

The Food Safety System In North Carolina: Who's Who in the Zoo?

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Objectives

- Identify roles and responsibilities of agencies involved in the national food safety system.
- Recognize the vital role of local health department programs in preventing foodborne disease in North Carolina.
- Demonstrate effective coordination of effort by multiple agencies in a common single response.



Foodborne Disease Prevention: Many Agencies Sharing a Common Goal

- Foodborne diseases are common; 76 million cases occur each year in the U.S.
- Foodborne and diarrheal diseases can be devastating: dehydration, kidney failure, mortality among immunocompromised, and fetal death



Some recent large multi-state outbreaks of foodborne infections 2006-2009

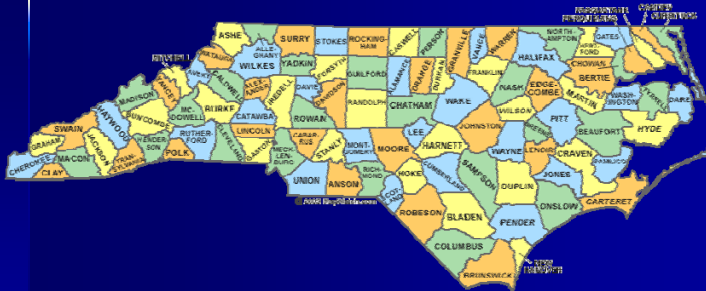
2006 – *E. coli* O157 and bagged spinach
2006 – *E. coli* O157 and shredded lettuce (restaurant chain A)
2006 – *E. coli* O157 and shredded lettuce (restaurant chain B)
2006 – Botulism and commercial pasteurized carrot juice
2006 – *Salmonella* and fresh tomatoes
2007 - *E. coli* O157 and frozen pizza
2007 - *Salmonella* and peanut butter
2007 - *Salmonella* and a vegetarian snack food
2007 - *Salmonella* and dry dog food
2007 - *Salmonella* and microwaveable pot pies
2007 - *Salmonella* and dry puffed rice breakfast cereal
2007 - *E. coli* O157 and ground beef
2007 – Botulism and multiple canned chili/sauce/stew products
2008 - *Salmonella* and cantaloupes
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2008 – *Salmonella* and multiple fresh produce items (peppers)
2009 – *Salmonella* and peanut butter containing foods
2009 – *Salmonella* and imported black and white pepper (spices)
2009 – *Salmonella* and alfalfa sprouts
2009 - *E. coli* O157 and raw cookie dough

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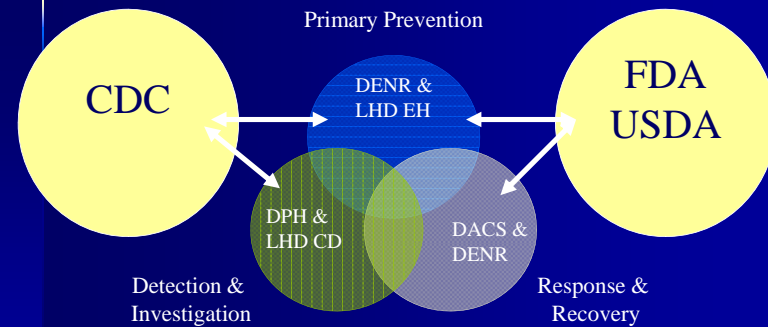
**New food vehicle in
12/20 outbreaks (60%)**

North Carolina



100 Counties
85 Local health departments or districts
Population Estimate = 9,380,844 (July 1, 2009)

Essential Elements



The Food Protection Program Model

Prevention—Build safety in from the start
Intervention—Risk-based inspections
Response—Rapid reaction and effective communication
Recovery—Restore public confidence

Food Safety

Food Defense

DENR + LHD Food Establishment Inspections

Number of Establishments: ~50,000

- | Retail Food | | Institutions | Other |
|---------------------|---------------------------------|---------------------------------------|----------------------------------|
| ■ Restaurants | • Temporary food establishments | • Hospital Food Service | • Child Care Center food service |
| ■ Food stands | • Meat markets | • Nursing home/rest home food service | • Lodging food service |
| ■ Mobile food units | • School cafeterias | • Local confinement food service | |
| ■ Pushcarts | • Elderly nutrition sites | • Prison food service | |

Inspection Methods

- Inspection procedures are based on the five Centers for Disease Control and Prevention food-borne illness risk factors
 - Unapproved sources of food
 - Poor employee hygiene
 - Contaminated equipment/cross contamination
 - Improper food temperatures
 - Improper final cooking temperatures

Food Establishment Inspections

Establishments earn a rating of

A—90 and above

B—80 to 89.5

C—70 to 79.5

Less than 70—Permit Revoked



NCDA&CS Food & Drug Protection Division

- Protecting the food supply, from farm to fork (state equivalent to FDA)
- Regulatory programs include
 - Food
 - Feed
 - Drugs
- Supported by our laboratory section

