

Foodborne & Diarrheal Disease Surveillance and Response in North Carolina

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Learning Objectives

1. Name 2 reasons why prompt local public health investigation of foodborne diseases matters
2. Locate and use CIFOR Guidelines for foodborne disease investigations
3. Follow NC EDSS guidance for documenting foodborne disease investigations

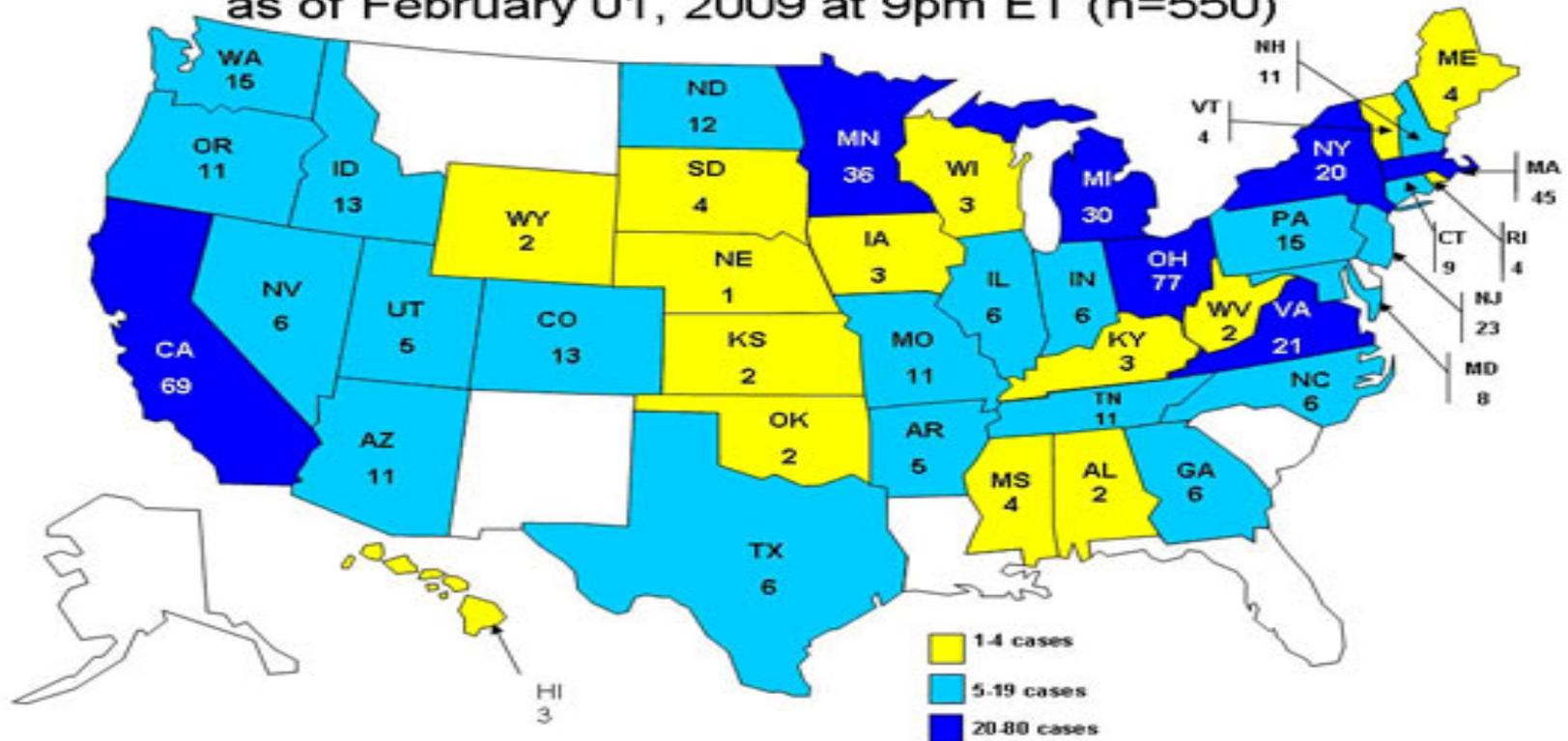
Foodborne Diseases Matter

- 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



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)



