



# Understanding The Causes Of Foodborne Illness

## Environmental Health Specialists Network (EHS-Net)

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# Presentation Outline

- **Foodborne Disease Surveillance In The U.S.**
- **Background - Environmental Health Specialists Network**
- **Overview Of EHS-Net Studies**
- **How Can This Information Be Used?**

# Foodborne Outbreak Reporting System

- **U.S. Foodborne Disease Outbreaks Reported To CDC By State Epidemiologists**
- **Reported Through The Electronic Foodborne Outbreak Reporting System (eFORS)**
- **Outbreak Definition**

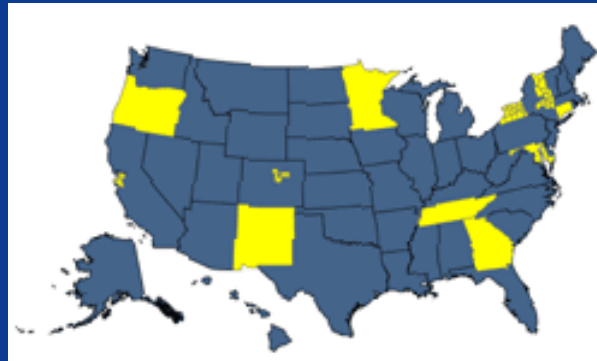
# Pulse Net



## Objectives:

- Detect Foodborne Disease Case Clusters By PFGE
- Real-Time Communication
- Early Identification Of Common Source Outbreaks
- Identify New Prevention Measures

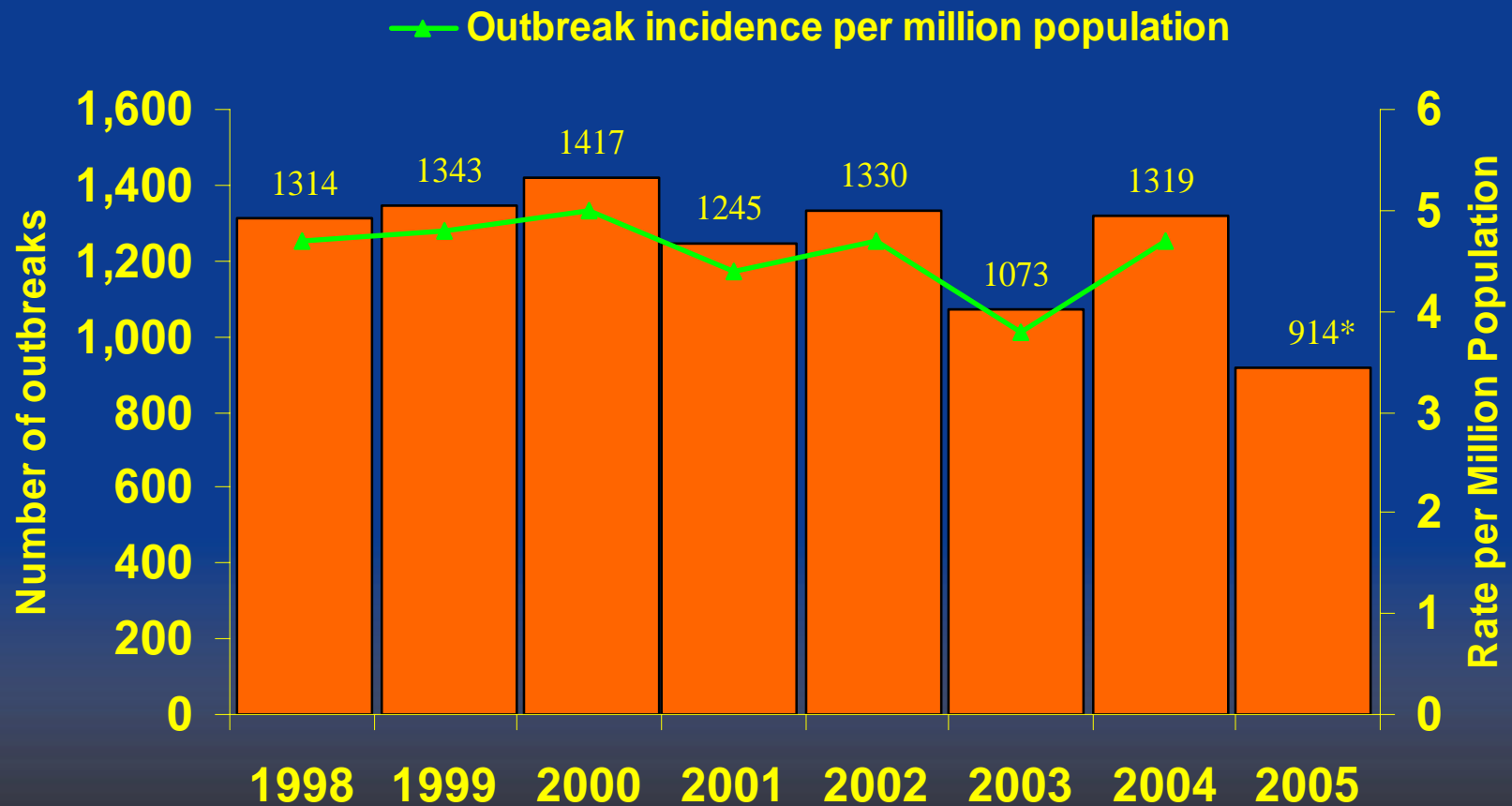
# FoodNet - Foodborne Diseases Active Surveillance Network



