For more information about FoodNet, see the FoodNet website:
http://www.cdc.gov/foodnet

Spring 2005 Vol 5. No 1.

FoodNet News

Update on Working Groups . . .

Outbreak Working Group

The FoodNet Outbreak Group agreed at the 2004 FoodNet Vision Meeting to continue to develop and evaluate innovative approaches for outbreak detection and response. To meet these objectives, the FoodNet Outbreak Working Group merged with the FoodNet Norovirus Working Group in 2004. This new collective group, the FoodNet Outbreak Working Group, is now involved in a number of surveillance related issues in addition to tackling new projects. They continue to oversee the completion and submission of the FoodNet Outbreak Supplemental Form for each foodborne outbreak reported in CDC's Electronic Foodborne Outbreak Reporting System (EFORS). In addition, they are monitoring the implementation and completion of outbreak-related variables that have been added to the FoodNet active surveillance data. Finally, the working group will conduct surveillance for non-foodborne outbreaks of acute gastroenteritis. The FoodNet Outbreak Working group members are leading or participating in several projects: improving the estimate of the incubation period for *Salmonella*, assessing the quality of the contributing factors data reported in EFORS, and characterizing the differences between foodborne outbreaks of acute gastroenteritis and outbreaks of acute gastroenteritis not associated with food.

Peeps are a popular spring treat but remind us of the *Salmonella* outbreaks associated with giving chicks and ducklings as Easter gifts.

Shiga-toxin producing *E. coli* (STEC)/HemolyticUremic Syndrome (HUS) Working Group

Increasing our understanding of STEC and HUS continues to be a priority of FoodNet and its collaborators. FoodNet STEC/HUS working group members are launching a cohort study of people infected with *E.coli* O157. The study will assess the role of antibiotic use and other factors in the development of HUS. FoodNet sites continue to perform active surveillance for pediatric cases of HUS and enhanced surveillance for adult cases of HUS. In recent weeks, FoodNet sites have agreed to review 2000 to 2002 hospital discharge data from all FoodNet site hospitals to evaluate effectiveness of the FoodNet HUS surveillance. Then the working group will be able to assess the sensitivity of each site's HUS surveillance system to be able to contribute to a manuscript on adult HUS. In addition, the group has developed a manuscript on pediatric HUS to be submitted to a peer-reviewed journal.

Inside this issue:

Antimicrobial Resistance Working Group

The Antimicrobial Resistance Working Group is finishing up a protocol to submit for Institutional Review Board (IRB) approval. The protocol is a case-comparison study of clinical outcomes for non-Typhi *Salmonella* within FoodNet Sites. The study group will compare clinical outcomes of multidrug resistant infections to susceptible infections. A secondary objective is to compare the economic burden of multidrug-resistant non-Typhi *Salmonella* infections. Data collection will start early 2005.

Interventions Working Group

The FoodNet Interventions Working Group is developing a survey to assess knowledge of *Salmonella* infection and prevention in

reptile clubs and pet stores. The working group is also conducting a survey of dietary services in nursing homes. The survey focuses on food safety topics including preparation and purchase practices as well as knowledge attitudes and beliefs about irradiation and pasteurization.

Shigella Working Group

The FoodNet *Shigella* Working Group was formed to implement a survey protocol for collecting risk factor information from persons with *Shigella* who were ascertained through active laboratory based surveillance. This enhanced surveillance effort will help determine the proportion of *Shigella* cases that are likely associated with travel, daycare attendance, exposure to recreational water, and person-to-person transmission. The remaining proportion of *Shigella* cases with unknown risk factors would likely include those cases resulting from transmission. Collection of the additional surveillance information began in January 2005.

Campylobacter Laboratory Survey

The FoodNet *Campylobacter* Laboratory Survey Working Group was formed to determine if regional differences in the incidence of laboratory-confirmed *Campylobacter* infection among the FoodNet sites can be explained by differences in laboratory techniques used by clinical laboratories to isolate *Campylobacter*. The FoodNet *Campylobactor* Working Group has finalized the study protocol and will soon launch a survey of clinical laboratories. Clinical laboratories will be able to respond to the survey either electronically (via email) or by regular mail.

