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## FOCUS GROUPS ON CONSUMER ATTITUDES ON FOOD SAFETY EDUCATIONAL MATERIALS IN KENTUCKY

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## ABSTRACT OF THESIS

### FOCUS GROUPS ON CONSUMER ATTITUDES ON FOOD SAFETY EDUCATIONAL MATERIALS IN KENTUCKY

Four focus groups were conducted in Kentucky to evaluate differences in the participants' knowledge of safe food handling practices, where they obtained their knowledge, which source(s) they trusted to provide accurate food safety messages and the effectiveness of messages from three different sources. The sources of food safety messages compared by the focus groups were the Partnership for Food Safety Education's FightBAC!® material, food safety materials developed by the American Dietetic Association and funded by ConAgra Foundation and food safety materials developed by the University of Kentucky. Each focus group represented a specific population, (A) limited resource parents (Louisville); (B) married males (Lexington); (C) mothers of young children (Danville); and, (D) females of varied age with background of Cooperative Extension Service sponsored consumer education in food preparation (Lexington). Follow up interviews were conducted through a telephone survey to inquire as to whether any food safety practices had been implemented since participation in the focus groups. The results of the interview revealed that participants expressed varying familiarity with safe food handling practices, varying understanding of the food safety messages and diverse acceptance and preference for the delivery mechanisms.

KEYWORDS: FightBAC!®, Consumer, Food Safety, Focus, Social

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Holly Holbrook Coleman

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August 6, 2007

FOCUS GROUPS ON CONSUMER ATTITUDES ON FOOD SAFETY  
EDUCATIONAL MATERIALS IN KENTUCKY

By

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August 6, 2007

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THESIS

Holly Holbrook Coleman

The Graduate School  
University of Kentucky  
2007

FOCUS GROUPS ON CONSUMER ATTITUDES ON FOOD SAFETY  
EDUCATIONAL MATERIALS IN KENTUCKY

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THESIS

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A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Science  
at the University of Kentucky

By

Holly Holbrook Coleman

Apex, North Carolina

Director: Dr. Melissa Newman, Assistant Professor/Animal and Food Sciences

Lexington, Kentucky

2007

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## CHAPTER 1: INTRODUCTION

Food safety practice as it relates to the prevention of illness and promotion of wellness has become a major concern of Americans. Media coverage of foodborne outbreaks and resultant deaths caused by *Salmonellae* bacteria, *E. coli* O157:H7, *Listeria monocytogenes*, to name a few, is a common occurrence. A vast and dynamic array of educational materials and campaigns to deliver food safety messages to educate and change the behaviors of consumers now exists.

Federal agencies, including the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA); state and local agencies, including health departments, Cooperative Extension offices; nutritionists; health educators; the food industry; the medical profession; and, organizations representing disease prevention have all joined the march to educate the consumer on how to safely prepare foods in the home and prevent foodborne illnesses. The continued development of new food products and ingredients, the emergence and re-emergence of pathogens, new production and processing methods and the globalization of the food supply challenge food safety educators. Educational efforts that incorporate the increasing knowledge and technology of food safety and result in consumer's behavior change, while not a substitute for regulation and research, are an important strategy in the prevention of foodborne illness.

## CHAPTER 2: LITERATURE REVIEW

Foodborne diseases are estimated to cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year (Mead, et. al., 1999). In a 2001 General Accounting Office report, the United States Department of Agriculture estimated that at least \$6.9 billion was spent on medical treatments, productivity losses, and premature deaths are attributable to 5 major foodborne diseases (USDA GAO 2001). Research indicates that 25% of reported outbreaks can be attributed to inappropriate consumer food-handling and preparation practices in the home (Williamson, et. al., 1992). To be most effective, food safety education necessarily needs to target changing the behaviors most likely to result in foodborne illness. In 1997, the Partnership for Food Safety Education initiated the FightBAC!®, a campaign specifically designed to educate consumers on practices that promote food safety and lessen the impact of foodborne illness on a household level. (USDA)

In a speech given in 1998 by Susan Conley, Director of Food Safety Education and Communications Staff, Food Safety and Inspection Service, U.S. Department of Agriculture, Ms. Conley admonished that food safety professionals “have a responsibility to empower the public to protect itself from the public health hazard of foodborne illness.” During that speech, she continuously emphasized that the key elements of effective messaging is that the message be science-based; provide consumers with tangible actions that they can take themselves to reduce their personal risks; be practical; must motivate consumers to action; be consistent and when necessary should target specific audiences. (Conley, 1998).

From the mid-1990's to present, the food safety profession has accepted the challenge posed by Ms. Conley and a plethora of social marketing research is being conducted to guide the development of food safety messages that will be successful in reaching all consumers and modifying their food selection and preparation behaviors.

Self-reporting telephone and mail surveys, focus group research and direct observation studies have been conducted with the purpose of guiding research consumer food-handling practices, information sources, knowledge and practice. A compilation study published in 2003 analyzed 88 consumer food safety studies conducted in the previous 26 years in 12 countries, including the United States, Canada, United Kingdom, Australia, New Zealand, Ireland and others. Forty-two percent of the studies reviewed were conducted in the United States. Surveys, focus group research and direct observational studies were included in the study. The conclusions reported from this research included: (1) A consumer's intention to perform a food safety procedure does not always result in the implementation of the procedure. A substantial number of consumers did not implement safe food-handling practices including personal hygiene, such as failure to wash and dry hands after handling raw poultry, and mechanical practices, such as failure to separate or adequately wash and dry utensils after the preparation of raw meat and poultry and prior to the preparation of ready-to-eat (RTE) foods. (2) Knowledge of food safety concepts did not generally correspond to practicing the procedure. The researchers concluded that data presented in many of the studies reviewed indicate that large proportions of consumers possess adequate food safety knowledge, however, a general lack of food safety knowledge was disclosed in a substantial proportion of the populations in the countries where studies were conducted.

(3) Data collected by direct observational studies more accurately represented actual consumer food-handling behaviors than do data obtained from self-reported practices, knowledge or attitudes collected through intermediary means, such as interviews and questionnaires. Observational study results that were reviewed indicated that despite nationwide food safety education attempts, unsafe food-handling practices are frequently used during home preparation of food. (Redmond, 2003).

### **Consumer Surveys and Observational Studies**

The United States Food and Drug Administration conducted the Food Safety Survey (FSS), a random digit-dial survey of a nationally representative sample of American consumers in 1988, 1993, 1998 and 2001, collecting data to track American consumers' knowledge, behavior and perceptions on food-safety related topics including food handling, knowledge of foodborne illness and food safety knowledge sources. Results from the 1993 survey indicated that consumers believe that foodborne illness is a minor sickness and that these illnesses usually result from eating a contaminated food at a restaurant. Of the respondent reporting that they had personally experienced a foodborne illness, the majority believed it was caused from food prepared outside the home (Fein, 1995). In summarizing the results of the surveys, the U.S. Food and Drug Administration reported significant improvement in food safety practices related to cross contamination behaviors and consumption of potentially risky foods from 1993 and 1998 (U.S. F.D.A., 2002).

Research Triangle Institute (RTI) conducted a multi year evaluation of the *1996 Pathogen Reduction: Hazard Analysis and Critical Control Point (PR/HACCP) Systems: Final Rule* for the USDA. Part of this evaluation included a study to measure changes in

consumer knowledge and safe food handling practices. Data from the Food Safety Survey was included with RTI's observational study data and consumer focus groups to measure changes. Key findings comparing 1988 to 2001 included consumer reports of increased knowledge about food safety. However, when observed, these safe food-handling practices were not practiced. Another key finding was that increased ownership of food thermometers was reported, however actual and routine use of thermometers had not increased proportionally (RTI, 2002b).

The Food Marketing Institute's survey of supermarket shoppers in 2000 found that 60% of respondents cited hand washing and/or washing of food preparation surfaces as the most important action that can be taken to keep food safe from bacterial contamination (USDA/ERS). A study, reporting the results of a telephone survey conducted in five states where FoodNet surveillance was being conducted in 1995 and 1996 reported that 93% of all respondents self-reported "always or almost always washed their hands or cutting boards with soap and water after handling raw meat (Shiferaw, et. al., 2000). Studies, which utilize self-reported behaviors, may reflect what the respondents believe to be the correct answer, rather than their actual practices.

In an observational study conducted by Utah State University (Anderson et al., 2000), 99 subjects chosen to be reflective of the demographics of the community, in this case, white and middle-class, were videotaped while preparing a multiple-ingredient salad and single entrée (chicken breast, meatloaf or halibut). The tapes were reviewed and coded to examine the relationship between preparation behaviors and the FightBAC!® food safety messages. An average of seven (7) failure-to-wash-hands behaviors were observed per subject per session. Failure-to-wash-hands was defined as a



behavior that should have prompted subjects to wash their hands and their failure to do so. Cross-contamination from raw to ready-to-eat foods occurred in the majority of the consumers' homes. Thirty percent of the home refrigerator temperatures were less than 40°F and approximately one-half of the subjects reported not knowing the recommended final internal cooking temperature for chicken or beef (Anderson et al., 2004).

