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 Presented at Thinking Globally—Working
 Locally: A Conference on Food Safety
 Education, Orlando, FL, September 18–20, 2002

1. Introduction

- Z Listeriosis can be very dangerous to pregnant women and their unborn babies by resulting in premature delivery, miscarriage, fetal death, and severe illness or death of the newborn. About one-third of listeriosis cases happen during pregnancy.
- Z At-risk consumers should rehearse hot dogs and luncheons until steaming hot and not eat certain foods (e.g., soft cheeses and unpasteurized milk products).
- Z Research shows that consumers are not aware that pregnant women are a high-risk population.¹ We conducted focus groups with pregnant women to determine how to effectively reach pregnant women with food safety messages on listeriosis.

2. Purpose

The objectives of the focus group study were to:

- Z Test and refine existing FSIS food safety messages on listeriosis;
- Z Identify effective delivery mechanisms for the refined messages; and
- Z Collect information on participants' concerns about foodborne illnesses, their general food safety knowledge, and their food safety practices during pregnancy.

3. Study Design

- Z Conducted eight focus groups—two groups each in Manchester, NH; Cedar Rapids, IA; Salt Lake City, UT; and Raleigh, NC.
- Z In each location, conducted one focus group with individuals who had a high school education or less and one focus group with individuals who are college graduates.
- Z Participants met the following criteria:
 - X 18 years of age or older,
 - X At least 12 weeks pregnant,
 - X Primary or shared responsibility for cooking in their household,
 - X Prepared meals at least 3 times a week,
 - X Not vegetarian, and
 - X Ate ready-to-eat (RTE) meat and poultry products.

Focus Group Participants: Key Demographics, n=63

Average age	
All participants	28 years
High school education groups	28 years
College education groups	30 years
Have other children	64%
Race	
Caucasian	87%
African-American	6%
Other race	6%

The US Department of Agriculture, Food Safety and Inspection Service, Contract number 53-3A94-00-06, "Evaluation Studies of Pathogen Reduction and Hazard Analysis and Critical Control Point" provided funding for two of the focus groups. FSIS's Food Safety Education Staff, under Contract number 53-3A94-98-02, Task Order 12, "Enhancements to the PRHACCP Evaluation Consumer Education Study," provided funding for six of the focus groups. All views expressed here are those of the authors and not necessarily of the Food Safety and Inspection Service.

4. Key Findings: Concerns, Knowledge, and Practices

Concerns about Foodborne Illness

- Z Participants were somewhat or not very concerned about getting foodborne illnesses from food they prepare at home.
- Z Participants discussed precautions they take at home to keep food safe. The vast majority were completely confident that meat and poultry products they prepare at home are safe to eat.
- Z Participants were more concerned about getting foodborne illness from eating food prepared at restaurants than from eating food prepared at home.

Food Safety Knowledge

- Z Despite confidence in their ability to safely prepare food, most participants described themselves as being only "somewhat" knowledgeable about food safety and safe handling practices.
- Z Participants were familiar with *E. coli* and *Salmonella*, but most were not familiar with *Listeria monocytogenes (Lm)* and *Campylobacter*.
- Z While some participants identified seniors, children, and the immunocompromised as high-risk populations, the majority did not identify pregnant women as being high-risk.
- Z When asked if they thought that pregnant women and their unborn babies were at greater risk for contracting foodborne illness, most participants said no. Some participants speculated that foodborne illness might cause birth defects or miscarriages.

Food Safety During Pregnancy

- Z Participants received limited information on food safety during pregnancy.
 - X Very few received information from their health care providers.
 - X Several read about food safety in books or magazines on prenatal care.
 - X A few received information from Women, Infants, and Children (WIC) clinics.
 - X None had read or received information specifically on listeriosis.
- Z A few participants knew that pregnant women should avoid luncheons, but most attributed this to their poor nutritional value.
- Z Some participants believed that hot dogs should not be consumed cold from the package without reheating, but did not relate this specifically to pregnant women.
- Z Many participants followed unsafe food handling practices during pregnancy.
 - X Some ate high-risk foods, particularly raw homemade cookie dough, soft cheeses, and dishes containing raw or undercooked eggs.
 - X The majority did not reheat luncheons during pregnancy.
 - X Some followed the unsafe practice of eating luncheon from packages that had been open longer than 5 days.
 - X Some followed the unsafe practice of referring to sell-by and use-by dates on open packages to determine whether products are safe to eat or should be discarded.
- Z Most participants had not made any changes in how they handle food since becoming pregnant because they were careful before becoming pregnant. However, some became more cautious after having children.