Recent Meetings and Conferences

The following posters were presented at the Infectious Diseases Society of America (IDSA). September 3-October 4, 2004 Boston, Massachussettes (First authors listed)

1. Declines in the incidence of many foodborne illnesses, including *Escherichia coli* O157 — FoodNet 2003 (Katrina Kretsinger)
2. Burden of diarrheal illness in FoodNet, 1996-2003 (Marcie McMillian)
3. Increasing incidence of nalidixic acid-resistant *Salmonella*: FoodNet and NARMS 1996-2002 (Jennifer Nelson)
4. Ethnic disparities in listeriosis incidence, FoodNet 1996-2003 (Elaine Scallan)
5. Post-diarrheal hemolytic uremic syndrome (D+HUS) in Adults, FoodNet, 1997-2002 (Cynthia Snider)
6. Trends in population-based incidence of *Campylobacter* and *Salmonella* among infants in FoodNet, 1996-2003 (Kathleen Fullerton)

What's the Beef About Irradiated Meat?

by guest writer Jared Taylor, DVM

Food irradiation is the use of ionizing radiation to reduce spoiling and potential microbial growth in foods. Irradiation can be used to destroy bacteria and some viruses contaminating food, parasite and insect infestations, and to prevent ripening and rotting of fruits of vegetables by inactivating the microorganisms that cause spoilage. While it may seem like a space-age approach and it is often criticized as unproven, food irradiation actually has a long history.

Using nuclear radiation for beneficial purposes was suggested in the "Atoms for Peace" speech by President Eisenhower in 1953. Following his initiative, numerous experiments on food irradiation were conducted. As the techniques became more refined, nuclear radiation application and acceptance expanded. In 1963, the FDA approved irradiation to rid wheat and flour of insects and to control sprouting in potatoes. Since then, irradiation has been approved for spices, seasonings, and meat such as pork, poultry and beef. Irradiation was endorsed by the World Health Organization in 1990 as a "perfectly sound food preservation technology" and in 1997 by the UN Food and Agriculture Organization and the International Atomic Energy Agency.

The procedure of irradiating food is simple; the food generally goes through all normal processing methods with irradiation as a last step. The food can even be pre-packaged and frozen before it is irradiated. Possible sources of radiation or radiant energy include X-rays, gamma rays, and electron beams (E-beam). Energy from the radiation causes a disruption of normally-stable molecular bonds. This has a direct impact on cells by disrupting DNA or cell membranes. More commonly, though, the chemical breakdown from radiation or radiolysis affects water and oxygen-generating free radicals. Free radicals react with other molecules and ultimately damage bacteria so that they can not survive or replicate. There are advantages and disadvantages to each type of radiation but, ultimately, the end result is the same - safer food that has a longer shelf life.

Some foodborne pathogens like viruses and bacterial spores are less susceptible to irradiation than others. However, the ones of most concern (*E. coli, Salmonella* and *Listeria*) are relatively sensitive. Radiation works so well that even if the process fails to kill the organisms, they are left irreparably injured, and become more sensitive to heat and other stresses. A common goal for microbial control is a 5 log reduction following irradiation (this means 99.999% of the bacteria are killed). This not only greatly reduces the likelihood

Continued on page 4.

Spotlight on Texas

Personnel from CDC's EIP visit Texas for the "Texas EIP Kickoff"

Texas was recently funded as the 11th Emerging Infections Program (EIP) site. The intent of the new EIP funding was to strengthen and integrate current surveillance activities. To accomplish the goals of active surveillance, Texas EIP will initially focus on seven counties, five (Cameron, Hidalgo, Starr, Willacy, and Zapata) of which are located in the Lower Rio Grande, one (Webb) in the middle Rio Grande, and one (El Paso) in the upper Rio Grande. The population for the Texas EIP surveillance areas is approximately 1.95 million people. Personnel in both the Texas and New Mexico sties will work together to conduct active surveillance and determine residence of case-patients in the El Paso area.

In October and November 2004, Texas conducted a survey of clinical microbiology laboratories in the catchment areas using a modified version of the 2000 FoodNet/ABCs clinical laboratory survey. Beginning January 2005, Texas EIP will collect and transmit pilot active surveillance data. Texas is using the NEDSS base system statewide. Once the Foodborne Diseases PAM (program area module) is developed, Texas EIP will transmit FoodNet data using NEDSS.

The Texas FoodNet site is considering conducting studies. The following are some possible topics.

1. *Listeria monocytogenes*: The unique population living on the US-Mexico border may provide the opportunity for interventions to prevent foodborne perinatal listeriosis (e.g., Futura Mamá (Expecting Mother) protocol).
2. HUS surveillance: HUS is a reportable condition in Texas. There was interest in conducting active surveillance through pediatric nephrologists.
3. Follow-up and case-control studies (e.g., travel history for individuals with *E. coli* O157 and *Salmonella* infections). Local health departments are routinely interviewing cases.