Audits International, in their 2000 Home Food Safety Study, observed meal preparation, service, and leftover handling and clean up in 115 households in 74 American cities. Subjects were willing participants, volunteering to be observed and were better educated than the average U.S. population. Based on this design bias, it was likely that the participants performed better than if the subjects had been randomly selected and their observation had been unannounced. Seventy-four percent of the households were observed to have at least one critical violation, a practice that alone can potentially lead to illness or injury. Critical violations observed during the study included: neglected handwashing, improper food preparation techniques, cross-contamination, improper cooling of leftovers or internal cooking temperatures too low. Subjects attributed 40% of their errors to lack of education, 40% to lack of conscious awareness of their actions and 20% to a lack of motivation. (Audits International 2001).

The USDA Economic Research Service, in 2001, reported the results of their research for which two mail surveys were used to assess hamburger cooking and ordering in the U.S. This study illustrated a significant association between risk motivation and cooking and ordering choices. The study reported that consumer education to encourage ordering thoroughly cooked hamburgers needed to be targeted to urban centers, and regionally to the South and Northeast. The study further concluded that television and

magazine stories could be effective channels for increasing consumers' risk motivation. (Ralston, AER#804, 2001)

In 1998, Creswell, Munsell, Fultz and Zirbel, a public relations firm in partnership with the International Food Safety Council, conducted a telephone survey of newspaper editors (150) and consumers (150) intending to gain insight into how closely this media coincides with consumer food safety attitudes and to determine how to work more effectively with the media. The findings of this study include: (1.) Eighty percent (80%) of consumers rate food safety to be "very important;" (2.) Consumers report that increased media information has caused an increase in consumers' perception of food safety as a growing issue; (3) eighty percent (80%) of consumers surveyed say they believe at least half of what they see in the media about food safety and that they are more likely to take action on food safety issues as a result of negative media; and (4.) more than 9 in 10 consumers reported at least some level of concern for food safety when cooking at home, as well as when eating in a restaurant. (Creswell, 1998).

Food safety knowledge and behaviors have been further assessed in a study conducted in Arizona where participants in the Expanded Food and Nutrition Program completed questionnaires that assessed food safety knowledge and practices. Participants meeting the criteria of low income, educational level of 12 years or less and member of a minority are referred to this USDA program by social service. Need for improvement in participant knowledge and practice of food safety was a key conclusion derived from this study. (Meer, 2000).

In a 1999 study utilizing responses to a Kentucky statewide survey to investigate the relationship between food safety perceptions and behaviors of consumers, researchers

assessed the effect of demographic variables, such as age, income, gender and level of education influenced the food safety perceptions and behaviors of primary food preparers. Based on the results of this study, the researchers reported finding some significant correlations between demographic characteristics and specific food safety perceptions and behaviors. The Kentucky research suggested that targeted educational programs would particularly benefit males, occasional meal preparers, specific age groups, particularly those younger than 30 or older than 60 years, and those living in households with low incomes. (Roseman, 2006).

### **Focus Group Studies**

The Food Safety and Inspection Service (FSIS) of the United States Department of Agriculture has supported several focus group studies intended to assess effectiveness of food safety messages and related food safety issues. Included are: *Focus Groups on Barriers that Limit Consumers' Use of Thermometers when Cooking Meat and Poultry Products* (USDA 1997), *Thermometer Usage Messages and Delivery Mechanisms for Parents of Young Children* (USDA 2002) and *Focus Groups to Test Materials for the "Is it DONE yet?" Campaign* (USDA 2004). In the study conducted on barriers to consumers' use of thermometers, 6 focus groups were held in 2 cities. Participants were separated into three groups: parents under age 45 with one child 10 or younger; single adults 18-30 and senior citizens of age 65 or older. Recommendations made as a result of these discussions included: (1) targeting parents of young children as this group indicated greater likelihood of changing behavior if they felt it would ensure the safety of their children and (2) encouraging the use of thermometers during routine food preparation, not just for special event meals. One element, that the use of thermometers results in

enhancement of flavor and quality of meals, was commonly agreed upon, but was most prevalent among the senior citizen and young adult groups. The *USDA PR/HACCP Rule Evaluation Report on Thermometer Usage Messages and Delivery Mechanisms for Parents of Young Children* reported findings that included: parents of young children expressed confidence in their ability to safely handle and prepare meat and poultry at home. They reported being more careful in their food handling practices since having children. However, most reported being unaware of the importance of using a food thermometer when cooking meat and poultry. Parents who were given a thermometer with Thermy™ educational materials were more likely to begin using it to check food temperatures than participants who did not receive a thermometer. Participants suggested educating students regarding thermometer usage in school so that they would bring the message home to their parents. In the focus group study testing materials for the “Is it DONE yet?” campaign, 7 of 10 participants who did not own a thermometer before exposure to the campaign, obtained thermometers. Of the ten thermometer-owning participants, 5 reported using the thermometers to test temperatures of hamburgers and 7 used their thermometers to test large portions of meat or poultry. (USDA/RTI, 2004).

### **Reaching Target Audiences**

Much research has been conducted on the principles of adult learning. The need to incorporate adult learning styles into food safety educational messages and behavioral changes is now accepted. It is now understood that adult students learn differently than traditional students. Adults have a need to connect learning to their life experiences and knowledge and to recognize the value of experience. They must see the relevance for the learning and understand how the lesson can be applied in their own life. They are

practical, looking for the aspect of a message that can be useful to them. Further, it is reported that positive transference occurs when “students” use the behavior that is taught. This is most likely to occur under the following circumstances: (1) Association- participants associate the new information with something that they already know; (2) Similarity- the information is similar to material that the student already knows; (3) Degree of original learning- students’ degree of original learning was high, and (4) Critical attribute element- the information learned contains elements that are extremely beneficial or critical. (Lieb, 1991). These principles can be related to how food safety education affects behavior change.

In a presentation given to the Society for Nutrition Educators, it was reported that the most successful communication strategies with older adults included giving practical, to the point, how-to information; limiting the messages to two if the messages challenged the beliefs of the group, planning for multiple contacts; providing low-literacy resources; using colors with high contrast for print materials and tailoring the readability of the materials. It was also reported that older adults may possess a great deal of information but do not practice what they know therefore they require support to change their behaviors. (Russell, et al, 2006).

## **CHAPTER 3: FOCUS GROUP RESEARCH ON FOOD SAFETY EDUCATION**

### **MATERIALS**

#### **INTRODUCTION**

A U.S. Department of Agriculture grant to the University of Kentucky provided funds to conduct focus group research. Four focus groups were conducted in Kentucky to evaluate differences in the participants' knowledge of safe food handling practices, where they obtained their knowledge, which informational source(s) they trusted to provide accurate food safety messages and the effectiveness of messages specifically provided by three different sources.

## METHODOLOGY

### **Focus Group Participation**

Focus Group participants were recruited through the University of Kentucky Cooperative Extension Service. Participants were selected to represent the groups to be compared for the purpose of the study based on the following criteria: Persons of limited resources with primary responsibility for meal preparation; males with some degree of responsibility for meal preparation; mothers of children with primary meal preparation responsibility with limited background of group education on subject of food safety; and women with primary responsibility for family meal preparation and a history of meal preparation education. Groups were comprised of eleven to sixteen participants. All participants received a \$45.00 incentive for their time.

### **Focus Group Composition and Location**

A total of four focus groups were conducted, two in Lexington, Kentucky; one in Danville, Kentucky and one in Louisville, Kentucky. Each of the groups was composed as follows:

- Group A: Conducted May 19, 2000, Louisville, Kentucky. Participants (N=15) were attendees of a Louisville Family Resource Center program for limited resource parents. The group included 13 females and 2 males.
- Group B: Conducted May 17, 2000, Lexington, Kentucky. Participants (N=16) were male, married, with varied responsibility for meal preparation.
- Group C: Conducted August 1, 2000, Danville, Kentucky. Participants (N=12) were mothers of young children, infants to twelve years of age, with primary

meal preparation responsibilities and no history of consumer education in food preparation or safety.

Group D: Conducted May 16, 2000, Lexington, Kentucky. Participants (N=11) were women of varied age with primary responsibility for family meal preparation and a background of Cooperative Extension Service sponsored consumer education in food preparation.

### **Group Facilitation**

Questions were designed to elicit information from the groups on their reaction to varied food safety messages and to the methods of delivery currently used in providing consumer food safety education. A pilot focus group was conducted to assist researchers in determining success of questions, amount of discussion generated by questions, time required by a focus group for discussion and to assist the facilitator in focus group conduct. A questionnaire format was finalized and focus group meetings scheduled to allow for two hours of participatory discussion.

Focus group meetings began with participant sign in and the moderator providing a short orientation as to how the discussion would be conducted. Participants were seated facing each other around tables with name placards (first name only) for identification purposes. Sessions were recorded both by tape and transcription by the assistant moderator. Participants introduced themselves and shared what menu item they enjoyed preparing for family or friends as a discussion icebreaker. The participants were then presented with a series of questions to gain insight into their knowledge, views and application of food safety and their assessment of three food safety educational materials.



