

FoodNet News

The Emerging Infections Programs (EIPs) conduct population-based surveillance and research to address important issues in infectious diseases and public health. These programs involve partnerships among state health departments, academic centers, and CDC. The Foodborne Diseases Active Surveillance Network (FoodNet) is the primary foodborne disease component of the EIPs.

Our New Name

The Catchment has officially been renamed **FoodNet News**. Many thanks to our subscribers for all of their great suggestions.

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Many Thanks To Sam Yang

On behalf of FoodNet, FoodNet News bids farewell to Samantha Yang. Sam served as editor of *The Catchment* and a valuable FoodNet epidemiologist for over 2 years. Beginning this fall, Sam will attend graduate school at Emory University in pursuit of a doctoral degree in epidemiology. We wish her the very best.

FoodNet Mission Statement

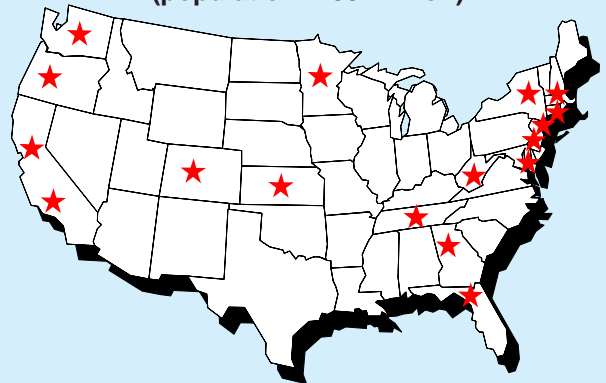
The mission of FoodNet is to contribute to the prevention of illness, disability, and death due to foodborne and diarrheal diseases by providing high-quality surveillance data. These data help determine the burden of foodborne diseases, monitor changes in the incidence of specific foodborne diseases in the United States, determine the proportion of specific foodborne diseases attributable to specific foods, and contribute to a network designed to respond rapidly to emerging foodborne diseases. FoodNet accomplishes its mission through active surveillance of laboratory-confirmed cases, laboratory studies, epidemiologic studies focused on specific infections, other epidemiologic studies, and investigations of outbreaks of foodborne diseases. FoodNet is a collaborative project among CDC, state health departments in participating EIP sites, the U.S. Department of Agriculture, and the U.S. Food and Drug Administration.

What is NARMS: Enteric Bacteria and what does it do?

The National Antimicrobial Resistance Monitoring System (NARMS): Enteric Bacteria was established in 1996, within the framework of CDC's Emerging Infections Program's Epidemiology and Laboratory Capacity Program and FoodNet as a collaboration among CDC, Food and Drug Administration (Center for Veterinary Medicine) and U.S. Department of Agriculture (Food Safety and Inspection Service and Agricultural Research Services). Seventeen state and local public health laboratories currently participate in NARMS: California, Colorado, Connecticut, Florida, Georgia, Kansas, Los Angeles County, Maryland, Minnesota, Massachusetts, New Jersey, New York City, New York, Oregon, Tennessee, Washington, and West Virginia.

(Continued on page 3)

CDC's National Antimicrobial Resistance Monitoring System (NARMS): Enteric Bacteria (population: 100 million)



An Overview of Recent Abstracts

Below is a listing of abstracts presented at conferences in 1999 from FoodNet, NARMS, and individual FoodNet and NARMS sites.