- Active Surveillance For Foodborne Diseases
- Related Epidemiologic Studies

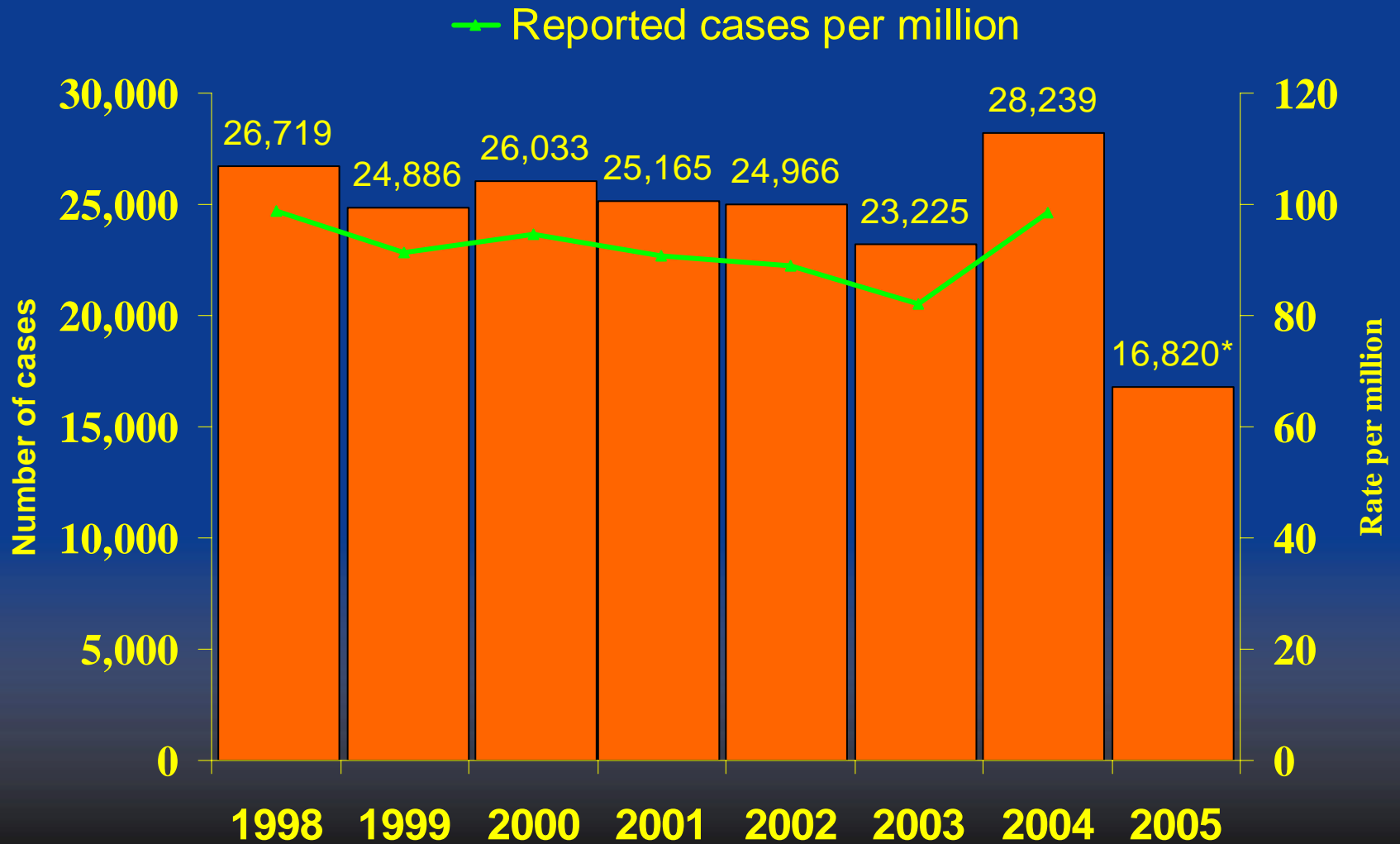
# What Do We Know From Our Surveillance System?

