



# Food Safety

NEWS

Food Safety **CURRENT NEWS**

## Consumers use risky practices

In a survey of nearly 20,000 consumers in eight states during 1995-1996, about half reported using at least one risky food-handling or cooking practice.

During the preceding 12 months, 50 percent reported eating under-cooked eggs, 24 percent reported eating home-canned vegetables, 20 percent reported eating pink hamburgers, 8 percent reported eating raw oysters, and more than 1 percent reported drinking raw milk. Nineteen percent said they did not wash hands with soap after handling raw meat or chicken and did not wash a cutting board with soap or bleach after using it to cut raw meat products. Only 45 percent reported seeing safe food-handling label information on raw meat products.

Data were collected by the Behavioral Risk Factor Surveillance System.

— Yang, S. et al. *Morbidity and Mortality Weekly Report*, 47(SS-4):33-41, 1998.

## On the World Wide Web

New Food Safety Site  
<http://www.FoodSafety.gov>

Food Irradiation  
The National Food Safety Database  
<http://www.foodsafety.org/ga/ga022.htm>

K-State Research and Extension  
Food Safety Website:  
[www.oznet.ksu.edu/foodsafety](http://www.oznet.ksu.edu/foodsafety)

## FSIS clarifies policy on *E.coli* O157:H7

The U.S. Department of Agriculture's Food Safety and Inspection Service has clarified the policy on adulterated beef and will be accepting comments on the topic until late March.

FSIS decided to expand existing policy due to the low infective dosage of *E. coli* O157:H7 associated with foodborne outbreaks and the severe consequences of such an infection. Previously, under the Federal Meat Inspection Act, raw ground beef products contaminated with *E. coli* O157:H7 were considered adulterated unless the ground beef was to be further processed to destroy the pathogen.

FSIS has expanded the

policy to non-intact raw beef products contaminated with *E. coli* O157:H7. Non-intact beef products include beef injected with solutions; mechanically tenderized by needling, cubing or pounding devices; or reconstructed into formed entrees, such as beef scored to incorporate a marinade. Intact cuts of beef to be further processed into non-intact cuts before being distributed for consumption must be treated in the same manner as non-intact cuts.

FSIS does not plan to expand its sampling and testing program to include all types of non-intact beef products or intact cuts of muscle that are to be further processed into non-

intact products. The FSIS may reconsider its sampling and testing program, and the scope of products deemed adulterated, in response to public comment.

FSIS will accept comments until March 22. One original and two copies of written comments may be submitted to FSIS Docket Clerk, Docket No. 97-068N, U.S. Department of Agriculture, Food Safety and Inspection Service, Room 102, Cotton Annex, 300 12th St. SW, Washington, DC 20250-3700.

— *Federal Register*, 9 CFR, 64 (11): 2803-2805, 1999.  
<http://www.fsis.usda.gov/OA/fr99-1123.htm>

## Listeria outbreaks reported to CDC

Recently, 72 illnesses relating to *Listeria monocytogenes*, serotype 4b, were reported to the Centers for Disease Control and Prevention in Atlanta. Within the 14 states that reported cases between early August 1998 and January 1999, 16 adults died and five women had miscarriages.

The outbreak vehicle of transmission was identified as hot dogs and possibly deli meats produced by Bil Mar Foods. In December, the manufac-

turer voluntarily recalled specific production lots of potentially contaminated products. The CDC later isolated the outbreak strain of *Listeria monocytogenes* from an opened and a previously unopened package of hot dogs manufactured at a plant in Zeeland, Mich. A different strain of *Listeria monocytogenes* was isolated from unopened packages of deli meats produced at the plant.

Recalled products carry the EST P261 or EST

6911. Products include deli meats and hot dogs with the brand names Ball Park, Bil Mar, Bryan Bunsizer, Bryan 3-lb Club Pack, Grillmaster, Hygrade, Mr. Turkey, Sara Lee Deli Meat, and Sara Lee Home Roast brands. Packages for the above stated brand names that carry other establishment numbers are not affected by the recall, nor are nonmeat Sara Lee products.