Abstract Title	Authors	Some Findings	Conference
An outbreak of fluoroquinolone-resistant <i>Salmonella</i> Schwarzengrund infections in skilled nursing facilities in Oregon	P Cieslak, E DeBess, T McGivern, T Eby, S Mauvais, V Balan and G Sawyer	<i>Salmonella</i> with resistance to fluoroquinolones has been isolated in the United States only once. Seven cases of fluoroquinolone-resistant <i>Salmonella</i> Schwarzengrund infection were identified in two Oregon skilled nursing facilities. Transmission of this clone was probably person-to-person after introduction from the Philippines in 1995.	Epidemic Intelligence Service Atlanta, GA April 1999
Variations in stool culturing practices for bacterial pathogens among clinical microbiology laboratories within the Foodborne Diseases Active Surveillance Network (FoodNet): Do we need practice guidelines?	T Van Gilder, D Christensen, D Wallace, S Shallow, T Fiorentino, S Desai, M Pass, J Wicklund, C Stone, M Cassidy, F Angulo and the FoodNet Working Group	Substantial variation in stool processing and culturing methods occurs among clinical laboratories in the FoodNet sites. These results suggest the need for laboratory practice guidelines.	American Society for Microbiology Chicago, IL May 1999
Presence of high-level gentamicin-resistant (HLGR) enterococci in humans and retail chicken products in the United States, but not in Denmark	N Marano, J Benson, J Koehler, C Mackinson, Y Wang, J Madden, E DeBess, B Hill, L Archibald, J Boel, T Sorenson, H Wegener and F Angulo.	A high prevalence of HLGR enterococci was found in isolates from chickens raised in the United States, but no resistance was found in chickens raised in Denmark. HLGR enterococci were more common in human stools in the United States than in Denmark. The probable explanation for these findings is the heavy use of gentamicin in the United States chicken industry.	Interscience Conference on Antimicrobial Agents and Chemotherapy San Francisco, CA September 1999
Emerging resistance among United States <i>Salmonella</i> strains to quinolones and extended-spectrum cephalosporins, 1996-1998	N Marano, K Stamey, T Barrett, L Tolefson, F Angulo and the NARMS working group	Antimicrobial resistance was determined for <i>Salmonella</i> isolates from 16 state or local public health laboratories. Quinolone and ceftriaxone resistance is emerging.	American Society for Microbiology Chicago, IL May 1999
Laboratory surveillance and molecular subtyping for <i>Listeria monocytogenes</i> from human food sources in New York State (1996 - 1999)	B Sauders, D Morse, J Schermerhorn, C Farchione, K Boor and M Wiedmann	A New York State laboratory subtyped <i>Listeria monocytogenes</i> isolates from human and food sources using <i>EcoRI</i> ribotyping and pulsed-field gel electrophoresis. Fifty-eight isolates were subtyped for surveillance purposes between 1996 and 1998, and a cluster of human listeriosis was identified.	American Society for Microbiology Chicago, IL May 1999
Decline in campylobacteriosis in FoodNet sites	S Reddy, M Samuel, R Marcus, S Segler, M Carter, K Smith, S Zanski, T McGivern, F Angulo	From 1996 to 1998, <i>Campylobacter</i> was the most commonly isolated pathogen in FoodNet sites, with an average incidence of 23 cases per 100,000 population per year. Compared with data from the original FoodNet sites, overall incidence declined 6.4% from 1996 to 1998. This decrease was most evident in California.	Tenth International Workshop on <i>Campylobacter</i> , <i>Helicobacter</i> , and Related Organisms Baltimore MD September 1999
Antimicrobial resistance among human <i>Campylobacter</i> isolates in the United States, 1990-1998	N Marano, K Johnson, K Stamey, T Barrett, F Angulo, and the NARMS: Enteric Bacteria Working Group	In 1997-1998, a high proportion of <i>Campylobacter</i> isolates were resistant to antibiotics commonly used for treatment in humans, including tetracycline, ciprofloxacin, erythromycin, clindamycin, and chloramphenicol.	Tenth International Workshop on <i>Campylobacter</i> , <i>Helicobacter</i> , and Related Organisms Baltimore MD September 1999

PulseNet: The National Molecular Subtyping Network for Foodborne Disease Surveillance



Many of you have asked about PulseNet. Here are answers to some of your most common questions.

Q: What is PulseNet?

A: PulseNet is a national network of public health and federal food regulatory agency laboratories that performs a DNA “fingerprinting” method called pulsed-field gel electrophoresis (PFGE) on bacteria that are commonly foodborne. The network permits rapid comparison of PFGE patterns through an electronic database at CDC. PulseNet participants currently are the public health laboratories of California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Los Angeles County, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, New York City, Ohio, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wisconsin, the laboratory at the U.S. Department of Agriculture - Food Safety and Inspection Service, and the U.S. Food and Drug Administration’s Center for Food Safety and Applied Nutrition and Center for Veterinary Medicine.

Q: Why was PulseNet established?

A: In 1993, a large outbreak of foodborne illness caused by the bacterium *Escherichia coli* O157:H7 occurred in the western United States. Scientists at CDC performed DNA fingerprinting by PFGE and determined that the strain of *E. coli* O157:H7 found in patients had the same PFGE pattern as the strain found in hamburger patties served at fast food restaurants that had been implicated in previous epidemiologic studies. The ground beef patties were recalled, and an estimated 800 illnesses were prevented. At that time, few state public health laboratories performed PFGE, and each used different methods, making the results difficult to compare. In collaboration with the Association of Public Health Laboratories (APHL), CDC created PulseNet so that scientists at public health laboratories throughout the country can rapidly compare the PFGE patterns of bacteria isolated from ill persons and determine whether or not they are similar. Strains isolated from food products by regulatory agencies also can be compared with those isolated from ill persons. Identifying these connections can help detect outbreaks and remove contaminated foods from the marketplace.