# Foodborne Disease Outbreaks, eFORS 1998-2005\*



\* Preliminary data, not all states have completed reporting; data subject to change.

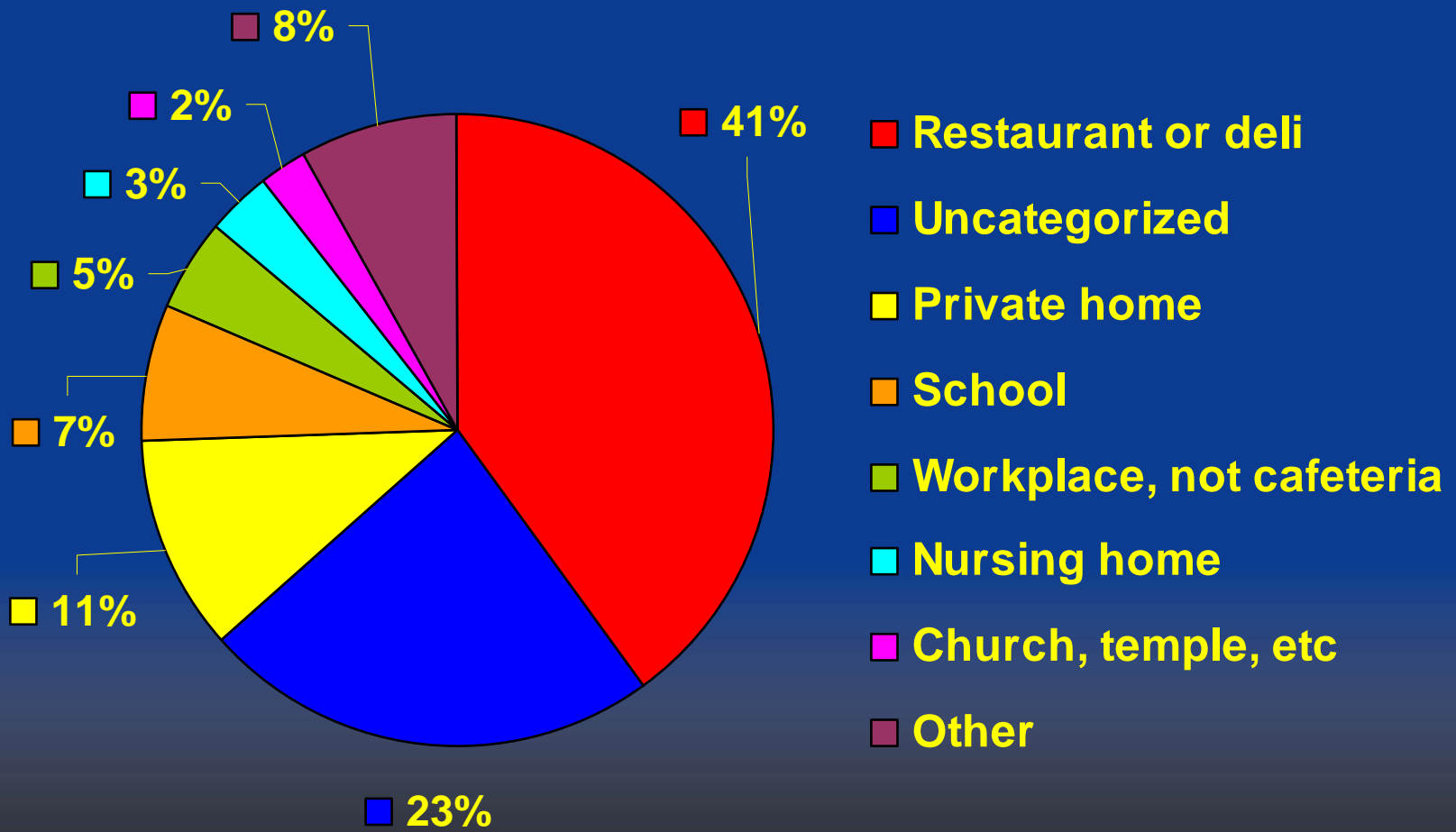
# Cases in Foodborne Disease Outbreaks, e FORS 1998-2005\*



