Overview of OutbreakNet

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The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention.
Estimated Annual Burden of Foodborne Disease

- 76 million illnesses
- 325,000 hospitalizations
- 5,000 deaths
- $23 billion in costs

Information Loop of Public Health Surveillance

Summaries, Interpretations, Recommendations

Public

Health Care Providers

Health Agencies

Analysis

Reports

CDC
CDC’s OutbreakNet Team

- Supports a national network of epidemiologists and other public health officials who investigate outbreaks of foodborne, waterborne, and other enteric illnesses in the United States
- Collaboration between CDC and
  - U.S. State and local health departments
  - U.S. Department of Agriculture (USDA)
  - U.S. Food and Drug Administration (FDA)
- Works in close partnership with PulseNet
  - The national molecular subtyping network for foodborne disease surveillance
- Helps ensure
  - Rapid, coordinated detection & response to multi-state enteric disease outbreaks
  - Promotes comprehensive outbreak surveillance
Objectives of OutbreakNet

- To detect and investigate outbreaks of foodborne, waterborne, and other enteric illnesses nationwide
- To establish both short-term interventions and long-term control measures to prevent similar outbreaks in the future
  - Consult on > 200 outbreaks a year
  - Field investigation of > 6 Epi-Aids a year
Foodborne Disease Outbreak Investigations

- Identified outbreaks account for small portion of foodborne illness
- Essential public health function
  - 1,247 outbreaks (25,691 illnesses) in 2006
- Goals of investigations
  - Prevent further illnesses
  - Prevent similar outbreaks in future
- Outbreak epidemiology changing
  - Centralization, industrialization, globalization
  - Number of possible outbreaks detected grown substantially
- Effective investigations key to reducing burden
  - Identify food vehicles and factors which lead to outbreaks
The Spectrum of Foodborne Disease Outbreaks

- **Old focal scenario**
  - Large number of cases in one jurisdiction
  - Detected by affected group
  - Local investigation
  - Local food handling error
  - Local solution

- **New dispersed scenario**
  - Small numbers of cases in many jurisdictions
  - Detected by lab-based subtype surveillance
  - Multistate/Country investigation
  - Industrial contamination event
  - Broad implications

These changes make coordination among multiple states and agencies, and countries even more important than before
# Foodborne outbreaks related to fresh produce, 1973-1997: Trends in burden

<table>
<thead>
<tr>
<th></th>
<th>1970’s</th>
<th>1990’s</th>
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<tbody>
<tr>
<td>Number of outbreaks/yr</td>
<td>2</td>
<td>16</td>
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<tr>
<td>Median cases/outbreak</td>
<td>21</td>
<td>43</td>
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<tr>
<td>% of OB of known vehicle</td>
<td>0.7%</td>
<td>6%</td>
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<tr>
<td>% of outbreak associated cases</td>
<td>0.6%</td>
<td>12%</td>
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Outbreak Surveillance

• Conducted via eFORS
  – Web-based reporting system designed to provide comprehensive national surveillance information for foodborne disease outbreaks
    • Reported by local and state health departments

• Goals:
  – Determine risk factors for illness
  – Determine burden of foodborne illness
  – Identify and describe trends in etiologies and food vehicles
Foodborne disease outbreaks reported per year, 1973–2006

- 500 outbreaks per year
- 1,250 outbreaks per year

Enhanced Surveillance
Status of PulseNet Pattern Submissions and Cluster Investigations by Year, 1996 - 2007

- Isolates submitted to PulseNet
- Clusters identified in PulseNet
- Clusters followed up by Epi group

Year:
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007

Isolates submitted to PulseNet:
- 194
- 267
- 302
- 316
- 38
- 61
- 60
- 99
- 0

Clusters identified in PulseNet:
- 10,000
- 20,000
- 30,000
- 40,000
- 50,000
- 60,000
- 70,000

Clusters followed up by Epi group:
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
Thank you!