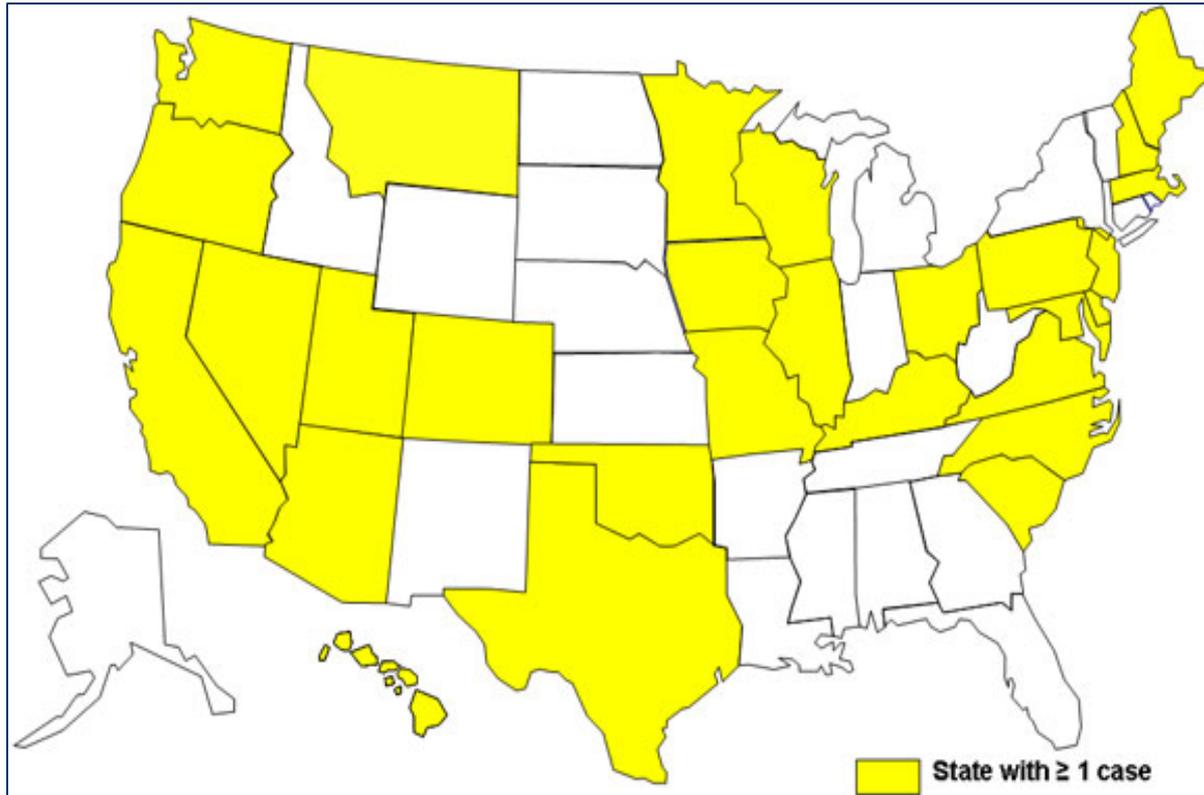
Impact of PCA Peanut Butter Recall

Economic Impact

- In United States
 - Estimated \$1 billion impact
 - 20% decline in peanut butter consumption in January
- In North Carolina
 - 23% decline in peanuts planted
 - Substantial number of employees laid-off

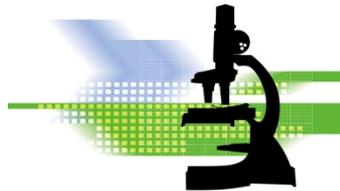


Persons Infected with Outbreak Strain of *E. coli* O157:H7 by State, United States, March 1 - June 18, 2009