Food & Drug Protection Division

Manufacturing and Distribution

- **1,565 manufacturing and distributor firms subject to inspection**
 - Sandwich and prepared salad manufacturers
 - Bottled water, juice, and beverage
 - Seafood processors and retailers
 - Canneries (low acid and acidified)
 - Bakeries
 - Dairy manufacturers and farmsteads

Retail

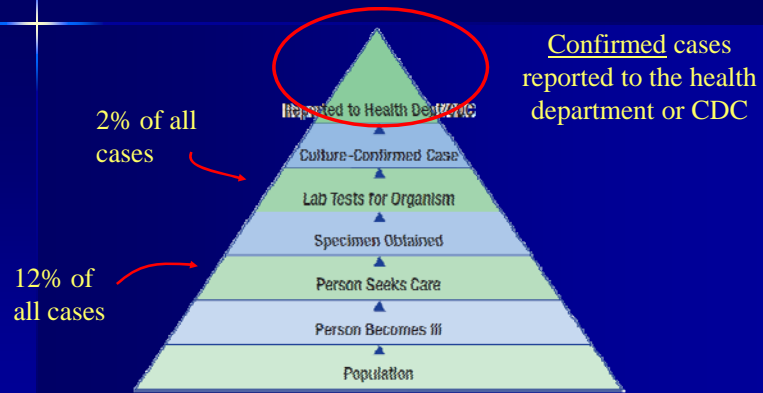
- **3,968 retail facilities under inspection**
- **Respond to consumer complaints**
 - **Over 400 in 2008**
- **Risk-based retail surveillance program**
 - **Based on recent recalls, outbreaks, import alerts, and consumer complaints**

Incidence of Foodborne Diseases

Every year in the U.S., foodborne diseases cause an estimated:

- 76 million illnesses (1999)
- 323,000 hospitalizations (1999)
- 5,000 deaths (1999)
- \$35 billion in medical costs and lost productivity (1997)
- 1,300 reported outbreaks (1998-2002)
- 6% of outbreaks are multi-jurisdictional

Burden of Foodborne Diseases*



*From Angulo, 1998

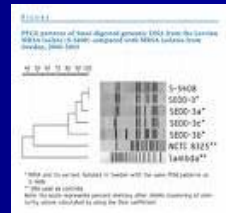
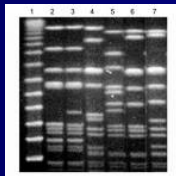


PulseNet



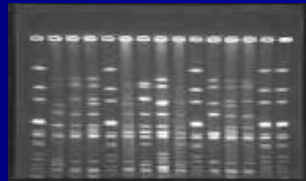


Pulsed Field Gel Electrophoresis (PFGE) Patterns



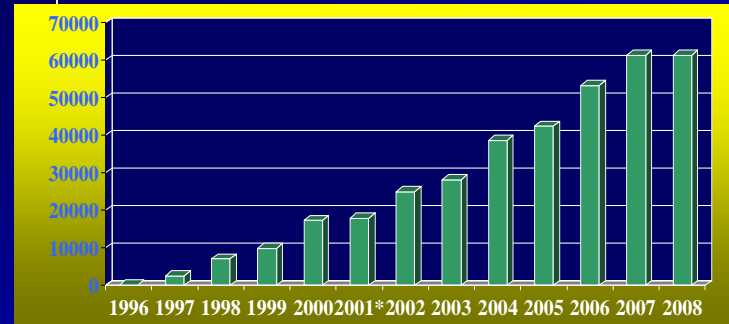
PFGE patterns submitted to PulseNet Databases

Year	Number of Patterns
1996	100
1997	200
1998	400
1999	600
2000	1000
2001*	1500
2002	2000
2003	2500
2004	3500
2005	4000
2006	5000
2007	6000
2008	6000



PulseNet Activity, 1996-2008

PFGE patterns submitted to PulseNet Databases

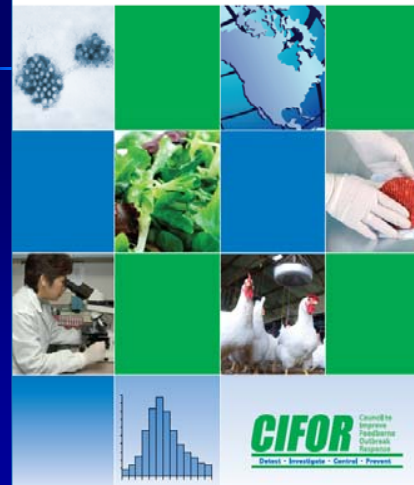




Information Sharing is a Global Opportunity

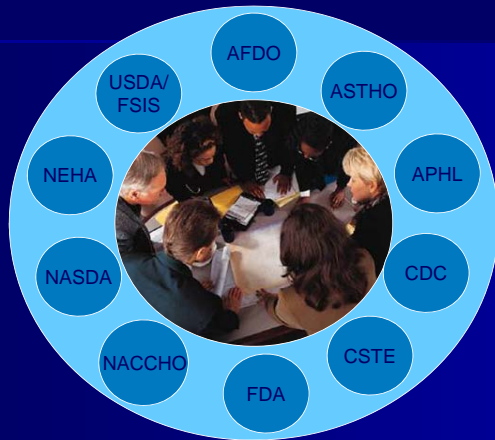


GUIDELINES FOR FOODBORNE DISEASE OUTBREAK RESPONSE



The CIFOR Guidelines

Council to Improve Foodborne Outbreak Response (CIFOR)