\* Preliminary data, not all states have completed reporting; data subject to change.

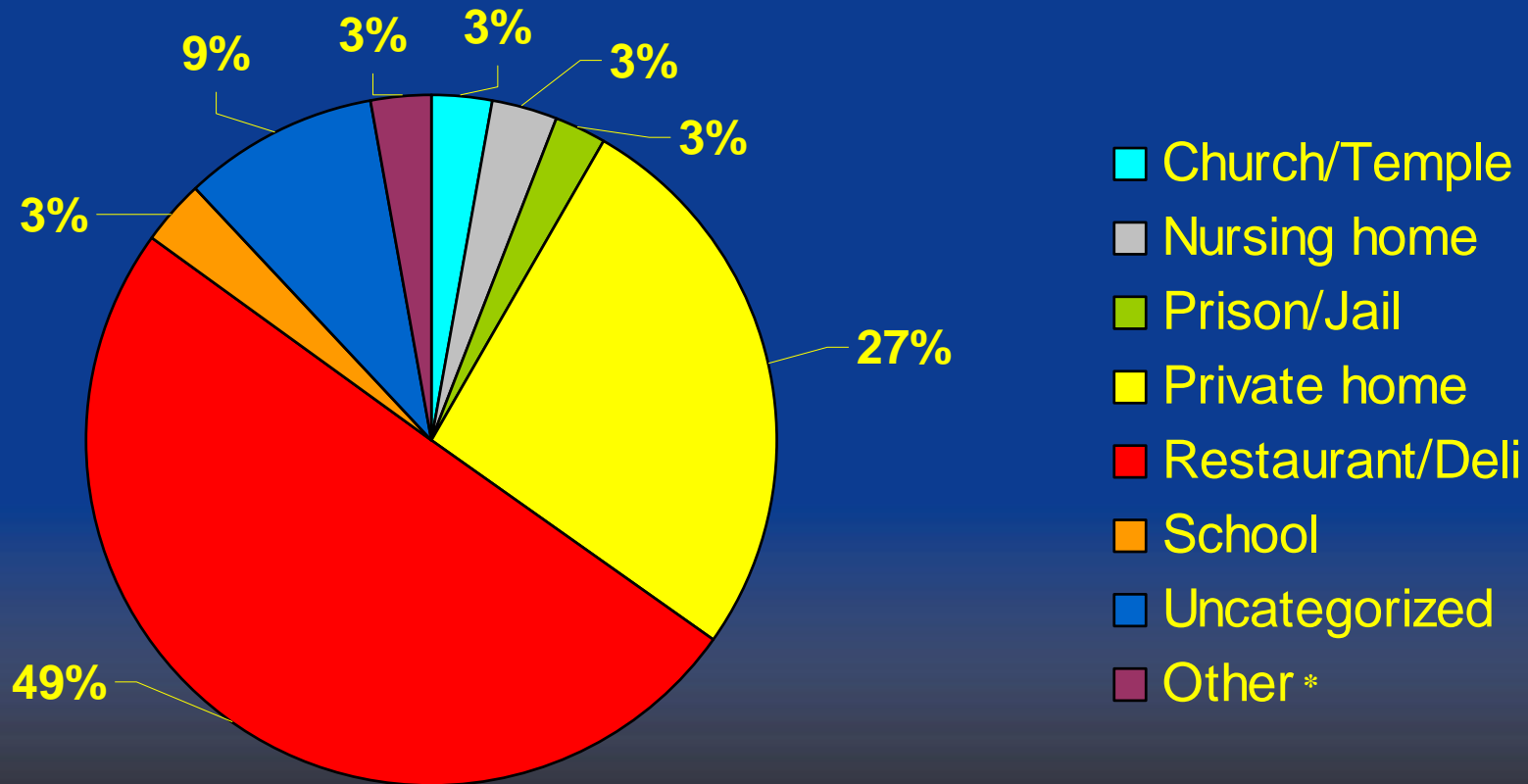


# Location of Food Consumption for Norovirus Outbreaks, 1998-2005<sup>1</sup>



