

# Underreporting of Foodborne Illness: Strategies to Increase Awareness and Diagnosis

**Caroline Smith DeWaal**

**Center for Science in the Public Interest**

**2006 Food Safety Education Conference**

# Foodborne Disease Surveillance & Investigation in the U.S.

- **FoodNet** – active surveillance
- **PulseNet** – laboratory network that performs microbial sub-typing
- ***Outbreak Alert!*** – food attribution

## Foodborne Diseases Active Surveillance Network (FoodNet)

- **Active, laboratory-based surveillance within ten well-defined surveillance areas around the United States**
- **Monitor trends in foodborne diseases**
- **Conduct case-control studies**

# FoodNet (*cont.*)

## FoodNet Pathogens

*Campylobacter*

*Cyclospora*

*Cryptosporidium*

*Escherichia coli* O157:H7

*Listeria monocytogenes*

*Salmonella*

*Shigella*

*Vibrio*

*Yersinia enterocolitica*

- Approximately 15,000 laboratory-diagnosed cases, each year
- Data collected includes patient demographics, co-morbidities, hospital stay details, and laboratory results

# PulseNet USA

- **National database of pulsed-field gel electrophoresis (PFGE) patterns**
- **Enables outbreak cases and concurrent sporadic cases to be distinguished**
- **Does not include routine PFGE patterns from food and animal sources**

# PulseNet USA (*cont.*)

## PulseNet Pathogens

*Campylobacter jejuni*

*Cyclospora*

*Cryptosporidium*

*Escherichia coli* O157:H7

*Listeria monocytogenes*

*Salmonella*

*Shigella*

*Vibrio*

*Yersinia enterocolitica*

- The PulseNet database includes tens of thousands of PFGE patterns
- Labs at the national, state, and local levels have access to the database

# *Outbreak Alert!*

## Food Categories

Beef

Beverages

Breads & Bakery

Dairy

Eggs & Egg Dishes

Game

Luncheon/Other Meats

Multi-Ingredient Foods

Multiple Foods

Pork

Poultry

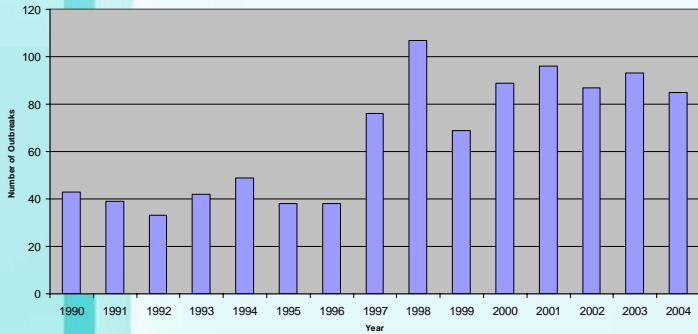
Produce

Seafood

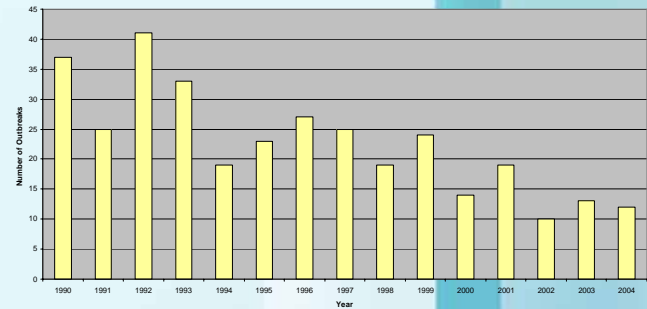
- **Outbreaks in the U.S. occurring between 1990-2004**
- **Contains almost 5,000 outbreaks including over 152,000 individual cases of foodborne illness**
- **Covers an unlimited number of pathogens**
- **A project managed and maintained by a private, non-profit, consumer advocacy group**