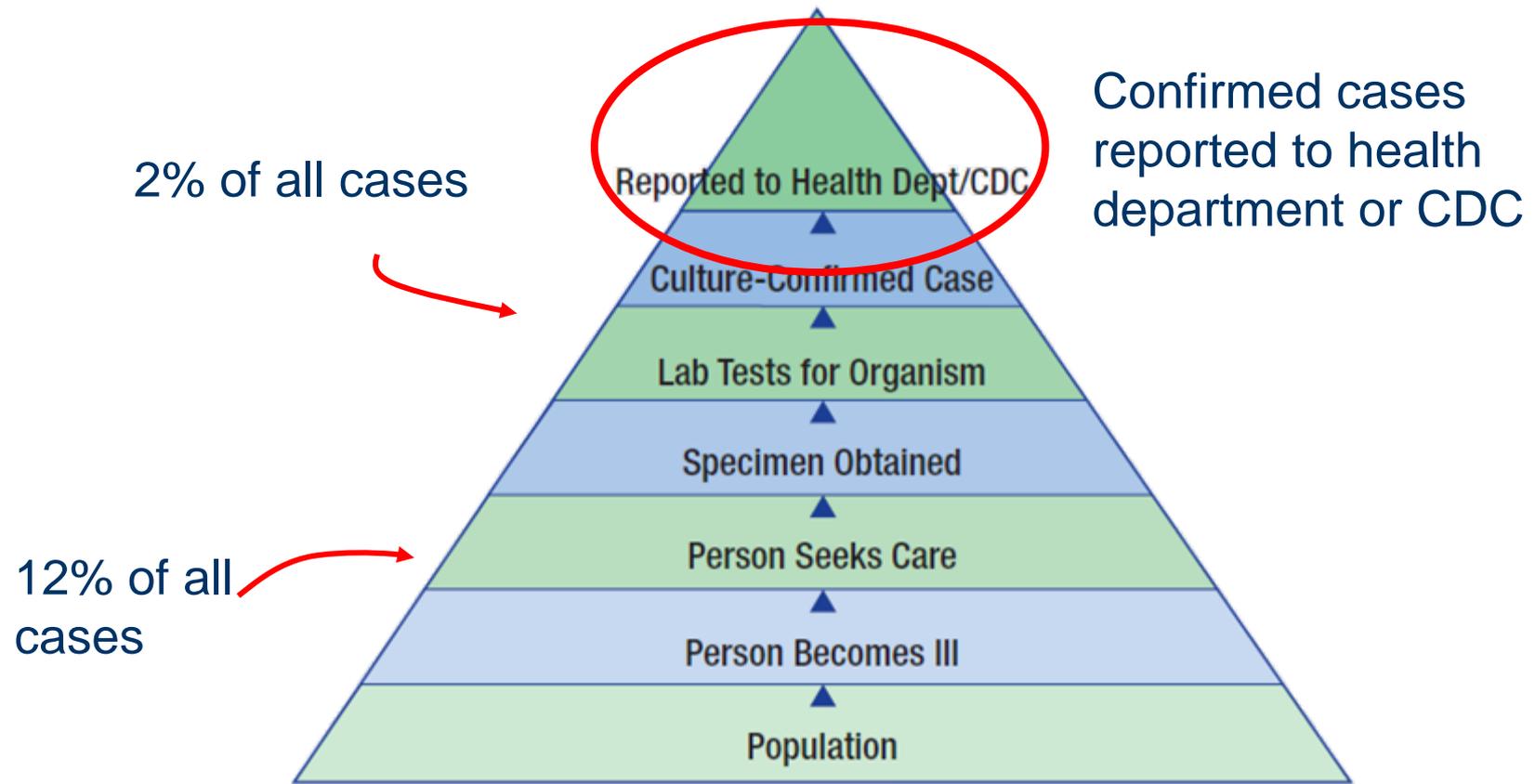


We Still Have a Lot to Learn

- 1,300+ foodborne outbreaks are reported to the CDC every year, on average
- 60% of recent high profile foodborne outbreak investigations found new pathogens or new food vehicles causing the outbreak



Burden of Foodborne Diseases



From Angulo et al, United States Department of Agriculture Report to Congress Food Safety and Inspection Service
United States Department of Agriculture Washington, D.C. March 1999

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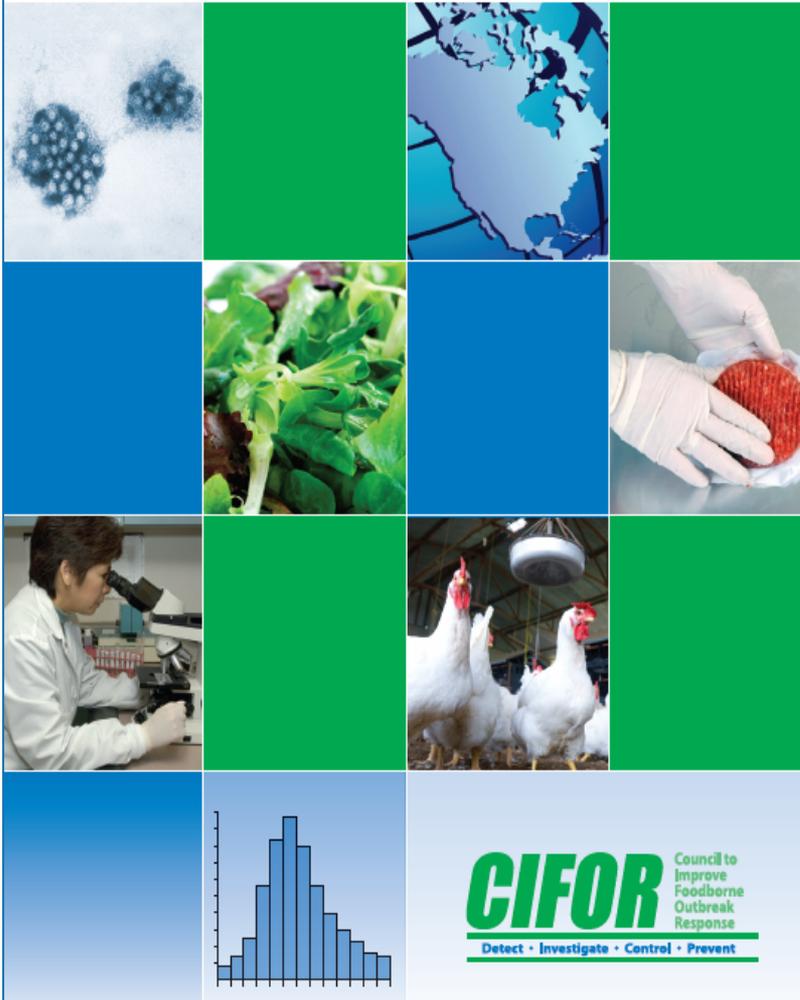
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GUIDELINES FOR FOODBORNE DISEASE OUTBREAK RESPONSE