## RESULTS

### Background Food Safety Knowledge

A series of questions regarding the participants' general knowledge of food safety was posed to develop a baseline for the discussion (Appendix A). Most participants in all groups expressed knowledge as to food safety practices, concern that food posed a risk and was a contributing factor to foodborne illnesses. All groups mentioned chicken as a primary source of risk. All groups associated the term, "food safety" with facilities, i.e., restaurants, processing plants, delicatessens, rather than preparation of food in their own home. Food served at "potluck" meals was considered by all groups to be a source of concern. Personal experience or personal knowledge of someone who had experienced a foodborne illness was a major factor in rating concern about foodborne illness. All groups reported learning the difference between "right" and "wrong" food preparation techniques from parents or other family members.

Participants in each of the groups reported changes in their personal hygiene and food preparation habits in the last five years that were indicative of their increased understanding of practices that prevent cross contamination. Most participants agreed that media reports of foodborne illnesses and deaths had influenced their habits.

The questions as posed to the groups, with a summary of participants' comments follow:

#### **1. Which health risk from food do you worry about most?**

A variety of individual responses were provided when this question was posed, with the underlying theme indicating that chicken and meat were considered the most dangerous. Specifically, comments indicated the participants' knowledge of bacteria,

cross-contamination, shelf life of foods, food preparation by others and general health concerns (non-food safety related).

### **Bacteria**

Respondents from all groups related concerns from bacteria in meat and poultry.

Participants indicated knowledge of the time/temperature relationship, Salmonella in chicken, *Escherichia coli* in burgers, cross-contamination of food due its exposure to unclean surfaces. Specific comments that were discussed by groups are listed below:

- Poultry (chicken) can be contaminated by Salmonella bacteria. (A: Limited Resource, B: Male, C: Mothers of Young Children, D: Homemakers)
- *E. coli* in hamburgers is a cause of illness and requires that hamburgers be cooked thoroughly. (A, B)
- Salmonella from eggs and foods with raw egg ingredients, specifically, raw cookie dough, batter, eggnog, meringue pies. (C, D)
- Botulism. (B)
- Leaving food at room temperature. (A)
- Correct thawing time. (B)
- How many times can a food be safely reheated? (B)

### **Cross Contamination**

Participants in all four groups mentioned cross contamination or specific practices that lead to cross contamination.

- Cross contamination between raw and cooked foods. (B, C, D)
- Cleaning cutting boards. (C, D)
- Using a clean plate for cooked meat when grilling. (B)

### **Shelf Life of Foods**

Lack of knowledge about shelf life of foods was mentioned as a concern of participants. One participant from Group A commented, “I always have to smell it and try to remember how long food has been in the refrigerator.”

- Length of time food is left in the refrigerator before it goes bad. (A)
- Shelf life of lunchmeat and other foods unknown. (B)

### **Food Preparation by “Others”**

Concern that others do not practice the same care in food preparation as participants was discussed (B).

### **Health Concerns**

- Pesticides. (D)
- Nutritional content related to health concerns, i.e., diabetes, heart disease. (B, D)
- Fat content of foods. (A)

## **2. In the past few years, we have heard the term “food safety” more often in the news. What comes to mind when you hear this?**

Participants responded to this question with comments that indicated a relatively good knowledge of safe food handling practices. Their comments indicated that they associated the term with the food source, processing plants, restaurants, and retail delis, rather than with home preparation and service. Participants indicated a concern for children with suppressed immune systems and their susceptibility to *E. coli*. (C)

Participants voiced concerns regarding hand washing and other practices that result in contamination of food by commercial foodservice workers. Participants reported great concern about food from restaurants as is indicated by the following comments:

- “More concerned about food in restaurants from mice and roaches.” (A)
- “Avoid restaurants during flu season.” (B)
- “Review the published restaurant scores.” (B) The Lexington (Kentucky) Herald Leader, a daily newspaper, publishes the scores of the health department inspections on a weekly basis.
- “Question consistency of restaurant scores.” (B)
- “Depend on government officials that check meat.” (B)
- “Question the cleanliness of food processing plants, restaurants and homes.” (C)
- “Food workers touching money and food without washing hands.” (D)
- “Use of plastic gloves in restaurants may not be effective.” (D)
- “Won’t eat from salad bars.” (D)
- “Fast food restaurants are safer than good restaurants.” “Good” was used in context of sit-down, more expensive restaurants where the kitchen is not visible from dining area. (D)

**3. How concerned are you about food poisoning? Food poisoning is an illness caused by food being handled improperly either before or after you buy it.**

Participants’ responses displayed one underlying theme, that personal experience or the experience of an acquaintance increased their individual concern about food poisoning. (A, B, C, D) Discussion as a result of this question brought forth concerns about food prepared for service at potluck meals in the groups that had not previously commented on potluck meals. (B, C, D) Participants reported greater concern associated with food prepared and served at picnics, potluck meals and other group meal functions. Groups B and D related their concern that foreign travel posed a risk,

as conditions in other countries were more conducive to the spread of disease and the food supply was not as safe as in the United States.

**4. Where do you think food safety problems are most likely to occur?**

As related during responses to previous questions, participants continued to discuss sources of food safety problems to be restaurants (A, D), delicatessens (C), processing plants (B, D) and potluck meals (A). A participant in Group A indicated, “I am especially picky in summer.”

Group A participants discussed the home as a source for food safety problems that resulted from distraction, lack of time or negligence while Group D’s discussion of the home as a source of food safety problems centered around lack of food safety education and food preparation habits formed as a result of cultural background and experiences.

**5. What causes food poisoning?**

Group discussions revealed that participants possessed a good knowledge of the practices that result in the contamination of food and that bacteria can be a source of illness. One participant in Group A said, “If everyone knew exactly what causes it, you wouldn’t have it.” In response, another participant added, “I think people know enough about what causes it to prevent it more than they do. Either not cooking meat fully, placing vegetables where meat has been. Taking time would prevent it more.”

**6. What groups of people do you think are more likely or at high risk of getting food poisoning?**

Participants in all four focus groups acknowledged that certain population groups are more susceptible to food poisoning. It is worth noting that while respondents from

each group acknowledged that some segments of the population had greater risk than others, their responses indicated varying reasons for the increased risk and susceptibility. Participants discussed the potential risk of foodborne illness among the elderly, uneducated and children. Specific comments are discussed below.

### **Elderly**

- Have done it this way all their lives. (A)
- Depressed immune systems. (D)
- Stubborn. (D)
- Failing senses: eyesight, memory and smell. (D)

One participant related, “To tell my mother to put food up, she would say, I’ve done it all my life and never had a problem. It’ll be fine. It’s scary, because if it ever hits her...”

### **Uneducated**

- People who don’t understand. (A)
- Single men. (C)
- College students, young adults. (B, C)

### **Children**

- *E. coli* contamination of pacifiers and bottles as result of mothers handling meat. (C)
- Need some bacteria to build immune systems, can’t be too fanatical about cleanliness.\*(D)
- Antimicrobial sprays may not allow healthy germs to survive, resulting in super strains of bacteria that are now developing.\*(D)

\*The topic of immunity due to overuse of antimicrobials soaps, hand sanitizers, etc., came up during Group D's discussion>

### **Reported Food Handling Practices, Factors Reported to Educate and Influence Change**

After determining the food safety knowledge of the participants in each focus group, the moderator then moved the discussion to ascertain what practices the participants actually utilized routinely and to determine sources where the participants acquired knowledge regarding food safety practices. Participants were further questioned as to what influenced their food preparation behaviors and caused modification to these behaviors.

#### **7. Describe food safety practices you follow in your kitchen. (The facilitator failed to ask this question of Group C.)**

Participants in Groups A, B and D expressed that they routinely washed their hands while or prior to preparing food. Participants in Group D displayed a more comprehensive knowledge of safe food handling practices with the following items presented to summarize the practices employed by this group.

- Hand washing.
- Sanitizing dishware.
- Using different utensils for raw and cooked foods.
- Changing cutting boards.
- Thawing meat in refrigerator.
- Labeling foods with dates.

Group A's discussion was limited to hand washing, washing countertops, bleaching (sanitizing) dishtowels and cloths. Group B's responses were exclusively related to issues related to meat, i.e., buying the freshest meat possible, washing hands after touching raw meat, washing meat and using a clean plate for cooked meat.

**8. Think back to where you learned about “right or safe” and “wrong or unsafe” ways to prepare food. Where did you learn these things?**

The vast majority of participants agreed that their parents and/or family played an important role in instilling knowledge of food handling practices. Beyond that, specific sources of knowledge included:

- Secondary school home economic and/or college classes. (A, B, C)
- Cooperative Extension Service. (A, D)
- Health Department. (A, B)
- Cooking shows on TV. (C)
- Reading materials, including labels, magazines, and newsletters. (D)
- Previous work experience in food-related jobs. (B)

**9. What food safety changes have you made in the last five years?**

It was evident that the majority of the participants were familiar with practices that prevent cross contamination based on their response to this question. Group C, comprised of mothers of young children reported making the most changes to their daily food preparation practices, discussing food contact surfaces, food temperatures and thorough cooking. Specific changes participants reported included:

- Now use plastic cutting boards. (A)
- Use more paper plates, cups and plastic utensils. (A)



- Now use bleach in dishwasher and to clean countertops. (A, C)
- Use two different cutting boards-one for meat and one for vegetables. (B)
- Cook hamburgers well done, careful with chicken. (B)
- Cook well done. (C)
- Don't eat raw hamburger due to "Jack in the Box" incident. (B)
- No longer use sponges. (C)
- Discard leftovers. (C)
- No longer thaws food on counter, now preferring to use refrigerator or microwave oven for thawing. One participant reported that she now uses bottom drawer of refrigerator exclusively for thawing meats only. (C)
- Repackage bulk packages of meat when purchased. (C)
- Handle meat less. (D)
- Use more paper towels, replacing dishcloths due to germs. (D)
- Use dishcloths only one time. (D)

#### **10. Why did you make these changes?**

Participants discussed the role of media reports of illness and death from food, personal knowledge of persons that had a foodborne illness and being a parent as the main reasons for making changes. Many of the mothers with young children (C) and a father (B) admitted that their increased caution was due to being responsible for the health of their children, with the father saying, "I pay more attention to the way I do things because I now have children. It gives me a totally different perspective."