5. Key Findings: Evaluation of FSIS Listeriosis Brochure

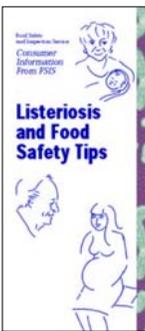
Participants evaluated the FSIS-developed brochure entitled *Listeriosis and Food Safety Tips* (dated May 1999).

General Impressions

- Z Participants
 - X liked the brochure,
 - X found the brochure easy to understand and very informative,
 - X described the brochure as "to the point" and did not think it was too long,
 - X liked the flow of the brochure and the ordering of information, and
 - X liked that phone numbers and web site addresses were provided for more information.

Concerns about Information in the Brochure

- Z Participants were not familiar with the information on *Lm* and listeriosis. They were
 - X unaware that pregnant women and their unborn babies are at risk, and
 - X surprised to learn that pregnant women should reheat luncheons to prevent listeriosis.



Effective Messages

- Z The vast majority of participants said that morbidity and mortality statistics, especially those associated with pregnant women, fetuses, and newborns, help to illustrate the seriousness of the illness.
- Z Words like "misconceptions" and "settlers" are scary for pregnant women, but participants said it is important to know the possible outcomes of the illness. These words get pregnant women's attention and illustrate the seriousness of the illness.

Will they make behavioral changes?

- Z At the end of each discussion, we asked participants if they planned to make any changes based on what they had learned.
 - X Many planned to start reheating or stop eating luncheons during pregnancy.
 - X Some might eat luncheons less often during pregnancy.
 - X Several did not plan to reheat or stop eating luncheons during pregnancy because the risk is small and warm luncheons is unappealing. They said they would probably follow the guidelines if their health care providers instructed them to do so.

6. Reaching Pregnant Women

Use effective messages for listeriosis educational materials.

- Z The brochure evaluated was targeted to all high-risk populations. Participants said that educational materials would be most effective if they were targeted specifically to pregnant women.
- Z Effective materials will also:
 - X Have a title with a warning tone.
 - X Present information on the risks of listeriosis to pregnant women and their unborn babies by providing morbidity and mortality statistics and possible outcomes of the illness.
 - X Provide detailed information on listeriosis, including how *Lm* contamination occurs, where *Lm* comes from, how to prevent and treat listeriosis, and whether listeriosis is transmitted through breast milk.
 - X Provide guidelines for preparing, eating, or avoiding high-risk foods, including how to properly reheat hot dogs and luncheons. Emphasize that at-risk consumers should not eat hot dogs and luncheons if they are not reheated.
 - X Provide information on USDA recommended storage times for RTE meat and poultry products.

Inform pregnant women about listeriosis through health care providers.

- Z The overwhelming majority of participants agreed that obstetricians and other health care providers should provide listeriosis information to pregnant patients.
 - X Nearly all participants suggested including a listeriosis brochure in the information package received at the first prenatal visit. They said they read everything in the package even though it contained numerous items.
 - X Some suggested that health care providers personally give listeriosis brochures to patients and briefly discuss it with them. They said that the seriousness of the illness demands special attention and thought women would take the message more seriously via this direct approach.
- Z Partnering with health care providers may also be effective. However, focus group research with physicians suggests that it may be difficult to encourage obstetricians to provide patients with information on listeriosis because they believe that foodborne illness is less important than other topics, such as heart health, smoking, and drug/alcohol use.²
- Z Partnering with medical associations may be effective in educating providers so that they can inform their patients. A potential tool is the document "Diagnosis and Management of Foodborne Illnesses: A Primer for Physicians,"³ available from the American Medical Association (AMA).