On January 15, 1999, the Food Safety and  
(continued on page 3)

## FAQ's

### What foods are associated with *Listeria* infections?

Outbreaks have been associated with such foods as cole slaw, pasteurized milk, raw milk and dairy products, soft cheeses, meat pâté, hot dogs, cold cuts, improperly cooked chicken, and smoked mussels.

### Who is most at risk?

Individuals most sensitive to *Listeria monocytogenes* are pregnant women and unborn fetuses; infants; elderly people with reduced immunity; people who take special medications, such as steroids and chemotherapy; and individuals who are immunodeficient from serious illness, such as AIDS or cancer.

### What are the symptoms?

Initial symptoms include nausea, vomiting, abdominal cramps, diarrhea, fever, and severe headache. A *Listeria* infection during pregnancy may cause influenza-like illness, with fever and chills. The infection may lead to the loss of the fetus. Illness can begin two to eight weeks after consuming the contaminated food.

On occasion, a *Listeria* infection may cause meningitis and encephalitis. Individuals who are not immunocompromised or pregnant rarely develop severe illness from *Listeria monocytogenes*.

### How do you protect yourself?

The Centers for Disease Control recommends that immunocompromised individuals and pregnant women cook leftover or ready-to-eat foods, such as hot dogs, until steaming hot. Pregnant women may also choose to avoid cold cuts or thoroughly reheat cold cuts before eating them.

– *Multistate Outbreak of Listeriosis—United States, 1998*;

<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/00056024.htm>

– Ray, Bibek. *Fundamental Food Microbiology*. CRC Press, Inc. 1996.

## Food Safety RESEARCH

# Awareness of irradiated poultry studied

A 15-question survey of 300 consumers in Texas examined food safety awareness and consumer acceptance of irradiated raw poultry. Researchers interviewed 50 consumers in two supermarkets in each of three cities: Bryan-College Station, El Paso, and Houston.

Differences in populations among cities affected the perception of which meat contained the most harmful bacteria. Respondents from El Paso (those with a high school education, GED, or no degree, Hispanics, other minorities, and those who were surveyed in Spanish) all identified pork as the meat containing the most harmful bacteria. Caucasian respondents from Bryan-College Station and Houston rated poultry highest in harmful bacteria. These respondents had a technical, associate, or college degree, and responded in English.

A majority of all groups surveyed responded that poultry meat was generally safe. Caucasian

and English-speaking respondents from Bryan-College Station had a high trust in poultry safety, with 82 to 92 percent reporting such trust. El Paso respondents who were Hispanic and those who responded in Spanish were not as confident, with 57 to 72 percent classifying poultry as generally safe.

Age, city of residence, education level, ethnicity, the language of the survey, and gender affected the acceptance of irradiated raw poultry. Approximately 69 percent of respondents under age 18, and 13 to 42 percent of adult respondents were not familiar with irradiation. Of the adult respondents who knew what irradiation was, 28 to 44 percent were willing to eat irradiated poultry. Generally, willingness to eat irradiated poultry increased with education level. A majority of females said they would refuse to eat irradiated poultry, while most male respondents said they would eat it.

A correlation between

food safety perceptions and the acceptance of irradiated poultry was discovered. Respondents who believed either beef or pork contain the most harmful bacteria were less likely to accept irradiated poultry. On the other hand, the respondents who believed poultry contains the most harmful bacteria were more likely to accept irradiated poultry. The groups that seemed most opposed and unfamiliar with irradiation were adult minorities, particularly Spanish-speaking El Paso residents, Hispanics, and those who had at most a high school degree. The survey suggested that education on food irradiation would be most effective in Hispanic and Spanish-speaking communities, and at the high school level, since 70 percent of Texas children under age 18 are unfamiliar with irradiation.

– Maciorowski, K.G., S.C. Ricke, S.G. Birkhold, *Dairy Food, and Environmental Sanitation*, 19(1): 18-28, 1999.

## Characteristics of *Listeria monocytogenes*

Gram-positive, nonsporulating motile rod.

Optimum growth at 25°C. (77°F.), but can grow at 2 to 4°C. (36° to 39°F.).