CIFOR Guidelines

CIFOR Guidelines

- Tells what to do
- Explains the “why”
- Integrates lab, epi, and environmental health



Get Organized

- Follow the LHD Disease Investigation Steps in the NC Communicable Disease Manual
- Study APHA *Control of Communicable Diseases Manual*, 19th ed., pp A8-A15 plus the specific disease section
- Print and review reporting forms
- Call the Regional Communicable Disease Nurse Consultant or the Epidemiologist on Call (919-733-3419)

Investigating Reportable Disease Cases

- Is it reportable?
- Verify clinical information
- Interview patient / parent
 - Symptoms
 - Risk history
 - Control measures
- Document in NC EDSS
- Keep the case investigation form for 1 year



Collect Clinical Information

- Determine reported onset date
- Review symptom profile
- Was the patient hospitalized?
- Diagnosed by a physician?
- Read admission/discharge summaries
- Look for evidence that helps establish a case definition



Salmonellosis (*Salmonella* spp.)

2005 CDC Case Definition

- **Clinical description**
 - An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea, and sometimes vomiting. Asymptomatic infections may occur, and the organism may cause extraintestinal infections.
- **Laboratory criteria for diagnosis**
 - Isolation of *Salmonella* from a clinical specimen.
- **Case classification**
 - *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.
 - *Confirmed*: a case that meets the laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

Laboratory Evidence



- Were samples taken?
- What are the results?
- Can samples be obtained?
- Consult with Communicable Disease Branch and/or the State Laboratory for Public Health **before** submitting samples to the state lab



Control Measures

- Implement control measures
- Restrictions to freedom of action or movement
 - Child with diarrhea excluded from child care
 - Food handler restricted from working while ill
- Attempt to identify source of exposure

Complete the Investigation

- Enter all required data elements in NC EDSS and submit the case to the state for review and approval
- Write brief report of outbreak and submit electronically in NC EDSS to the state within 30 Days



Conclusions

- The routine disease surveillance work done by communicable disease nurses is vital to detecting outbreaks and disease patterns
- Use the available resources
 - Online CD Manual Website
 - CIFOR Guidelines
- Consult with the Communicable Disease Branch - early and often @ 919-733-3419

Sources

- **Food-Related Illness and Death in the United States.** Paul S. Mead, et al. *Emerging Infectious Diseases* Vol. 5, No. 5 September–October 1999 pp. 607-625. Centers for Disease Control and Prevention, Atlanta, Georgia, USA
- **Guidelines for Foodborne Disease Outbreak Response.** Council to Improve Foodborne Outbreak Response (CIFOR). Atlanta, GA: Council of State and Territorial Epidemiologists, 2009.
- **Multistate Outbreak of *E. coli* O157:H7 Infections Linked to Eating Raw Refrigerated, Prepackaged Cookie Dough.** Morbidity and Mortality Weekly Report June 30 2009. Atlanta, GA. Centers for Disease Control and Prevention <http://www.cdc.gov/ecoli/2009/0630.html>
- **Multistate Outbreak of *Salmonella* Infections Associated with Peanut Butter and Peanut Butter--Containing Products --- United States, 2008—2009** Morbidity and Mortality Weekly Report February 6 2009. Atlanta, GA. Centers for Disease Control and Prevention <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5804a4.htm>

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