearly labeled
- Keep all sanitizers, pesticides and other chemicals separate from food
- Use chemicals only as directed by the manufacturer for the intended use
- Do not mix any chemical with another chemical

Additional Interventions for Off-Premise Caterers

- Potable water supply



- Pest control, and



- Waste management



Implement Monitoring Procedures

Before the event

During the event

Item	Yes	No	Comments
1. Are all food handlers wearing clean, light-colored clothing and aprons?			
2. Are all food handlers wearing hairnets or caps?			
3. Are all food handlers wearing gloves when handling food?			
4. Are all food handlers wearing masks when handling food?			
5. Are all food handlers wearing clean shoes and socks?			
6. Are all food handlers wearing clean, light-colored clothing and aprons?			
7. Are all food handlers wearing hairnets or caps?			
8. Are all food handlers wearing gloves when handling food?			
9. Are all food handlers wearing masks when handling food?			
10. Are all food handlers wearing clean shoes and socks?			
11. Are all food handlers wearing clean, light-colored clothing and aprons?			
12. Are all food handlers wearing hairnets or caps?			
13. Are all food handlers wearing gloves when handling food?			
14. Are all food handlers wearing masks when handling food?			
15. Are all food handlers wearing clean shoes and socks?			
16. Are all food handlers wearing clean, light-colored clothing and aprons?			
17. Are all food handlers wearing hairnets or caps?			
18. Are all food handlers wearing gloves when handling food?			
19. Are all food handlers wearing masks when handling food?			
20. Are all food handlers wearing clean shoes and socks?			

Item	Yes	No	Comments
1. Are all food handlers wearing clean, light-colored clothing and aprons?			
2. Are all food handlers wearing hairnets or caps?			
3. Are all food handlers wearing gloves when handling food?			
4. Are all food handlers wearing masks when handling food?			
5. Are all food handlers wearing clean shoes and socks?			
6. Are all food handlers wearing clean, light-colored clothing and aprons?			
7. Are all food handlers wearing hairnets or caps?			
8. Are all food handlers wearing gloves when handling food?			
9. Are all food handlers wearing masks when handling food?			
10. Are all food handlers wearing clean shoes and socks?			
11. Are all food handlers wearing clean, light-colored clothing and aprons?			
12. Are all food handlers wearing hairnets or caps?			
13. Are all food handlers wearing gloves when handling food?			
14. Are all food handlers wearing masks when handling food?			
15. Are all food handlers wearing clean shoes and socks?			
16. Are all food handlers wearing clean, light-colored clothing and aprons?			
17. Are all food handlers wearing hairnets or caps?			
18. Are all food handlers wearing gloves when handling food?			
19. Are all food handlers wearing masks when handling food?			
20. Are all food handlers wearing clean shoes and socks?			

Education is Important

- FDA's Risk Factor study revealed a correlation between improved control of risk factors and the presence of a Certified Food Protection Manger in many facilities.
- In addition, the study reports that establishments with certified food safety managers are less likely to be involved in foodborne disease outbreaks.



Questions?



Endnotes

1. Centers for Disease Control and Prevention. *CDC Estimates of Foodborne Illness in the United States* at http://www.cdc.gov/foodborneburden/PDFs/FACTSHEET_A_FINDINGS.pdf
2. U.S. Food and Drug Administration. *Retail Food Risk Factor Studies*. 2010. <http://www.fda.gov/Food/FoodSafety/RetailFoodProtection/FoodborneIllnessandRiskFactorReduction/RetailFoodRiskFactorStudies/default.htm>