Can survive for long periods of time in many different environments.

Ubiquitous: found in soil, sewage, water, and dead vegetation.

Infective dose estimated to be 100 CFU/g, but lower doses could cause infection.

– Doyle, Michael P., *Food Microbiology Fundamentals and Frontiers*, 1997.

## *Salmonella enteritidis* PT6 increasing

In the United States, the most common phage types (PT) of *Salmonella enteritidis*, which causes egg-borne *Salmonella* infections, have been identified as PT8 and PT13a. In the United Kingdom and Western Europe, the predominant phage type responsible for egg-borne *Salmonella* infection is *Salmonella enteritidis* PT4. Recently, scientists reported a possible emergence of a new egg-associated *Salmonella* phage type in the United Kingdom.

Three *Salmonella enteritidis* PT6 food outbreaks were investigated in 1997. The first outbreak took place in Cardiff, Wales, where three out of five individuals affected were positive for *Salmonella enteritidis* PT6.

A batch of fish cakes that had been dipped in raw eggs before being fried was found to be the source of the outbreak. The cooking process was reproduced, and it was found that the fish cakes were too thick to be properly fried by the shallow frying method.

Two residents of a nursing home and two staff members infected with *Salmonella enteritidis* PT6 were affected by the second outbreak. Its source was not found, but raw eggs were regularly used at the nursing home. It was suggested that the outbreak was caused by cross-contamination. The third outbreak took place in a small Italian restaurant, where eight customers were infected with *Salmonella enteritidis* PT6. A dessert was identified as the source.

In all three outbreaks, it was difficult to trace the source of the eggs, because of poor egg labeling and because of the complex network of suppliers and distributors involved. Eggs involved in all three outbreaks were thought to be from different sources.

The rise in the appearance of *Salmonella enteritidis* PT6 suggested to the authors that this phage type may have found a new niche, and contamination has spread rapidly throughout a basic food commodity. However, it is not certain that *Salmonella enteritidis* PT6 is egg-borne.

— Evans, Meirion R., Will Lane, and C. Donald Ribeiro, *Emerging Infectious Diseases*, 4(4): 667-669, 1998.

## Researchers study gloves vs. hands

Within food service establishments, food handlers are significant vectors for the transmission of foodborne disease to consumers. Methods of preventing this channel of contamination have been intensely debated. One side states that bare hand contact with ready-to-eat foods must be eliminated. The other side suggests that proper hand washing and sanitizing is sufficient.

Wearing gloves to provide a barrier between the food handler and the food product seems ideal, but has had limited success. Factors that contribute to the failure of this method include poor glove quality, with high defect and leakage

rates. The use of gloves also may give food handlers a false sense of cleanliness. They may not consider the frequency with which gloves



must be changed or cleanliness of their hands before using the gloves.

A recent study supports the use of bare hands with a regimen of proper hand washing and sanitizing, which provides a significantly higher hand sanitiza-

tion level than the use of gloved hands, hourly glove changes and hand washing. The use of gloves to prevent transmission of foodborne diseases may require stringent employee training followed by continuous enforcement of proper usage. Disadvantages may outweigh the advantages of the gloved method.

— Fendler, Eleanor J., Michael J. Dolan, and Ronald A. Williams, *Dairy, Food and Environmental Sanitation* 18 (12): 814-823, 1998.

— Fendler, Eleanor J., Michael J. Dolan, Ronald A. Williams, and Daryl S. Paulson, *Dairy, Food and Environmental Sanitation* 18 (12): 824-829, 1998.

## Listeria outbreaks

(continued from page 1)

Inspection Service announced another product recall for the possible presence of *Listeria monocytogenes*. A report of illness in Kansas City, Mo., prompted testing of intact packages of an Oscar Mayer product. After the products tested positive, Oscar Mayer Foods recalled 28,313 pounds of deli meat that may have been contaminated: Oscar Mayer All American Variety Pack, 10 oz., and Oscar Mayer Club Sandwich Variety Pack, 9 oz. Recalled packages are labeled JAN 12 and bear establishment numbers EST 537A or P-1449. They were shipped nationwide or exported.