# Trends in Outbreak Reporting, 1990-2004

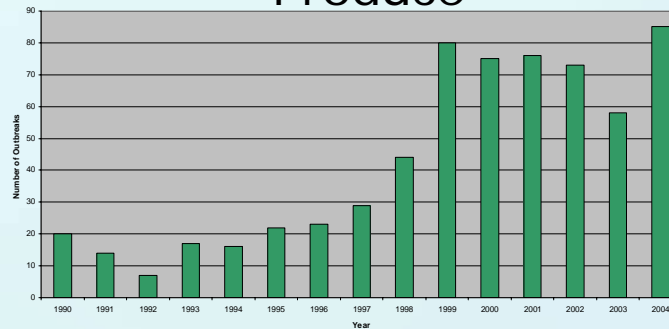
## Seafood



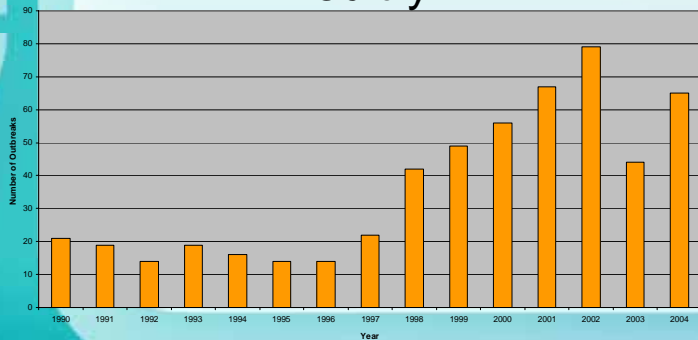
## Egg



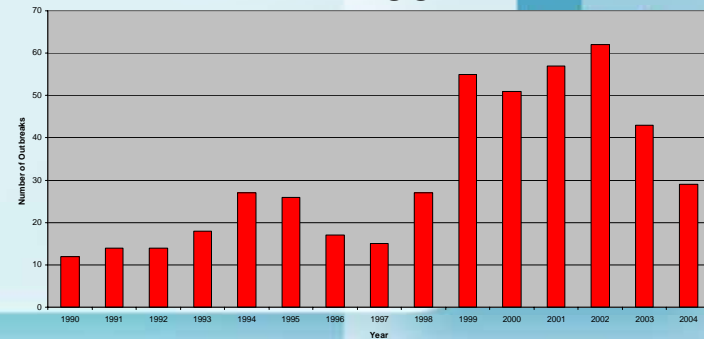
## Produce



## Poultry

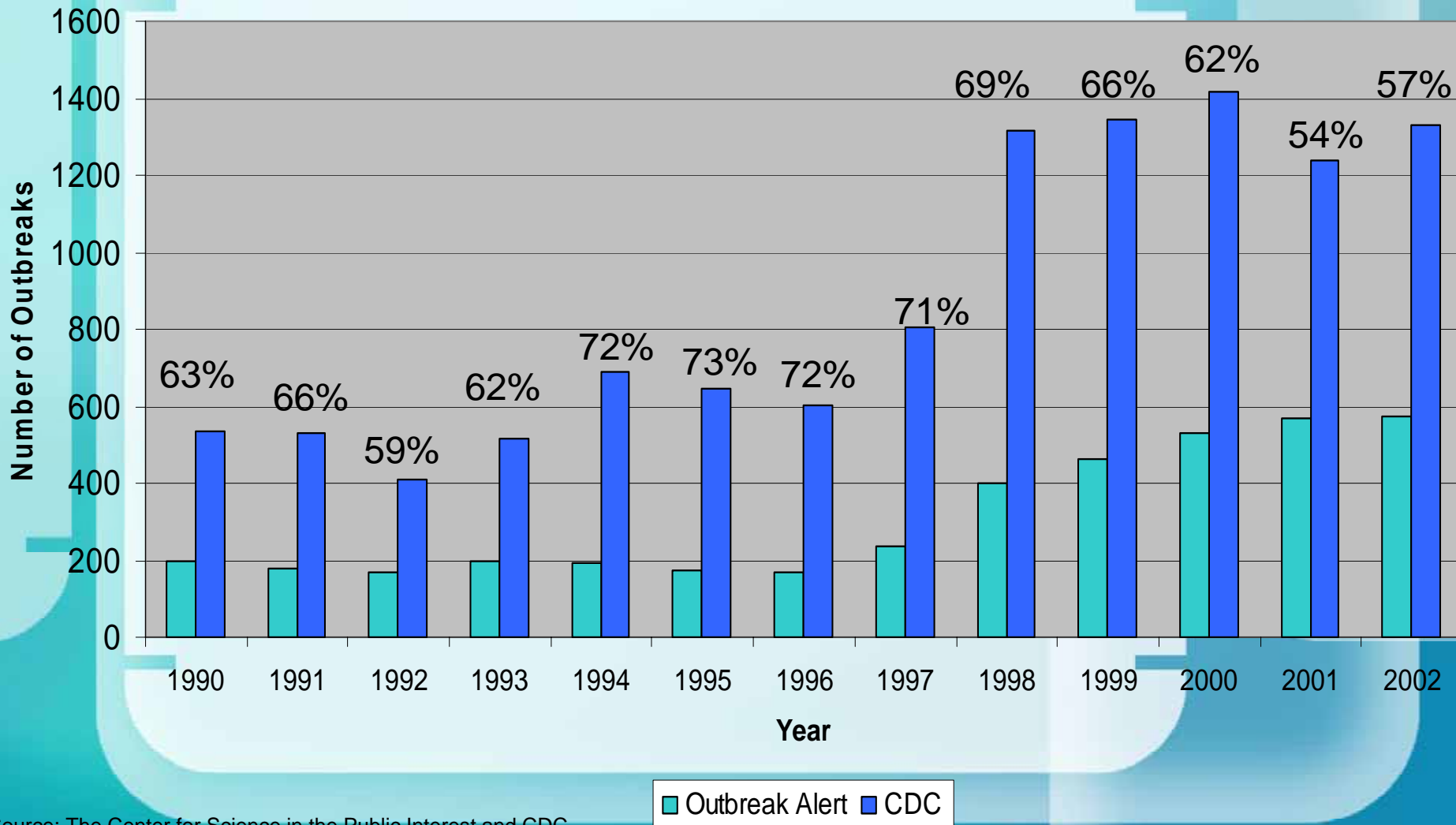


## Beef





# Outbreaks With Unknown Food or Etiology Are the MAJORITY of Reported Outbreaks



# Advice for Consumers

- **Many intestinal problems commonly referred to as “stomach flu” are not caused by the influenza virus but by foodborne pathogens.**
- **Foodborne illness often shows itself with symptoms such as nausea, vomiting, diarrhea, or fever.**
- **Many people may not recognize that the illness is caused by bacteria or other pathogens in food because the onset of symptoms often occurs 2 or more days after the contaminated food was eaten.**

# Advice for Consumers

- **A health care provider should be consulted for a diarrheal illness is accompanied by**
  - **high fever (temperature over 101.5 F, measured orally)**
  - **blood in the stools**
  - **prolonged vomiting that prevents keeping liquids down (which can lead to dehydration)**
  - **signs of dehydration, including a decrease in urination, a dry mouth and throat, and feeling dizzy when standing up.**
  - **diarrheal illness that lasts more than 3 days**

# How are foodborne illnesses diagnosed?

- **The infection is often diagnosed using laboratory tests that identify the causative organism.**
  - **Bacteria such as *Salmonella* and *E. coli* O157 are found by culturing stool samples in the laboratory and identifying the bacteria that grow on the agar or other culture medium.**
  - **Parasites such as *Giardia* can be identified by examining stools under the microscope.**
  - **Viruses like Norovirus or Hepatitis A are more difficult to identify, as they are too small to see under a light microscope and are difficult to culture. Viruses are usually identified by testing stool samples for genetic markers that indicate a specific virus is present.**

**BUT IF NO TEST IS DONE, THERE WILL BE NO CONFIRMED DIAGNOSIS**

# Advice for Consumers

- **If you believe you or someone you know became ill from something they ate, please contact your county or city health department.**
- **Most state health department have websites that give consumers information about how to reach the local health department.**
- **Reporting illnesses to your local health department promptly helps them identify and possibly stop foodborne disease outbreaks.**
- **By investigating foodborne disease outbreaks, public health officials learn about practices in food production, distribution and preparation that may cause illness.**