For more information, please visit the following links:
1. Texas Department of State Health Services: http://www.dshs.state.tx.us/
2. Map of Texas Public Health Regions: http://www.tdh.state.tx.us/brlhoregions.htm
3. Survey of Health and Environmental Conditions in Texas Border Counties and Colonies: http://www.epa.gov/orsearth/pdf/exsumrev_hetbcc.pdf

FoodNet Welcomes New Staff Members: Drew Voetsch, Julie Choudhuri, Ezra Barzilay, Cherie Long, Olga Henao and Julie Smith

Drew Voetsch is the Chief of the FoodNet Activity. He received his BA in Biology and History from Emory University in 1993 and his MPH in epidemiology from the Rollins School of Public Health at Emory in 1995. He recenty received his doctorate in epidemiology at the University of North Carolina at Chapel Hill. Drew will be joining CDC's Epidemic Intelligence Service in July 2005.

Julie Choudhuri is a surveillance epidemiologist with FoodNet. Her primary responsibility is surveillance integration with data from FoodNet, NARMS, and PulseNet. Julie recently completed her MSPH at the University of Colorado. Her interests include international health and analyzing health statistics using geographic information systems (GIS).

Ezra Barzilay joins us as a first year EIS officer. He is a pediatrician by training and did his residency at the Emory Pediatric Residency Program in Atlanta, Georgia. Ezra received a B.Sc in Biochemistry at Tufts University in Boston, Massachusetts and his medical degree from Tufts University School of Medicine. He is originally from Greece. Ezra will be working on several projects within the Foodborne and Diarrheal Diseases Branch including a project in Nigeria with the Safe Water group.

Cherie Long is a surveillance epidemiologist for FoodNet. She has a BS in Biology and Chemistry from Emory University in Atlanta, Georgia. She received her MPH in epidemiology from Emory University's Rollins School of Public Health. Before joining FoodNet, she worked as a district epidemiologist for the Cobb/Douglas County Boards of Health and as a statistical analyst for the University of Alabama, Birmingham Ophthalmology Department.

Olga Henao joins FoodNet as a senior epidemiologist. She has a BA in Biology and Chemistry from University of North Alabama and received her MPH and PhD degrees in Epidemiology from the University of Alabama at Birmingham.

Julie Smith recently joined the FoodNet/NARMS Unit as a communications specialist, specializing in graphic and web design. She received her MBA in marketing from Kennesaw State University and her BS in marketing from Berry College. She has more than 10 years experience in her field, plus real estate and technology marketing management.

Return Service Requested

Penalty for Private Use $300
Official Business

Centers for Disease Control
and Prevention (CDC)
Atlanta, GA 30333

DEPARTMENT OF HEALTH & HUMAN SERVICES

FoodNet News

FIRST-CLASS MAIL
POSTAGE & FEES PAID
PHS/CDC
Permit No. G-284

Continued from page 2

of disease, but it increases shelf life by decreasing spoilage, and decreases the need to can, cure or otherwise preserve foods.

There are some drawbacks and limitations to irradiation. It is not appropriate for all foods, because some dairy products and fruits have unacceptable flavor changes at even low doses. It is also not generally effective at eliminating spores or toxins. This means that proper food handling is still required before and following irradiation.

Consumers can readily identify irradiated meat by the "Radura" symbol that is required on the label. However, because of the limited amount of irradiated product currently being produced, it is often difficult for consumers to find it at retail outlets. Consumers should be encouraged to become familiar with the advantages of irradiation, and to request irradiated products from their local grocer. In particular, households with susceptible individuals (children, immunocompromised, elderly, etc.) should strongly consider the added security that can be provided by serving food treated with irradiation.

To learn more about irradiated meat, please visit: The Minnesota Beef Counsel at **http://www.mnbeef.org/food_irradiation.htm** or The American Council on Science & Health at **http://www.acsh.org/publications/pubID.198/pub_detail.asp**

FoodNet News editorial committee:
Fred Angulo, Patricia Griffin

FoodNet News editor: Heather Bair

FoodNet News is also available at the FoodNet web site at: http://www.cdc.gov/foodnet/news.htm
To receive regular copies of **FoodNet News**, send your request to:

FoodNet News
c/o Heather Bair
1600 Clifton Road, NE
Mailstop D-63
Atlanta, GA 30333
Fax: (404) 371-5455

or subscribe online at:
www.cdc.gov/foodnet/NEWS/notify.htm