Q: What foodborne disease-causing bacteria are currently being tracked by PulseNet?

A: Currently, PulseNet participants perform DNA fingerprinting by PFGE on *E. coli* O157:H7 and *Salmonella*. *Listeria* and *Shigella* were added in 1999 and databases for these agents are being established.

Q: What is in the future for PulseNet?

A: Using DNA fingerprinting, PulseNet sites will continue to help identify and investigate outbreaks of *E. coli* O157:H7 and *Salmonella* Typhimurium. Over time, PulseNet will set up additional electronic databases of DNA fingerprints for other foodborne illness-causing bacteria, depending on their public health importance and the availability of specific DNA fingerprinting methods for those pathogens. PulseNet is an early warning system that links seemingly sporadic human illnesses together. As a result, more outbreaks will be recognized and prevention measures identified.

(NARMS continued from page 1)

The main activity of NARMS is to monitor prospectively antimicrobial resistance of human enteric bacteria, including *Salmonella*, *Escherichia coli* O157:H7, and *Shigella*. In addition, antimicrobial resistance among human *Campylobacter* isolates is monitored in eight FoodNet states. Currently, approximately 100 million persons (40% of the U.S. population) reside within the NARMS surveillance sites.

How does NARMS do it?

Participating health departments forward every tenth *Salmonella* isolate, every tenth *Shigella* isolate and every fifth *E. coli* O157:H7 isolate received at their public health laboratories to CDC for susceptibility testing. Susceptibility testing involves the determination of the minimum inhibition concentration (MIC) for 17 antimicrobial agents: amikacin, ampicillin, amoxicillin-clavulanic acid, apramycin, ceftiofur, ceftriaxone, cephalothin, chloramphenicol, ciprofloxacin, gentamicin, kanamycin, nalidixic acid, streptomycin, sulfamethoxazole, tetracycline, trimethoprim-sulfamethoxazole and ticarcillin.

Eight of the NARMS health department partners (California, Connecticut, Georgia, Maryland, Minnesota, New York, Oregon and Tennessee) also send one *Campylobacter* isolate each week to CDC. Susceptibility testing of *Campylobacter* is performed to determine the MICs for eight antimicrobial agents: azithromycin, chloramphenicol, ciprofloxacin, clindamycin, erythromycin, gentamicin, nalidixic acid and tetracycline. The antimicrobial susceptibility results are sent from the CDC laboratory to NARMS epidemiologists at CDC, where data are entered and analyzed.

Why are NARMS Data Useful?

Because NARMS data have been collected continually since 1996, trend analysis is possible; this can provide useful information about patterns of emerging resistance, which in turn can help guide empiric treatment decisions.

NARMS data are an asset to outbreak investigations. Antimicrobial resistance patterns are useful in identifying the source and magnitude of resistance.

Antimicrobial resistance data from humans and animals are important for the development of public health regulatory policy for the use of drugs in food-producing animals.

For more information about NARMS, including the 1998 annual report, please see the NARMS website at www.cdc.gov/ncidod/dbmd/narms

FoodNet Welcomes David Wallace and Beth Imhoff

CDC (Atlanta, Georgia)

David Wallace joined the CDC FoodNet team as an epidemiologist in January of this year. David’s principal projects include maintenance of the FoodNet and HUS surveillance databases, analysis of the 1997 laboratory survey, and development of the 1999 laboratory survey.

Beth Imhoff recently joined the FoodNet group at CDC as a FoodNet epidemiologist and the new *FoodNet News* editor. Beth will work extensively on the analysis and implementation of the population survey and coordinate outbreak data.

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Welcome to FoodNet: Spotlight on Maryland's New Coordinator

Dr. Tobi Karchmer, the new FoodNet Coordinator for Maryland, received her medical degree from Harvard Medical School in 1992. Dr. Karchmer completed an infectious disease fellowship at the University of Virginia, where her research concentrated on hospital epidemiology, infection control, and nosocomial infections. Dr. Karchmer is an Assistant Professor at the University of Maryland in the division of Hospital Epidemiology. We look forward to her active involvement with FoodNet.

Congratulations to the PulseNet Team for winning the prestigious “Innovations in American Government” Award

Note to readers: We're eager to spotlight other studies in future **FoodNet News** issues. Is there a project you'd like to know more about? Is there a new member of your FoodNet team that you would like to introduce? Please contact us!

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