Group C participants discussed marketing efforts, as seen in the antimicrobial soaps and sanitizer advertisements. Groups B, C and D reported that TV and radio news

programs regarding serious illnesses caused by food inspired them to change habits. Group C specifically indicated that “scary” stories on primetime television news magazine shows, such as *Dateline* and *20/20* inspired them to improve their food handling practices.

#### **11. What is the best way to get a food safety message to you?**

When the moderator posed this question, participants in each group reported that media sources play a significant role in the information they receive. The media sources identified by the groups were:

Television. (A, B, C, D)

Radio. (C)

Newspaper. (A, C, D)

The groups differed on which television venue would be most successful in delivering the message to them. Group B participants suggested that they would be more likely to hear the message broadcast during a sporting event. Several participants in Group C indicated that news programs airing after children’s normal bedtime, such as *20/20* and *Dateline*, are a good avenue to educate them, primarily through “bad stories.” However, participants in Group B expressed skepticism of the validity of such shows when based on government reports, due to their perception that “scare tactics ” have been used in the past regarding unsafe foods, i.e., saccharin, which the participants now perceive to be safe. Group B participants indicated belief that media stories whether published or broadcast, utilizing statistics based on scientific studies of foodborne illnesses, would add credibility to that story, thus would be a stronger motivator to behavioral change.

Groups B, C and D identified labels that are used on food packages as being a good avenue for the delivery of food safety messages. Group C expressed that improvement in readability of current labels is necessary and would be necessary to achieve this goal. According to participants, meat and poultry juices distort the printing, thus rendering labels difficult to read.

The participants identified other avenues for food safety message delivery, including the following:

- Cooperative Extension Service and Homemakers Classes. (A, D)
- Websites. (A)
- Children's daycare centers. (A)
- Health Departments. (A)
- Posters, visual aids. (A)
- Pamphlets distributed at meat counter or grocery. (B)
- Cookbooks. (C)
- International symbols. (D)

## **12. What facet of the media do you pay the most attention to?**

With this question, the moderator moved the focus of the groups' discussion in an effort to determine the participant's preference of media outlet(s) to which the most attention to food safety messages would be paid. Respondents from each group reported television and radio as the media outlets they most often pay attention. Individual participants in B and D also mentioned the Internet as a source of information.

### **13. Who do you trust most to provide you with food safety messages?**

Similarities of opinions among the groups were observed as participants identified government agencies as providing the most reputable and trustworthy information. Groups A, B and D mentioned the Cooperative Extension Service and Public Health Agencies, while FDA was mentioned by participants in Group B. Respondents (B) identified governmental agencies as having a legal responsibility for providing trustworthy information. One Group B participant expressed skepticism that industry could be trusted, indicating that industry would, “chance a lawsuit from illness if cost is less than a recall or fixing the problem.” However, Group D participants reported their trust in messages from the food industry. A participant in Group D interjected the comment, “I trust a governmental agency more than Martha Stewart.” The focus group was conducted prior to Stewart’s legal problems.

Participants in Groups A and C identified television as being a trustworthy source, with participants in Group A mentioning local television newscasts, while many Group C participants trusted the in-depth reports that air on television shows like *20/20* and *60 Minutes*. Group C participants cited the in-depth research that is conducted for these stories as being more reliable, with one participant reporting, “These shows probe for the truth, rather than just reporting news.”

Respondents in Group A were the only ones identifying friends or family as being a trusted source of information. One participant (A) said, “Nothing ever stops me from picking up the phone and calling Mom.” Participants in Group C reported that they would believe and trust information received from their child’s pediatrician and from reputable organizations that represent health concerns. Participants in Groups A, B

and C reported reading information, i.e., educational materials, pamphlets, and magazines.

### **Food Safety Messages: Format and Content**

The second half of the focus groups was used to elicit information on participant attitudes on written food safety message delivery systems. Discussion centered on comparing three educational brochures, USDA's FightBAC!®, (Appendix B), the American Dietetic Association/ConAgra Foundation's "It's In Your Hands"™ (Appendix D) and the University of Kentucky's *Home Food Safety* fact sheet (Appendix E). A majority of the focus group meeting time was spent comparing USDA's FightBAC!® and the University of Kentucky's *Home Food Safety* fact sheet. These materials have major differences that include: use of cartoon characters to deliver messages, format, level of reading difficulty and content. The purpose of this discussion was to compare attitudes and acceptance of food safety messages and to identify differences that may exist between the populations represented by the four focus groups: limited resource, males, mothers of young children and experienced homemakers with history of consumer food safety education.

- 14. Focus group participants were shown blank sheets of paper, one folded into a tri-fold format, one folded in half and a single sheet and asked which format was most appealing.**

Not all participants indicated a preference for a particular format. Of the participants responding, the results are displayed in Figure 1.

**Table 3.1: Format Preference for Educational Materials**

Group	Tri-Fold	Half Page	Single Sheet	Total
A	3	1	0	4
B	4	0	2	6
C	4	0	3	7
D	1	0	6	7
Total	12	1	11	24

Differences in personal preference were minimal when participants compared the tri-fold and one-page sheet formats. Of the participants who expressed a strong preference, it appeared to be based on their perception from past events or personal habits. One mother in Group C said, “I associate the tri-fold pamphlet with other important information because the information I got from the hospital when I had my baby was in tri-fold format.” In Group B, the older males indicated they liked the pamphlet format, while the younger men said they would not read a pamphlet, relying on the Internet or email for information.

Reasons given for tri-fold format preference included:

- It allowed room for more information.
- It would fit on the refrigerator door and it was easy to scan and read quickly.

Reasons given for one page sheet preference were:

- It could be posted or placed in a cookbook for referral. (C, D)
- It was a more familiar format. (B).

**15. Some educational materials use cartoons to illustrate their messages. Groups were asked, “When you look at these materials, how do you feel about the material/character?”**

This question elicited a variety of responses from the participants that can be divided into positive and negative reactions toward the material/character and its usage. The group responses are characterized below.

**Group A**

Positive:

- Kind of cute.
- Takes the stress out of reading the material.
- Gives impression that the material is easy, not a lot of effort to understand necessary.
- Pictures are good, gets attention of children or pre-teens, similar to success of Reddy Kilowatt® and Smokey Bear.
- Would not be as likely to read if it had a real person on it.
- Cartoon character makes it fun, more interesting.

Negative

- Don't like cartoon characters.

**Group B**

Positive:

- Some are creative and catch attention.
- Format is more important, if formatted nicely and pamphlet is attractive, then a cartoon character is acceptable.

Negative:

- Doesn't like cartoon, likes bullet format.
- Cartoons would not attract adults.
- Corny.

### **Group C**

Positive:

- Cartoon appeals to children and less educated.
- Approach can be used to reach all educational levels.
- Cartoon characters are associated with their message, i.e., Smokey Bear.

Negative:

- Gimmick.
- Not professional.
- Material is for kids.

### **Group D**

Positive:

- Reaction depends on character.
- Characters must be likeable.

Negative:

- Don't like cartoon characters.

The members of the limited resource group (Group A) displayed the most enthusiasm about the use of cartoon characters in educational materials.



**16. The moderator displayed the FightBAC!® and American Dietetic**

**Association/ConAgra Foundations' Home Food Safety...It's in Your Hands™**

**logos. Focus Groups were asked, "Which would you be more likely to read?"**

More participants in the limited resource participants (Group A) responded that they would more likely read FightBAC!® than the ADA/ConAgra material, while indicating that the ConAgra logo was "prettier and more feminine" and would appeal to their wife, mother or grandmother. Participants in Groups C and D overwhelmingly indicated a preference for the ConAgra logo. Specific comments and general consensus of the groups were:

**Group A (Limited Resource)**

- "My wife would like it (ConAgra) better."
- "My grandmother would like the ConAgra material better."
- The ConAgra materials were considered prettier and "more feminine."

**Group B (Males)**

- ConAgra picture of the cutting board is "too feminine".
- The foods on the cutting board were vegetables.
- Since no meats were depicted, in one participant's viewpoint, the foods on the cutting board were not likely to cause foodborne illness.
- The lack of meat minimized one participant's concern for the food safety message.
- The BAC character and symbol were negative images and members responded to positive messages.

- The FightBAC!® material was printed in a bold, “manly,” font. It was agreed that the script font added to the “feminine” appearance of the ADA/ConAgra material.
- Some men suggested that including a picture of a cow or focusing on the hazards of grilling foods would improve the material.