<sup>1</sup> Preliminary data, not all states have completed reporting; data subject to change.

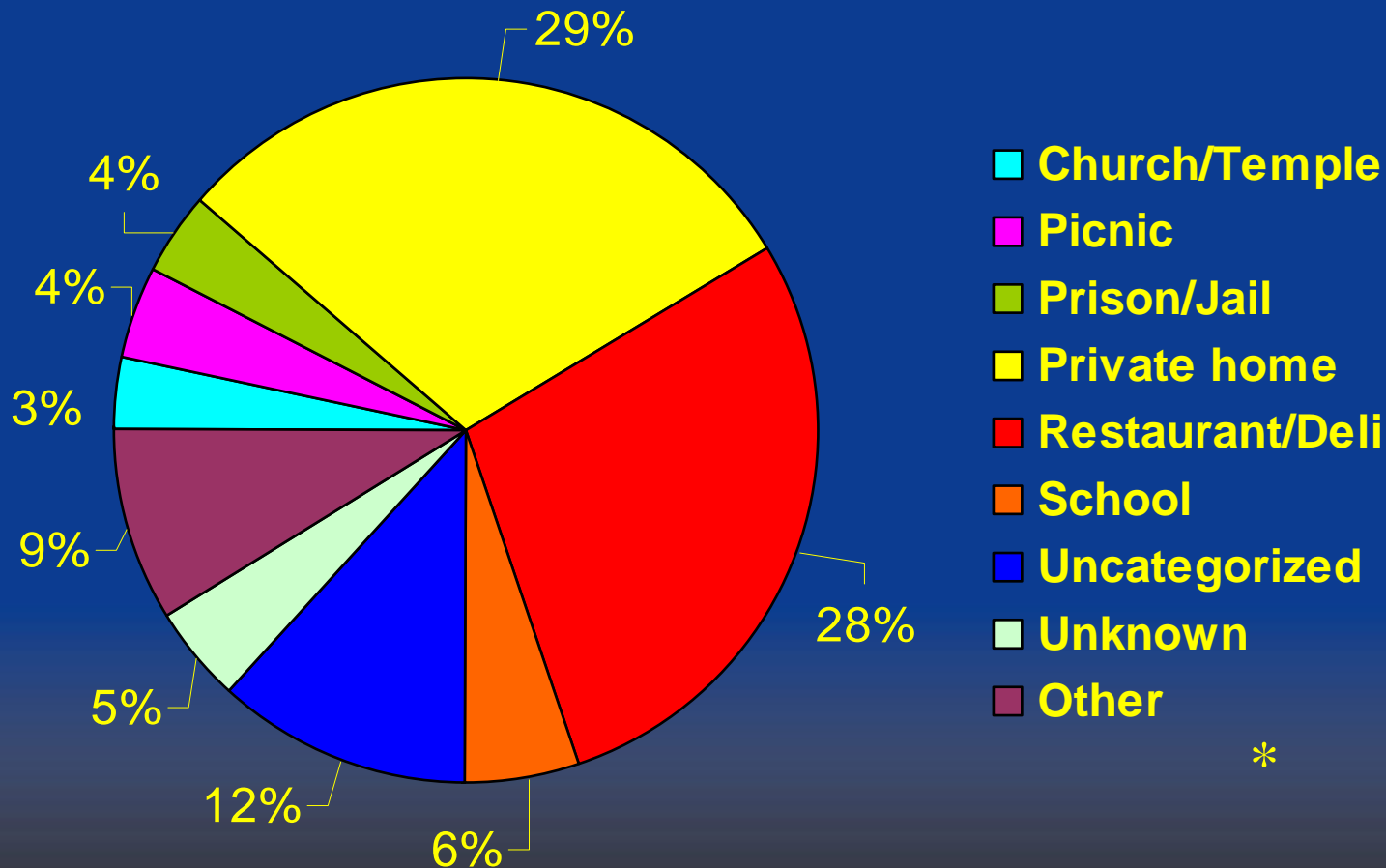
# Location of Food Consumption for SE Outbreaks, 1998-2005<sup>1</sup>



