FoodNet:
Foodborne Diseases Active Surveillance Network

National Center for Infectious Diseases
Centers for Disease Control and Prevention
Foodborne Illness: Changing Epidemiology

- **Agent**
  - newly recognized pathogens
  - new foodborne modes of transmission
  - pandemics of foodborne pathogens

- **Environment**
  - globalization of food supply
  - centralization of food processing, large producers

- **Host**
  - increasing population of elderly, immunocompromised
  - new eating habits
  - increasing immigration, international travel
Sources of Foodborne Disease Data

- Foodborne Outbreak Surveillance System
- Epidemic investigations
- Laboratory-based surveillance
- FoodNet
The Surveillance Pyramid

Population exposures
Person becomes ill
Person seeks care
Specimen obtained
Lab tests for organism
Culture-confirmed case
Reported to health dept. / CDC
Foodborne Diseases Active Surveillance Network (FoodNet)

• Principal foodborne diseases component of CDC’s Emerging Infections Program (EIP)

• Collaborative effort among state health departments, USDA, FDA, and CDC
FoodNet's Primary Objectives

1. Determine more precisely and monitor better the burden of foodborne diseases
2. Determine the proportion of foodborne diseases attributable to specific foods
3. Develop a network to respond to emerging foodborne diseases
4. Improve outbreak response
2002 FoodNet Sites
FoodNet helps fill in the surveillance pyramid

Reported to health dept. / CDC

Culture-confirmed case

Lab tests for organism

Specimen obtained

Person seeks care

Person becomes ill

Population exposures

FoodNet:

Active surveillance

Laboratory survey

Physician survey

Population survey
Active Surveillance

- 7 bacterial pathogens: *Campylobacter, E. coli O157, Listeria, Salmonella, Shigella, Vibrio, and Yersinia*
- 2 parasitic organisms: *Cryptosporidium* and *Cyclospora*
- 3 syndromes: Hemolytic Uremic Syndrome (HUS), Guillain Barré Syndrome (GBS), congenital toxoplasmosis
- Foodborne disease outbreaks
Active Surveillance: Methods

• All clinical laboratories contacted at least monthly

• Case-report forms filled out and updated

• Electronic records transmitted to CDC via the Public Health Laboratory Information System (PHLIS)

• Frequent audits of data
Active Surveillance: Methods

- Allows us to examine:
  - Incidence of diagnosed infections
  - Trends from year to year
  - Trends by site
  - Trends by age and gender
  - Seasonality
  - Hospitalization and outcome data
Incidence* of pathogens under surveillance in original five sites, by year and pathogen, 1996-2000

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<td>Yersinia</td>
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<td>50.3</td>
<td>46.9</td>
<td>39.7</td>
<td>46.3</td>
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*Per 100,000 population  * Excludes Cryptosporidium and Cyclospora
Incidence* of diagnosed *Campylobacter* infections in the five original FoodNet sites, by year, 1996-2000

*Campylobacter* infections

Rate/100,000

*per 100,000 population

SAFER • HEALTHIER • PEOPLE
Incidence* of diagnosed *E. coli* infections in the five original FoodNet sites, by year, 1996-2000

*E. coli* O157 infections

- **CA**: Red line and markers
- **CT**: Yellow line and markers
- **GA**: Green line and markers
- **MN**: Blue line and markers
- **OR**: Purple line and markers
FoodNet Case control studies

- Salmonella
- *E. coli* O157
- Campylobacter
- Cryptosporidium
- Listeria
- Infant illness (*Campylobacter, Salmonella*)
- *Salmonella* Newport and Enteritidis
FoodNet 2002: Projects

- Conduct 4th cycle of Population Survey
- Integrate FoodNet with NARMS and PulseNet
- Continue *Listeria* case-control study
- Conduct infant illness case-control study
- Conduct *Salmonella* case-control study
- Retail Food Sampling Project
- Focus on high risk groups
- Focus on prevention / education measures
For More Information

See FoodNet's website at

http://www.cdc.gov/foodnet