### **Group C**

- ADA/ConAgra material appeared more professional and honest.
- The material led the reader to believe that the message in the material had a health connotation, while FightBAC!® did not.
- The ADA/ConAgra pamphlet would be more attractive to post in their home kitchens.
- The ADA/ConAgra material was considered to be less cluttered and to have an understandable message.

### **Group D**

- A majority of the women in Group D preferred the ADA/ConAgra material.
- “It is more appealing to adults.”
- “The words made the message sound more urgent.”
- Participants indicated that they thought FightBAC!® was more appealing to children and they would most likely read it if they had children.

### **FightBAC!® and Home Food Safety**

**At this point in the Focus Group meeting, FightBAC!® pamphlets and a one-page fact sheet developed by University of Kentucky Cooperative Extension Service staff, entitled *UK Home Food Safety* were distributed to each focus**

**group participant. Participants were given an opportunity to take a break and instructed to read the materials before the group reconvened for the second half of the session.**

**17. What does FightBAC!® mean to you?**

Participants in Groups A and D expressed an understanding that the message was to fight bacteria. One member of Group D shared that she did not “get it” until she heard this expressed by others. Group B members viewed it as a message that consumers must fight back because processors, specifically meat processors were not doing their job and were passing on contaminated meat to consumers. The facilitator did not ask this question of Group C.

**18. Have you seen the FightBAC!® materials before today?**

Two Group C participants were familiar with the materials. One related that her father brought her a FightBAC!® pamphlet from the Kentucky State Fair. Another participant related seeing the poster at Kroger (grocery store). She reported that she had missed the message, thinking that Kroger was fighting bacteria for customers. She further related that the cartoon turned her off at that time.

One participant in Group B remembered BAC®, but could not recall where he saw the materials. No one in Groups A or D recalled having seen FightBAC!® before the focus group meeting.

**Food Safety Messages**

The messages in FightBAC!® and UK’s *Home Food Safety* fact sheet, while focusing on the same important food safety concerns, were worded differently in three of the four messages. A comparison of the messages is found in Table 2. Participants were

queried as to a previous familiarity with these messages and the source of that information.

**Table 3.2: Comparison of FightBAC!® and University of Kentucky’s Home Food Safety Fact Sheet**

<b>FightBAC!®</b>	<b>UK Home Food Safety</b>
1. Clean: Wash hands and surfaces often	1. Wash Hands Often
2. Separate: Don’t cross-contaminate	2. Keep Raw Meats and Ready-To-Eat Foods Separate
3. Cook: Cook to Proper Temperature	3. Cook to Proper Temperatures
4. Chill: Refrigerate Promptly	4. Refrigerate Quickly Below 40 Degrees

**Message One: Clean: Wash Hands and Surfaces Often (FightBAC!®) and Wash Hands Often (Home Food Safety) Table 3.**

Participants in all four groups indicated a familiarity with Message #1, while reporting different sources of the information.

**Group A**

- Reported hearing/seeing this message from older relatives, school and the Family Resource Center Newsletter.

**Group B**

- Learned the importance of hand washing and keeping surfaces clean from their parents and the children’s pediatrician.
- Warning that it was “common sense”.

**Group C**

- Reported learning the importance of hand washing from physicians.

**Group D**

- Reported learning about the importance of keeping hands and surfaces clean from discussions at Homemakers’ meetings.

Group discussion in each focus group revealed the participants' understanding of the concept of washing surfaces and hands as it relates to food safety and to general disease prevention.

Participants were asked about the clarity of the messages and for suggestions as to how to make them more easily understood. The FightBAC!® message: *Wash hands and Surfaces Often* was considered by Groups A, C and D to provide more information, while the males of Group B expressed that the material had too much information and a preference for the UK *Home Food Safety* format which was shorter, simpler. Group A participants expressed concern that the *Home Food Safety* format did not include descriptive pictures to assist illiterate population.

**Message Two: Separate: Don't Cross-Contaminate (FightBAC!®) and Keep Raw Meats and Ready-To-Eat Foods Separate (*Home Food Safety*) Table 4.**

Participants in all groups indicated a familiarity with this message, reporting they learned it from news reports and family members. Discussion indicated that participants understood the concept of using different cutting boards for meats and vegetables.

When asked to compare the two messages, it was agreed that "Keep Raw Meats and Ready-To-Eat Foods Separate" was too wordy. Focus group participants suggested alternatives. Group A suggested that a picture depicting the correct handling would be beneficial with a simple message, "Don't Mix Foods." Group C suggested "Keep Raw Meat Away From Everything". Groups B, C and D expressed that they had to read more to discover the message in the FightBAC!® material and that the *Home Food Safety* information was more concise. A participant in Group D pointed out that the

FightBAC!® information was difficult to read and did not use words that could be understood by children, while using a childish cartoon graphic.

Members of Group B and D expressed concern that the *Home Food Safety* description of this message downplayed the role of “germs,” giving equal emphasis to food safety and better taste. Group D participants stated that taking the fear out of the message decreases the reader’s perception of the importance of the message. There was some agreement that the term, “cross-contaminate” sounded more important.

**Message Three: Cook: Cook to Proper Temperature (FightBAC!®) vs. Cook to Proper Temperatures (Home Food Safety). Table 5.**

Members of all focus groups stated that they were familiar with this message. Males from Group B responded that they had heard this message from their spouses, while Group D participants indicated that they had learned of this from their mothers. Group B and D members mentioned the importance of fully cooking pork as an example of why cooking temperatures are important. Discussion in all groups indicated that participants associated cooking temperatures with killing bacteria.

When asked if this message is clear, one Group A participant indicated that some people are not knowledgeable as to the proper temperature requirements and directions should provide pictures or a statement, “Cook until done.” It was suggested that the information would be more clearly understood if it emphasized following cooking directions and/or using timers.

Group B participants stated that the FightBAC!® introduction, “Food safety experts agree...” sensationalized the message, resulting in skepticism that the message was “government hype”. Participants questioned the validity of the entire temperature

message due to the warning that raw and partially cooked eggs are unsafe. They indicated that they had eaten “runny” (undercooked) eggs throughout the years without illness. An alternative message, “Time and Temperature are Critical in Cooking Meat” was suggested. Surprisingly, participants who in earlier responses had indicated a preference for short, concise messages pointed out that eggs, microwave cooking, gravies and sauces are not mentioned in the *Home Food Safety* material, indicating this material was incomplete.

Group C participants preferred the FightBAC!® pamphlet to the *Home Food Safety* fact sheet because it was more comprehensive and provided more information. Participants expressed a desire for better information on food labels and recipes. They expressed a desire that food labels, recipes and cooking instructions include recommended safe final cooking temperatures, rather than oven settings and cooking times only.

Group D participants felt the messages contained in both materials were clear. There was consensus that they preferred the temperature chart in FightBAC!®, expressing their preference for its comprehensiveness.

**Message Four: Chill: Refrigerate Promptly (FightBAC!®) vs. Refrigerate Quickly Below 40°F. Table 6**

This was the only message for which participants in all four focus groups responded with unfamiliarity or lack of understanding. They indicated they did not know the proper refrigeration temperatures required to keep food safe from bacterial growth.

Participants in Group A reported learning of the need to refrigerate foods from their parents, health department, the Family Resource Center leader, childcare center and from food label instructions.

Participants in Group B reported they gained this knowledge in high school home economics classes and college courses.

A participant in Group C reported that she learned to refrigerate foods from a job she had previously held working with small children.

Group D participants did not respond to this question.

When asked why this message is important, participants gave few relevant responses.

When asked if this message is clear, Group A participants agreed that either “promptly” or “quickly” was clear.

Group B participants indicated that FightBAC!® had too much detail, was written at an inappropriate (too difficult) reading level for the audience, and was worded in “legalese”. They indicated that the *Home Food Safety* material provided a clearer message. During the discussion, individuals suggested that providing definitions for “quickly” or “promptly” would help clarify this message. The males stressed their need for definitive time limits and methods for safely transporting meats.

Group C reported that they had to read the entire contents of FightBAC!® to understand the message, not just the headline. The information was described as “vague.”



**Table 3.3: Focus Group Findings: Message #1  
FightBAC!®--Clean: Wash hands and surfaces often.  
“Home Food Safety”—Wash Hands Often**

<b>Question</b>	<b>Group</b>	<b>Response(s)</b>	
<b>1. Are you familiar with this message?</b>	A	Yes	
	B	Yes	
	C	Yes	
	D	Yes	
<b>2. Where have you seen/heard this message in the past?</b>	A	Older relatives, school Family Resource Center Newsletter	
	B	Pediatrician, parents, common sense	
	C	Doctors’ offices	
	D	Homemakers Meetings	
<b>3. Why is this message important?</b>	A	Prevent spread of germs	
	B	Hand washing is important for good personal hygiene-not just food handling.	
	C	Hand washing reduces illnesses, prevents spread of germs.	
	D		
<b>4. Is this message clear? How would you suggest it be changed?</b>		FightBAC!®	<i>Home Food Safety</i>
	A	Gives more information.	Needs descriptive pictures to show illiterate what to do.
	B	Gives too much information	Concise, simpler, would read
	C	Includes importance of washing surfaces.	No comment.
	D	Includes importance of washing surfaces.	No comment.