\* Other includes camp, day care, hospital, and workplace.

<sup>1</sup> Preliminary data, not all states have completed reporting; data subject to change.

# Location of Food Consumption for *E. coli* Enterohemorrhagic Outbreaks, 1998-2005<sup>1</sup>



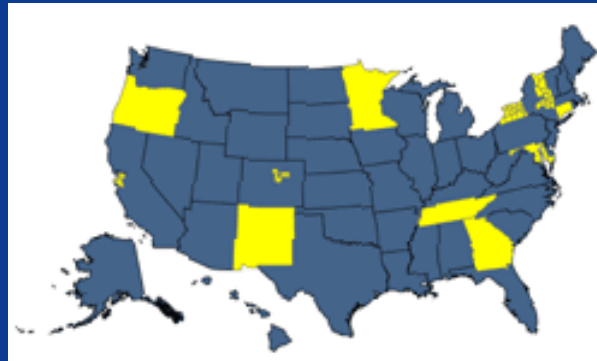
\* Other includes nursing home, day care, camp, grocery store, and workplace.

<sup>1</sup>Preliminary data, not all states have completed reporting; data subject to change.

# Summary

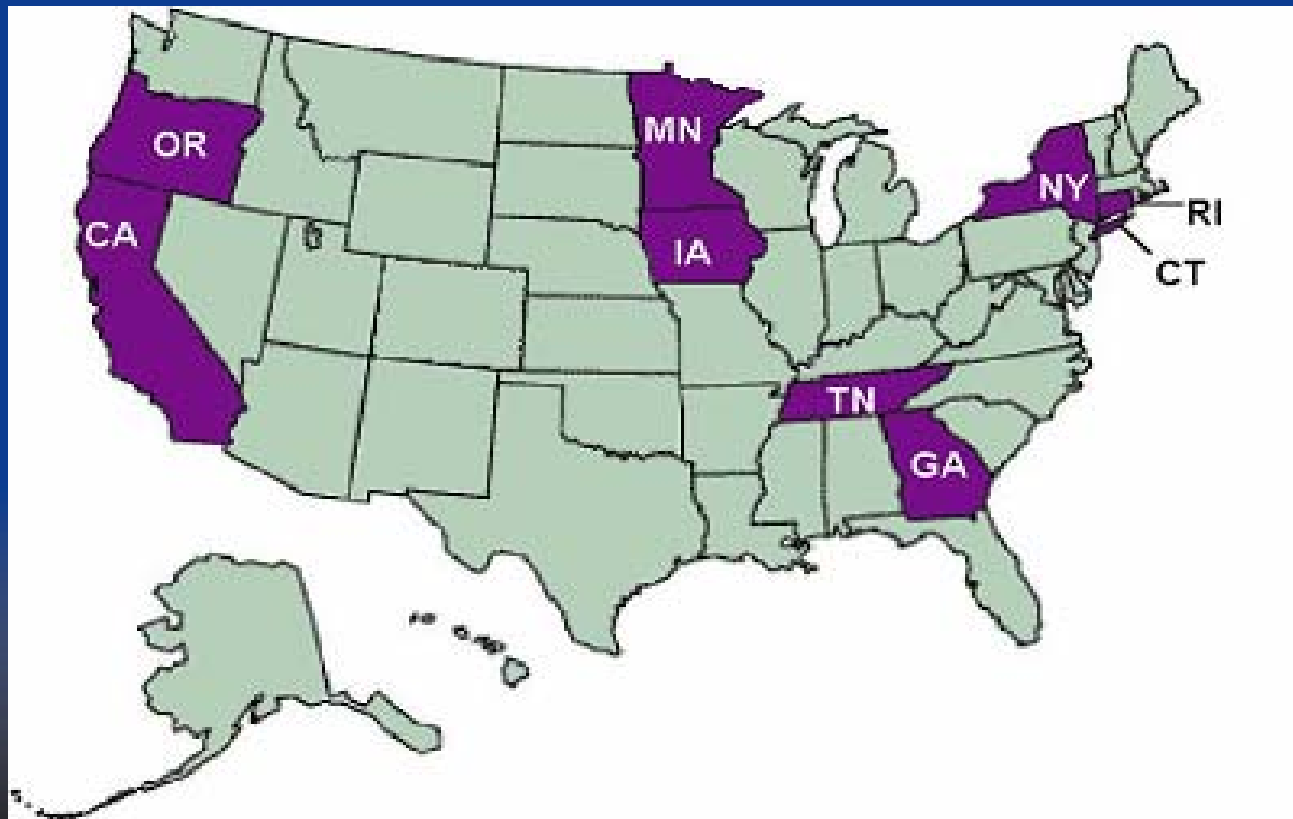
- No evidence of a decline of foodborne outbreaks reported
- The most frequent etiology is Norovirus followed by bacterial
- Most frequently reported bacterial etiologies are *Salmonella* Enteritidis and *E. coli* Enterohemorrhagic
- Restaurant and private home comprise over half of food consumption locations for viral and bacterial etiologies

