

# Food Safety Systems & Outbreak Response

John Archer, Epidemiologist  
Communicable Disease Epidemiology Section  
Bureau of Communicable Diseases  
Wisconsin Division of Public Health

“What triggers outbreak investigations?”

# Definitions

- **Surveillance:** The systematic collection, analysis, interpretation and dissemination of data for public health action
- **Foodborne Disease Surveillance:** Routine monitoring of enteric disease in a population, for which food may be involved.

# “Triggers”

- Consumer or community complaints (e.g., restaurants, food items, weddings, travel...)
- Public health disease surveillance
- Laboratory based surveillance
- Recall notifications

# Traditional Types of Public Health Surveillance

1. Passive Surveillance
2. Active Surveillance
3. Syndromic Surveillance

# Types of PH Surveillance - Passive

Traditional surveillance is “passive”. The health department waits for the disease report to arrive from physicians, laboratories or others required to report these diseases to public health.

# Types of PH Surveillance - Active

The health department solicits disease reports from physicians, laboratories or others required to report these diseases to public health.

This type of surveillance is implemented during outbreak situations.

# Types of PH Surveillance – Syndromic Surveillance

This type of surveillance generally involves the systematic gathering of data on non-specific health indicators that may reflect an increase in disease occurrence (e.g., sales of Immodium or toilet paper in a community).

# Laboratory Based Surveillance

- Bacterial isolation and identifications (including biotyping, serotyping, etc.)
- Pulsed-Field Gel Electrophoresis (PFGE) comparing local “clusters” and linking states to PulseNet web board.

# Why investigate outbreaks?

- Need to address public concern
- Outbreak may be ongoing
- Results may provide opportunity to learn more about known diseases or describe new diseases
- Opportunity to evaluate existing prevention strategies or control measures
- Results of the investigation may lead to new strategies or legislation for preventing future outbreaks

# Interagency Cooperation

State and federal interactions during outbreaks

**State:** Continual interaction between DATCP-BLS, DOC, DPI

**Federal:** CDC (Conference calls, PFGE, eFORS), USDA, FDA

# Importance of DATCP/BLS to Public Health in Wisconsin

- Isolation of pathogens that help to define or confirm sources of outbreaks
- Isolation of pathogens that aid in tracebacks and reduction of additional cases
- Isolation of pathogens help to define unknown potential sources of outbreaks through routine screening of food items

# Examples involving Nationwide outbreaks

- 2007: 1<sup>st</sup> isolate of *Salmonella* in U.S. during the nationwide pot pie outbreak
- 2007: Sam's Club *E. coli* O157 isolates from ground beef
- 2006: Isolation of *E. coli* O157:H7 during the nationwide spinach outbreak
- 2001: First state to isolate *Salmonella* leading to a nationwide alfalfa sprout outbreak

# Wisconsin Foodborne Outbreaks 1998-2007

# Etiologic Agents of FBOs 1998-2007 (n = 260)

Bacterial = 105

Chemical = 5

Viral = 129

Unknown = 21

# Morbidity & Mortality of FBOs

(1998-2007)

<u>Agent</u>	<u>Ill</u>	<u>Hosp</u>	<u>Death</u>
• Bacterial	3,172	230	4
• Chemical	100	17	0
• Viral	3,409	46	0
• Unknown	<u>451</u>	<u>3</u>	<u>0</u>
Total	7,132	296	4

# Bacterial Etiologic Agents

*Salmonella* sp. = 43

*Clostridium perfringens* = 24

*E. coli* O157:H7 = 14

*Campylobacter* = 10

*Staphylococcus aureus* = 5

*Campylobacter* / *Salmonella* = 3

*Shigella* sp. = 2

*Bacillus cereus* = 1

STEC = 1

*Yersinia enterocolitica* = 1

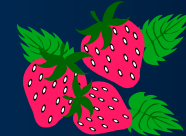
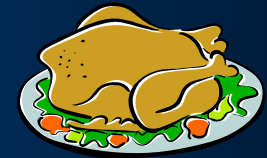
# Place of Food Preparation (n = 260)

- 153 (59%) restaurants, cafeterias, caterers, delicatessens
- 31 (12%) private homes
- 24 (9%) schools, camps, churches
- 47 (18%) “others”
- 5 (2%) Unknown

# Vehicles



- Dairy products (16)
- Meat, Poultry, Fish (n=61)
- Produce (n=10)
- Salads (n=9)
- Multiple (n=6)
- Miscellaneous (n=42)
- Unknown (n=116)



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*Any Questions?*