Disseminate information on listeriosis to pregnant women through books, magazines, and web sites on prenatal care.

- Z Most participants said that they read books and magazines on prenatal care during pregnancy, and some get information from the Internet.
 - X Some get more information from books and other sources than from their health care providers.
 - X Even women in their second or subsequent pregnancies sought out and read prenatal care information.
- Z Publishers of prenatal books, magazines, and web sites could be encouraged to report on *Lm* and the USDA recommended guidelines for eating and storing RTE meat and poultry products when addressing food safety for pregnant women.
- Z Local parenting newspapers and magazines and county and state web sites are potential sources for local educators to disseminate *Lm* information to pregnant women.

Participants' Favorite Books, Magazines, and Web Sites on Prenatal Care

Books

What to Expect When You're Expecting by Arlene Eisenberg, Heidi E. Murkoff, Sandee E. Hathaway, BSN, Workman Publishing, New York, NY, 1996.
While Waiting by George E. Verrill, MD, FACOG, Anne Marie Mueser, Ed.D, S.J. Martin's Griffin, New York, NY, 1998.
Your Pregnancy: Week by Week by Glade B. Curtis, MD, OB/GYN, Fisher Books, Tucson, AZ, 1997.

Magazines

American Baby, Primedia, Inc.
Parenting, The Parenting Group, Inc.
Parents, G&J USA Publishing

Web Sites

<http://www.babycenter.com/>
<http://www.pregnancyweekly.com/>
<http://www.pregnancycalendar.com/>

Z Other suggestions for reaching pregnant women:

- X Brochure displays in doctors' offices, daycare centers, and grocery stores
- X Poster displays in OB-GYN and pediatricians' offices
- X Listeriosis information in prenatal nutrition and prenatal care classes
- X Food safety videos to show in OB-GYN offices
- X Listeriosis information in WIC clinics

Increase awareness of *Lm* and listeriosis among the general population.

- Z Participants were surprised that they were previously unaware of *Lm* and listeriosis, given the seriousness of the illness.
 - X They agreed that awareness of *Lm* needs to be increased in the general population.
 - X According to the FDA FSIS Food Safety Survey, although awareness of *Lm* among the general population has jumped from 14% in 1998 to 31% in 2001, awareness is still much lower than that of *Salmonella* and *E. coli*.⁴
- Z Participants agreed that media coverage is the most effective tool for raising awareness among the general public.
- Z Other suggestions for delivering information on listeriosis to the general population:
 - X Television news
 - X Television news shows
 - X Commercial and public service announcements (PSAs)
 - X Newspapers
 - X Cooking shows on television
 - X Billboards
 - X Schools
- Z Because *Lm* can grow at refrigeration temperatures, consumers also need to know and follow the USDA recommended storage times for RTE meat and poultry products.

7. FSIS Listeriosis Education Campaign

- Z FSIS has been educating consumers about *Lm* since the early 1990s. After a listeriosis outbreak in the late 1990s, FSIS announced its Action Plan to address *Lm* which included plans for consumer education. The brochure evaluated in these focus groups was part of FSIS' plan to educate consumers.



- Z FSIS partnered with the International Food Information Council (IFIC) Foundation; FDA, CDC, and the Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) to develop patient education materials for pregnant women.
 - X Xsheet developed based on findings from the RTI focus group study, IFIC research with physicians, and the Draft FDA/USDA/CDC Listeria Risk Assessment.⁵
 - X Xsheets distributed to state WIC offices and thousands of members of several healthcare organizations that work with pregnant women, including:
 - AWHONN
 - American College of Nurse-Midwives
 - National Association of Nurse Practitioners in Women's Health
 - National Association of Neonatal Nurses
 - American Academy of Family Physicians
 - X Xsheets distributed at meetings and conventions such as the spring meeting of the American College of Obstetricians and Gynecologists (ACOG).
 - X The FSIS Outreach email system and the USDA Meat and Poultry Hotline receive daily requests for xsheets and other *Lm* information.
- Z Next steps include a Spanish version, English and Spanish low-literacy versions, and distribution plans for the new xsheets to maximize outreach.

References

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