CIFOR Guidelines

- Description of approach to outbreaks with chapters on planning and preparation, detection, investigation, and control
- Background information and rationale
- Recommended activities
- Information on key agencies and organizations
- Chapter on performance indicators

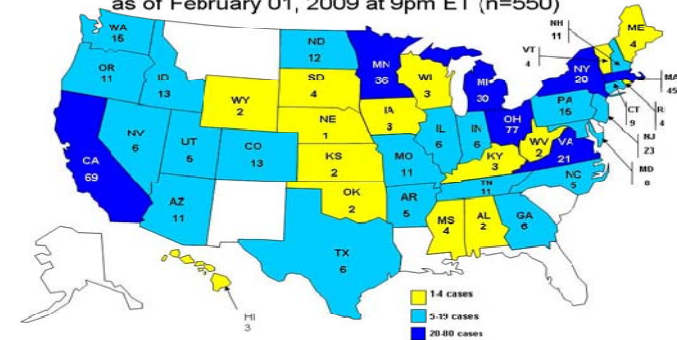


North Carolina's Response to the PCA Peanut Butter Incident



Salmonella Typhimurium 2009 Associated with PCA Peanut Products

Cases infected with the outbreak strain of *Salmonella* Typhimurium, United States, by state, as of February 01, 2009 at 9pm ET (n=550)



Timeline

9/08/08	Earliest onset of illness, according to CDC
11/10/08	CDC monitors illnesses in 12 states
1/10/09	MN identifies Salmonella in King Nut peanut butter 1 st recall by PCA initiated
1/13/09	FDA finds 12 instances of PCA shipping contaminated product
1/16/09	PCA expands peanut butter recall
1/18/09	PCA expands recall to include all peanut paste
1/28/09	Recall expands to include all peanut products made in GA firm
2/12/09	PCA in TX initiates recall of peanut products
2/20/09	PCA (TX and GA) informs customers to stop using all products
4/04/09	Last illness reported
5/12/09	Last recall initiated

Impact of PCA Peanut Butter Recall



■ Public health

- US: 9 deaths and 714 illnesses
- NC: 1 death and 6 illnesses



■ Consumer confidence eroded

- US: 2,833 food products recalled
- NC: 3 food and 2 animal feed manufacturers directly impacted

Impact of PCA Peanut Butter Recall

- Economic impact
 - US: Estimated \$1 BILLION impact
 - US: 20% decline in peanut butter consumption in January
 - NC: 23% decline in peanuts planted
 - NC: Substantial number of employees laid-off



Incident Identification

- Traceback investigation
 - FDA
 - NCDA&CS
- Major snack manufacturer receiver of PCA peanut paste
- Four additional firms directly impacted

Containment

- Within the affected major snack foods manufacturer
 - Halt production
 - Obtain environmental baseline
 - In-line and finished product testing
 - Witness disposal



DENR Response Actions

- Coordinated response efforts with agency partners
- Coordinated & conducted effectiveness checks of regulated facilities
- Disseminated information
 - Developed press releases & public information boiler plates for LHDs

DENR Effectiveness Checks

- Targeted Facilities:
 - Nursing/Rest Homes
 - School Cafeterias
 - Confinement Food Service Facilities
 - Hospital Food Service Facilities
 - Child Care Centers



Decontamination

- Firm developed decontamination and restoration plan
- Approved and confirmed by regulatory agencies
 - Physical verification of cleaning and sanitation
 - Auditing of procedures and records
 - Environmental and finished product sampling

Summary

- A safe secure food supply requires an effective partnership comprised of industry, and local, state, and federal agencies.
- Demonstrates the power of public health.

Conclusion

- Foodborne Disease Prevention in North Carolina requires a collaborative response.
- Multiple Agencies (Federal, State and Local).
- Multiple disciplines (industry & agriculture, academia, regulatory officials, environmental health specialists, epidemiologists, laboratorians).

Acknowledgements

Thank you to the following people for sharing slides and information
For this presentation:

Centers for Disease Control and Prevention, Atlanta GA
Aaron Fleischauer, Ph.D., MPH
Aron Hall, DVM, MPH
Robert Tauxe, MD, MPH

North Carolina Division of Public Health, Raleigh NC
Kathy Dail, RN, BSN, MED