**Table 3.4: Focus Group Findings: Message #2  
FightBAC!®--Separate: Don't Cross-Contaminate  
Home Food Safety—Keep Raw Meats and Ready-To-Eat Foods Separate**

Question	Group	Response(s)	
<b>1. Are you familiar with this message?</b>	A	Yes	
	B	Yes	
	C	Yes	
	D	Yes	
<b>2. Where have you seen/heard this message in the past?</b>	A	Television news. Grandmother.	
	B	Did not recall.	
	C	No response.	
	D	No response.	
<b>3. Why is this message important?</b>	A	To prevent getting bacteria from meat into vegetables.	
	B	To encourage use of two cutting boards	
	C	To inform people that non-risky foods can be contaminated by risky foods.	
	D	No response.	
<b>4. Is this message clear? How would you suggest it be changed?</b>		<b>FightBAC!®</b>	<b>Home Food Safety</b>
	A	Needs picture of right way.	Needs picture of right way.
	B	Not as clear. "Cross-contaminate" sounds important.	Too wordy. Put details in small print.
	C	Requires more reading to find message.	"Ready-to-eat" is too wordy. Suggestion: "Keep raw meat away from EVERYTHING." Likes bullet format.
	D	Hard to read. Uses childish cartoon, but message is not provided in "child-attractive words." Understands this message, but unsure of general public's understanding of importance.	Suggestion: "Keep Raw Foods separate." Gives equal emphasis to "taste" and "germs"-needs more emphasis on germs. Message needs to "scary" (urgent) to make it important.

**Table 3.5: Focus Group Findings: Message #3  
FightBAC!® Cook: Cook to Proper Temperature  
Home Food Safety Cook to Proper Temperature**

Question	Group	Response(s)		
<b>1. Are you familiar with this message?</b>	A	Yes		
	B	Yes		
	C	Yes		
	D	Yes		
<b>2. Where have you seen/heard this message in the past?</b>	A	No response.		
	B	Wife. Learned importance of cooking pork to proper temperature since childhood.		
	C	Recipes.		
	D	Mother. Learned importance of cooking pork to proper temperature since childhood.		
<b>3. Why is this message important?</b>	A	To prevent getting bacteria from meats.		
	B	Pork-trichinosis.		
	C	To get food out of optimal temperature range where bacteria can live.		
	D	Kill bacteria. To assure that food is done.		
<b>4. Is this message clear? How would you suggest it be changed?</b>		<b>FightBAC!®</b>	<b>Home Food Safety</b>	<b>General Comments</b>
	A			“Cook until done” is an important message, as some people don’t have thermometers. Pictures needed. Should give instructions on other ways to determine doneness.
	B	Goes overboard- refutes long-standing practice of eating runny eggs, without illness-questions validity of all the information. Delete “Food safety experts agree...” – governmental hype. Tri-fold is complicated.	No mention of microwave cooking, eggs, gravies, sauces- incomplete. Simple-8 <sup>th</sup> grade reading level. Needs to be “eye-catching”	The information on cooking is clear-IF you own a thermometer.
	C	Gives more information-explains WHY it is important.		Recipes should give better information on cooking temperature, not just oven setting and time.
	D	Like comprehensive temperature chart.		Messages are clear.

**Table 3.6: Message #4 Focus Group Findings  
 FightBAC!® Chill-Refrigerate Promptly  
 Home Food Safety Refrigerate Quickly Below 40°F**

Question	Group	Response(s)		
<b>1. Are you familiar with this message?</b>	A	Yes		
	B	Yes & No		
	C	Yes		
	D	Weren't aware of 40°F temperature.		
<b>2. Where have you seen/heard this message in the past?</b>	A	Parents. Health Department. Family Resource Center leader. Reading directions. Childcare center.		
	B	Home Economics class. University classes.		
	C	Training for childcare job.		
	D	No responses.		
<b>3. Why is this message important?</b>	A	No responses.		
	B	No relevant responses.		
	C	Prevents spoilage.		
	D	No responses.		
<b>4. Is this message clear? How would you suggest it be changed?</b>		<b>FightBAC®</b>	<b>Home Food Safety</b>	<b>General Comments</b>
	A		Refrigerate "Quickly" better than "promptly".	Either message works.
	B	Too much detail-inappropriate reading level. Looks like lawyers required detail.	Change font to block letters-don't like "script" font. More appropriate reading level. Omit "Home" "Promptly" and "quickly" need to be defined. Give time limits.	
	C	Vague. Must read all of message to get enough information.	Heading gives good information.	
	D	No relevant responses.	No relevant responses.	

## **Overall Assessment of FightBAC!® Materials**

### **1. What do you like best about the FightBAC!® materials?**

- BAC character. (A)
- Graphics that illustrate message. (A)
- Bulleted format. (A)
- Bold headlines. (A)
- Block-style font. (B, D)
- Temperature chart. (C, D)
- Hotline telephone numbers and website address. (B, C, D)

### **2. What do you like least about the FightBAC!® materials**

- Small print. (A, C, D)
- “Material too scary, but message that you should protect your family was missing.” (B)
- BAC. “Cartoon character causes me to doubt the credibility of the information.” (C)
- “Don’t trust the cartoon.” Group C

### **If you could change, add or remove one thing, what would it be?**

Groups A and D agreed that the print font size needed to be enlarged. Groups B and C overwhelmingly agreed that the removal of BAC would increase their acceptance of the information. One member of Group C said, “This group is not the BAC market.” But, they did agree that it is difficult to appeal to all markets and that niche marketing of food safety messages may be necessary.

Group B members stated that the “overkill” messages of FightBAC!® was negative, turned them off and needed to be removed for their acceptance of the information.

**Would this information encourage you to change any of your present food handling practices? If so, what would you do differently?**

Group A indicated that the material would make them think more about food safety and watch temperatures more closely.

Group B member responses varied from “no,” to “would be more alert,” and “The church kitchen needs access to this information.”

Group C participants said, “I probably wouldn’t read,” “I probably wouldn’t pick it up because I wouldn’t know what it was,” and “No, I think BAC is a gimmick, I don’t trust BAC .”

Group D members indicated that they would check their refrigerator temperature to make sure it wasn’t over 40°F.

### **Overall Assessment of Home Food Safety Material**

#### **1. What do you like best about the Home Food Safety material?**

- Print size is adequate. (A, B D)
- Material was clearly presented and easy to read. (A, B, C)
- Concise. (B)

#### **2. What do you like least about the Home Food Safety material?**

- One-page format. (A, D)

Groups A and D did not like the one page format, but for different reasons.

Group A considered it unimpressive, while Group D indicated that the back of the sheet was wasted space, space that could be used to present more information.

- Script font. (B)
- The word, “home” in the heading was a turn off. (B)

**3. If you could change, add or remove one thing, what would it be?**

Group A agreed that the font should be enlarged. One participant said to “add the FightBAC!® guy.”

Groups B, C and D all indicated a need for phone numbers and websites.

Group B suggested a change in the heading to: “Conform or Die-Life Saving Food Tips.”

Group C discussed using the front of the flyer for concise points, adding more information and details on the back.

**Table 3.7: Comparison of FightBAC!® and Home Food Safety “Liked Best” and “Liked Least”.**

	FightBAC!®		Home Food Safety	
	Liked Best	Liked Least	Liked Best	Liked Least
<b>A</b>	BAC. Cute cartoon character. Bullets. Bold headlines.	Small print.	Easy to read. Using “Happy Birthday” to time hand washing.	Too plain. Already know all the information. One-sided format is not impressive. Needs pictures.
<b>B</b>	Block lettering.	BAC. Needs to concentrate on 4 basic steps. Details could be put on website.	Simple, concise. Print font size is good.	Script font. “Home” in the title. No website addresses or telephone numbers.
<b>C</b>	Temperature chart. Telephone Numbers.	BAC-is a turnoff-- “cutesy”. Not credible. Doesn’t trust cartoon. Small print.	Clear. Easy to read. One-sided format is easy to post.	No responses.
<b>D</b>	Eye catching. Temperature chart. Hotline telephone numbers. Website addresses. More information.	Small print.	One-sided format. Bold writing. Large print.	Does not emphasize safety points. Puts safety second to food quality. Back of sheet is wasted-could be used to provide more detail.

### Group Specific Questions

**If food safety messages were developed to target parents, what messages do you think will work best? What is the best way to reach parents? (Asked of Groups A, C and D)**

#### Group A

Responses included:

- Send information to parents through the children.
- Use more children in brochure pictures to stress their safety.
- Act out for kids and make it fun.
- Send newsletters to parents.



### **Group C**

Responses included:

- Use quick, easy (catchy) slogans.
- Cute rhymes for kids to create peer pressure.
- Use information that can be posted.
- Pay parents to come to class.
- Play educational tapes in locations where parents wait (i.e., doctors' offices).
- Distribute written information where parents wait, doctors' offices, pharmacies.
- Approach parents through elementary school activities.