A third recall was announced January 22. Thorn Apple Valley's Forrest City, Ark., meat processing plant voluntarily recalled all frankfurter and lunch combination products produced since July 6, 1998, because of potential contamination with *Listeria monocytogenes*.

All meat and poultry products bearing "EST 13529" or "P-13529" are subject to the recall. Numerous brands are involved. Products could include lunch combinations (products containing various luncheon meats) and frankfurters. The products were distributed nationwide or shipped abroad.

At press time, FSIS did not have evidence linking this product to the nationwide listeriosis outbreak, still under investigation. Consumers who purchased products with these code numbers should return them to the point of purchase.

Illnesses suspected to be related to the products should be reported to a physician immediately.

— Update: Multistate Outbreak of Listeriosis:

<http://www.cdc.gov/od/oc/media/pressrel/r990114.htm>

— <http://www.fsis.usda.gov/OA/whatsnew>

COOPERATIVE EXTENSION SERVICE  
U.S. DEPARTMENT OF AGRICULTURE  
KANSAS STATE UNIVERSITY  
MANHATTAN, KANSAS 66506—3403

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300



February 1999  
Volume 2, Number 1  
*Published Bi-Monthly by*  
K-State Research and Extension  
Animal Sciences and Industry

Karen P. Penner  
Extension Specialist  
Food Science  
Animal Sciences and Industry  
kpenner@oz.oznet.ksu.edu  
(785) 532-1672

**Contributors**

Karen P. Penner, Editor  
Professor, Food Science  
Animal Sciences and Industry

Randall Phebus  
Associate Professor  
Food Microbiology  
Animal Sciences and Industry

Melissa Webb  
Food Science Graduate Student  
Animal Sciences and Industry

**Cooperative Extension Service**  
K-State Research and Extension  
Animal Sciences and Industry  
216 Call Hall  
Manhattan, Kansas 66502

K-State, County Extension Councils, Extension Districts,  
and U.S. Department of Agriculture Cooperating

All educational programs and materials are available  
without discrimination on the basis of race, color,  
religion, national origin, sex, age, or disability.

**March 3-4, 1999**

Second Kansas Conference  
on Food Protection  
Wichita, KS  
Contact: Stephen Paige  
(785) 296-0189

**April 12-13**

Serving Safe Food, Wichita, KS  
Contact: Teresa Lang  
(316) 722-7721

**April 12 & 19**

Serving Safe Food, Emporia, KS  
Contact: Angela Cichocki  
(316) 341-3220

**April 14, 21, 28, May 5, 12**

Serving Safe Food, Salina, KS  
Contact: Sherrie Mahoney  
(785) 826-6645

**May 12-13**

Serving Safe Food  
Overland Park, KS  
Contact: Nada Thoden  
(913) 764-6300

## Upcoming Events

**May 18 & 20**

Serving Safe Food  
Leavenworth, KS  
Contact: Denise Sullivan  
(913) 684-0475

**June 8-9**

Serving Safe Food  
Lawrence, KS  
Contact: Susan Krumm  
(785) 843-7058

**June 15-16**

Serving Safe Food, Topeka, KS  
Contact: Cindy Evans  
(785) 232-0062

**June 22-23**

Serving Safe Food  
Garden City, KS  
Contact: Linda Walter  
(316) 272-3670

**June 29-30**

Serving Safe Food, Ottawa, KS  
Contact: Rebecca Dillard  
(785) 229-3520

**July 6-7**

Serving Safe Food  
Atchison, KS  
Contact: Diane Nielson  
(913) 833-5450

**July 12-13**

Serving Safe Food  
Wichita, KS  
Contact: Teresa Lang  
(316) 722-7721

**July 14 & 21**

Serving Safe Food  
Salina, KS  
Contact Sherrie Mahoney  
(785) 826-6645

**July 9-16, 1999**

19<sup>th</sup> International  
Rapid Methods  
and Automation  
in Microbiology Workshop  
Manhattan, KS  
Contact: Daniel Fung  
(785) 532-5654