# FoodNet - Foodborne Diseases Active Surveillance Network



- Case-Control Studies Of Sporadic Cases
- Risk Factor – Eating Outside Home

# Environmental Health Specialists Network EHS-Net



# EHS-Net Background Goals

- To identify environmental antecedents to illness and disease outbreaks
- To translate findings into improved prevention efforts using a systems approach
- To offer training opportunities to current and future environmental health specialists
- To strengthen collaboration among epidemiology, laboratory, and food protection programs

# **EHS-Net Studies**

## **An Overview**

**<http://www.cdc.gov/nceh/ehs/EHSNet/highlights.htm>**



# **EHS-Net Study Highlights**

- **Food Workers / Managers**
- **Foodborne Outbreak Investigations**
- **Environmental Health Specialists**
- **General Public**

# Food Workers / Managers

- ◆ 5% of food workers reported working while sick with vomiting or diarrhea.
- ◆ Hand washing only occurred in 27% of activities where hand washing was needed.
- ◆ There were 8.6 activities per hour per worker requiring a hand wash.

# Foodborne Outbreak Investigations

- Certified kitchen managers appear to be associated with a reduced risk for an outbreak.
- Certified kitchen managers, sick leave, reporting or restricting activities of ill workers – no impact on role of ill workers as outbreak contributing factor.

# Environmental Health Specialists

- Establishing A Relationship And Educating
- Don't Cite All Violations
- Some Do Not Believe Inspections Effective
- Half Not Involved With Outbreak Investigations
  - ◆ No Outbreaks
  - ◆ Not A Priority Of Jurisdiction
- Half Involved in Outbreak Investigations
  - ◆ 'Routine Inspection'
  - ◆ Pathogen Identification
  - ◆ Identifying Contributing Factors Not Described As Focus

# General Public

- **22% believed their recent gastrointestinal illness resulted from a meal eaten outside the home.**
- **Those who experience a mild illness more likely to attribute their illness to eating outside the home.**
- **People tend to use some of the same reasons for meal attribution as epidemiologists.**

# General Public

(continued)

- People have a misconception that foodborne illness occurs shortly (5 hours) after meal consumption.
- Only 19% of those with an ill meal companion reported their illness to a health department.

# How can this information be used?

## Improve implementation of safe practices:

- Certified kitchen managers
- All workers – policy implementation
- Hand washing – process engineering

# How can this information be used?

## Food safety program management:

- Certified kitchen managers - regulation
- Linking prevention measures with impact on the occurrence of outbreaks – it can be done?
- Inspection program – what is the point?
- Outbreak Investigations – To be or not to be involved?



# How can this information be used?

## Public Education:

- With focus on the appropriate use of illness timing in meal attribution.
- Information on when it is most critical to report illness to a health agency.



# Acknowledgements

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