### **Group D**

Responses included:

- Let parents know that their children are more susceptible to foodborne illnesses
- Use short messages as parents have little time to read.
- Air commercials about food safety during children shows on television.
- Publish articles in parenting magazines.
- Approach through schools by increasing teachers' awareness of food safety and hand washing.
- Print the four messages on magnets and stickers to be distributed to parents and children.

**If food safety messages were developed to target men who are responsible for food preparation, what messages will work best? What is the best way to reach this group? (Asked of Group B)**

**Group B**

Responses included:

- Use a one sentence message, reducing the four main points into one sentence
- Don't use feminine colors, pictures or fonts.
- Use eye-catching lead-in such as a picture of a grill, "For Men Only" heading, or a "hot looking girl."
- Broadcast messages during the nightly news or during sporting events.
- Use a sports figure as a spokesperson to increase the credibility of the message in the eyes of men.
- The group was split on the use of postal mail, with younger men indicating that they do not read postal mail.
- It was agreed that there are two types of men, "cooks" and "men who cook," and it would be difficult to relate to both types with the same material.
- Varied responses were voiced as to whether men would pick up material in a grocery store while shopping.
- Additional observation: males participating in the focus groups did not take the educational materials provided to them during the meetings with them, leaving them on the table, while many women asked for additional materials to share with friends and family.

**If food safety messages were developed to target individuals over 60, what is the best phrase to use when referring to or addressing this group? What is the best way to reach this group?**

**Group D**

The majority of the participants in this focus group were over 60. Responses included:

- “seasoned citizens”
- “antique little girls”
- “seniors”
- “senior citizens”

Avenues to reach persons over 60 included:

- Senior centers.
- Homemakers Clubs.
- Churches.
- Retirement living communities.

Group members recommended using colored paper and discouraged the distribution of materials at venues where numerous materials are displayed, as materials become “lost in the mix” or are discarded. They also suggested that verbal presentations are more successful if the presenter is sensitive to reduced hearing and poor eyesight of the audience.

## **DISCUSSION**

The proliferation of studies to evaluate food safety educational tools and their success in modifying consumer behavior is changing the development, marketing and delivery of food safety messages. The incidence of foodborne illness is impacted by improving actual food handling behaviors and not by the governmental and educational agencies reporting of the number of pamphlets they distribute or the number of seminars they conduct. These studies indicate that the target audience must be considered in the process of development and distribution of food safety messages in order that such efforts are successful in altering consumer behaviors.

In this study, focus groups representing four demographic groups provided insight into the similarities and differences between their groups in respect to their current level of food safety knowledge, preferred sources of food safety information, risk perception, trust and acceptance of the messages. These focus groups represented the following demographic groups: limited resources (A), males (B), mothers of young children (C) and homemakers with a background in Cooperative Extension-based consumer education in food preparation (D).

## **Current Food Safety Knowledge Level**

Studies similar to this one have reported that contemporary consumers feel informed regarding food safety (Creswell, 1998) and possess knowledge of the basic principles of food safety (RTI, 2002b.). In the Arizona study of EFNEP participants (low income, members of racial minorities and having 12 years or less of education) a difference in knowledge between genders was reported, with females scoring higher than males and males reporting that they engaged in risky food safety practices more often than females. The researchers concluded the consumers need specific messages about controlling or preventing foodborne illness and that priority should be given to individuals with a high-risk for foodborne illness and those who have the greatest need (Meer, 2000)

In this study, replies by focus group participants to prompts indicated a good knowledge of safe food handling practices. Participants from all four focus groups reported their knowledge that bacteria in meat and poultry is capable of causing disease. Salmonella in poultry and *E. coli* in hamburgers were cited most often as specific problems. Members of Groups C and D discussed eggs as a potential cause of the illness from Salmonella. Participants in Groups B, C and D reported knowing that it was important to prevent cross-contamination of surfaces and utensils. Respondents in Groups A and B cited that hamburgers should be thoroughly cooked to prevent illness from *E. coli*.

There was an overwhelming agreement in the perception that the risk of foodborne illness was greater from food obtained from commercial sources or foods prepared by “others”. Restaurants were specifically cited by Groups A, B, C and D.

Group C respondents reported concern for the safety of foods purchased from grocery store delicatessens. Members of Groups B, C and D cited food processing plants as a potential source of contaminated food.

This finding is supported by a study conducted in 1993 where consumers surveyed reported that 65% of foodborne illnesses usually result from eating a contaminated food at a restaurant, 17% to mishandling at a supermarket and only 17% to mistakes in the home (Fein, 1995). Williamson et al., reported that about one-third of consumers thought food safety problems most likely occurred at food manufacturing facilities and one-third of consumers attributed food safety problems were due to unsafe restaurant practices. Only 16% thought mishandling was most likely to occur in the home (Williamson et al. 1992). The findings from a 1998 survey did not concur with these studies, reporting that 65% of the consumers surveyed were more concerned about food safety at home, compared to 44% concerned when eating away from the home. (CMF&Z Food Practice Group et al., 1998).

Those responding during the focus groups of this study (A, B, C, and D) expressed concern about the safety of food prepared and served at potluck meals. Respondents in Groups B and D relayed concern about the safety of food obtained from foreign countries, both when they were traveling abroad and in the case of foods that are being imported into the United States.

Respondents from all four focus groups acknowledged that certain segments of the general population were more susceptible to food poisoning. Specific concerns regarding the susceptibility of the elderly was attributed to their depressed immune systems, bad habits and failing senses were specifically addressed by Groups A and D.

People that are not educated about food safety were perceived to be at greater risk due to lack of understanding (A), and lack of knowledge or practice (B, C). Groups C and D identified children as a susceptible population. Targeting messages to reach and modify the behaviors of at risk consumers and their caretakers was seen as vital to reducing foodborne illness in this segment of the population.

While it was reported that seniors have a greater awareness of *Salmonella* and *E. coli*, the same senior focus group participants did not consider that they were at risk, incorrectly believing that only individuals 80 years old and older are high-risk. (RTI, 2002b). It is also reported that elderly people are more likely to consume undercooked eggs, a major vehicle for *Salmonella* serotype Enteritidis outbreaks (Altekruse et al., 1997b). According to Medeiros et al. (Medeiros et al. 2006) food safety education of older adults resulted in improved knowledge of food safety practices. Participants were provided with thermometers, but during follow up, 71% of the participants had not used that thermometer and 25.5% stated that they “Do Not Plan” to use a thermometer. As the elderly are more severely affected by *S. enteritidis* infections and other foodborne illnesses, they, as well as those who prepare their meals were felt to need a greater understanding of the risk, its control and elimination.

Children are at greater risk of serious and sometimes fatal complications from *E. coli* O157:H7 infections than are adults, making it imperative that the parents and other caretakers develop food-handling practices that reduce the risk of *E. coli* infections. (Buchanan, R.I., 1997).

While the males participating in this study did not perceive themselves to be high-risk and are not normally considered to be at high-risk for foodborne illness, the Behavior

Risk Factor Surveillance System survey for 1995 to 1996 data and the Centers for Disease Control and Prevention reported that males, along with individuals with more education and higher incomes were more likely to participate in high risk food handling and consumption behaviors. (CDC, 1998).

### **Source of Knowledge, Current Practices and Motivational Factors**

A majority of all participants reported learning personal hygiene and food-handling practices from parents or other family members. In addition, high school home economic and college classes were reported as a source by Groups A, B and C. The Cooperative Extension Service was reported by A and D, while the health department was reported by A and B. Cooking shows (C), written materials (C), and previous food-related employment (B) were also reported as sources of information. A survey conducted in 1995 at the University of Kentucky reported that 71.3% of those surveyed obtained food safety information from television and news, while only 16.5% obtained information from government publications (Buzby, 1996).

Participants reported making changes in their food-handling techniques and practices in the past five years. Group B and C respondents reported more thorough cooking as a change in their personal behavior from five years ago. Techniques that are associated with preventing cross-contamination were reported to have been implemented by respondents in A, B, C and D.

This study found the reasons reported by participants that precipitated these changes included media reports, specifically primetime television news magazine reports, of illness and death from foodborne illnesses (B, C and D) and becoming a parent (B, C).



The results of additional studies concur that the consumers attribute increased knowledge and behavior changes to media coverage of food safety issues. (RTI 2002b). An earlier study conducted by the same researchers reported that while consumers do not actively seek food safety information, they attribute behavior changes to recommendations that are provided through the media, primarily television news shows, local television news and cooking programs. Some parents report that they were motivated to make behavioral changes that improved their food-handling practices upon having children (RTI, 2002a).

A study conducted by CMF&Z Public Relations in partnership with the International Food Safety Council found that 7% of consumers surveyed reported their increased ranking of the importance of food safety was attributable to having children or grandchildren. (Creswell, 1998).

Participants from all four groups indicated that personal experience of a food poisoning event or the experience of an acquaintance increases the individual's concern about foodborne illnesses. In comparing the FDA Food Safety (Telephone) Survey data from 1988 and 1993, it was reported that people who believed they had experienced foodborne illness had a greater awareness of foodborne pathogens and were more concerned about food safety issues (Fein et al., 1995).

### **Consumer Confidence**

This study documented diversity in the focus group participants' responses as to trustworthiness of the source of food safety messages and as to the best delivery method for those messages. While participants of all focus groups identified government agencies as trustworthy, they reported that the media is the best avenue to deliver a food

safety message to them. They are more likely to change food-handling habits due to television and radio news reports about serious illnesses caused by food. Creswell, et al., stated that 85% of the consumer responders to their 1998 survey reported that they believe half or more of the food safety information reports they see or hear in the media.

The males reported distrust of information delivered by the food industry due to its financial investment and potential liability when illness occurs. Males were more likely to believe media stories that cited statistics based on scientific studies, as they believed it added validity to the report and felt it would motivate their behavior change. Males were alienated by what they considered to be overemphasis of risks.

### **Food Safety Materials**

This study indicated that the Partnership for Food Safety Education's FightBAC!® campaign, despite its 1997 launch, had not reached its market of consumers, with very few focus group participants reporting familiarity with the FightBAC!® materials in 2000. USDA has launched additional campaigns, Thermy™ and "Is it Done Yet?" to encourage the use of thermometers and adequate cooking, adding to the arsenal of food safety messages that have undergone social marketing studies.

When FightBAC!® was compared to the ADA/ConAgra "Home Food Safety-It's In Your Hands"™ and the University of Kentucky's *Home Food Safety* pamphlets, focus group participants had varied reactions. An important observation was the enthusiasm displayed by the limited resource group toward BAC and the FightBAC!® materials. The three remaining focus groups were generally turned off by the materials or thought they were directed to a different market. The FightBAC!® message, fighting bacteria,

was lost on the males, who expressed that they thought it meant that the consumer had to fight to protect themselves from contaminated food being produced by the food industry and sold to consumers. Other observations include: 1) the males (Group B) viewed the cursive font used on the University of Kentucky's *Home Food Safety* as too feminine and were turned off by the word "home" in the title, indicating that this was directed toward females. The limited resource group members commented on the lack of pictures, indicating that the use of pictures made the material more interesting. Group D, comprised of homemakers with some Cooperative Extension based food preparation training noted that the *Home Food Safety* emphasized food quality over food safety. When shown the ADA/ConAgra folder, which is shaped like a cutting board with vegetables on it, the males indicated that they did not consider vegetables to be dangerous therefore they would pay more attention to the material if it had a picture of meat on it. The mothers of young children and homemakers reacted positively toward the ADA/ConAgra materials, believing them to be health-related, had a sense of urgency and would be more attractive when posted in the kitchen. These findings indicate that food safety education may require more than one approach, depending on the audience. Niche marketing may offer greater success in educating consumers.

The FightBAC!® materials have been revised since this study's focus group study was conducted. Notable changes include the omission of the description BAC as an "Invisible Enemy", the inclusion of a warning that some people are at higher risk for developing foodborne illness and the reliance on quotes/sources from "experts" or governmental agencies. The updated version includes clearer instructions for hand washing, cleaning of surfaces, washing fruits and vegetables, elimination of color as an

indicator of doneness, referring people to temperatures on the pamphlet's "Safe Cooking Temperatures" chart. The revised pamphlet also includes more website references. BAC appears in a graphic three times in both the old and new versions. However, in the newer version, BAC's size is reduced with the four messages, clean, separate, cook and chill, surrounding the character.

The differences in the level of consumer knowledge, source of information and confidence in food safety messages are evident in this study, however, as there was no observational segment in the study, the study is limited in that it does not provide data or insight into food safety preparation techniques that are actually practiced in the home of the demographic groups represented by the focus groups. A compilation of 15 observational studies of consumer food safety practices conducted in the United States, United Kingdom and Australia indicated that consumers continue to use unsafe practices in the home. (Redmond 2003) and as reported previously, Audits International 2000 Home Food Safety Study reported that 74% of the population observed during meal preparation, service, post-meal clean-up and handling/storage of leftovers were found to have at least one critical violation, a practice which can cause foodborne illness.

Food safety educational materials must be continually revised as new information becomes available. Further studies on the success of web-based food safety educational materials and how different consumer groups perceive them could assist educators in the design of new materials.

Without observational studies to support these findings, it is unknown if the reported food safety knowledge and practices reported are routinely incorporated into the preparation of food in the home.

## CONCLUSION

It is vital that the public becomes knowledgeable of which personal hygiene and food-handling practices may result in foodborne illness, and more importantly, that they be motivated to make the behavioral changes that protect them. The education of consumers is an ever-evolving endeavor, as food from global sources integrates into the food supply, as food production processes change, as new pathogens emerge and known pathogens reemerge more resilient than ever, as consumer behaviors change and as the population ages, increasing the number of high risk elderly consumers. Considering these variables, in addition to the varying perceptions and knowledge of different demographic segments of the population, a “one-size fits all” approach to educating consumers on food safety is not the most effective approach. To achieve success, it is felt that educators must reach out to all segments of the population with varying food safety messages. In doing so, consideration of the demographic audience being targeted may result in more effective education that results in safer behavioral patterns.

Of the audiences participating in this study, all reported a preference for clear, concise messages delivered by credible sources. The success of the message delivery vehicle differed with the audiences studied. In this study, the use of cartoon characters and “scare tactic” language reduced the importance, credibility and trust in the message with homemakers, males and mothers of young children, while people with limited resources reported that the use of the BAC graphic grabbed their attention and “de-stressed” the message, indicating that the food safety instructions would be easy to follow.

The role of the media cannot be ignored when making decisions on how to most effectively deliver messages to consumers. While radio, newspapers and television were mentioned as sources of information, members of all four groups reported television to be a source of information. In-depth "bad" stories, aired during prime time after children's bedtimes were reported to be the best avenue by the mothers of young children, while males expressed skepticism of these stories, expressing that they consider scientific studies, based on statistics without sensationalism to be more credible. Males also reported that more men would hear food safety messages broadcast during evening newscasts and sporting events. When using television to deliver food safety messages, the audience to be reached needs to be considered and the messages tailored to that audience. It is unlikely that one message will successfully reach all segments of the population.

Based on the discussions held in these focus groups, the success of written educational materials differs greatly between demographic groups. The limited resource parents responded favorably to the cartoon approach used in the FightBAC!® materials, while other group members indicated that cartoon characters were for "others" and that they thought the material was for children or persons with low educational levels. The mothers of young children and homemakers expressed positive feedback about written materials that are professionally designed, appear credible and can be easily accessed, i.e., posted on refrigerator or placed in cookbooks. Males in general did not overwhelmingly agree on any of the written educational materials used in this study, nor was there consensus that they would read the material. This was played out when none of the males took the materials used during the focus group meetings, leaving them on the

table. The facilitator and transcriber present during the focus group meeting did observe that younger males were more negative about the written materials than the older participants. Further study to determine the success of written materials with men may provide a better understanding of this finding.

Formalized training in food preparation that includes information on food safety, presented as a segment in middle or high school curricula, or through organized adult educational classes, such as those sponsored by the Cooperative Extension Service, coupled with actual home food preparation experience results in a food preparer who is more aware of the risks involved in food selection, preparation and service. As the vast majority of the public may not be reached through formalized courses, campaigns that utilize all facets of the media, including the FightBAC!® campaign, should continue. Educators need to consider that one campaign may not reach all segments of the population and develop individualized campaigns, based on the population to be reached.

## **CHAPTER 4: FOLLOW UP TELEPHONE SURVEY**

### **INTRODUCTION**

A follow up telephone survey of Focus Group participants was conducted in January 2001 to determine participants' recall of the concepts discussed during the earlier focus group meeting. Secondly, if their participation in the focus group discussions had led to greater awareness of food safety or resulted in any reportable change in their personal hygiene and food handling practices.

### **METHODOLOGY**

Telephone numbers for Focus Group Participants were collected at the focus group meetings. Participants were advised during the focus group meetings that they would be contacted in the future.

In January 2001, attempts were made to contact the 54 Focus Group Participants. The standard operating procedure was to place three (3) telephone calls prior to listing a participant as non-available. Further, if a participant reported that they did not recall participating in the Focus Group, the survey was terminated. Upon contacting participants and acquiring their willingness to participate in the short survey, they were asked to respond to 10 questions. Their responses to those 10 questions were recorded and tabulated.

### **RESULTS**

Thirty-one (57%) of the 54 Focus Group Participants completed the phone survey. A higher percentage of Group C (66.6%) and Group D (81.8%) were successfully contacted and participated in the survey than did Group A (40%) and Group B (50%). Survey results are compiled in Table 8.



**Table 4.1 January 2001 Telephone Survey Responses**

Telephone Survey Question	Group A N=6 40%	Group B N=8 50%	Group C N=8 66.6%	Group D N=9 81.8%
1. Did participating in the Food Safety Focus Group increase your interest in food safety?				
Yes	6 (100.0%)	7 (87.5%)	7 (87.5%)	9 (100.0%)
No	0 (00.0%)	1 (12.5%)	1 (12.5%)	0 (00.0%)
2. Do you recall hearing about any foodborne illness outbreaks since the meeting?				
Yes	3 (50.0%)	5 (62.5%)	2 (25.0%)	7 (77.8%)
No	3 (50.0%)	3 (37.5%)	6 (75.0%)	2 (22.2%)
3. Since the meeting, do you recall discussing food safety topics with anyone?				
Yes	3 (50.0%)	7 (87.5%)	7 (87.5%)	9 (100.0%)
No	3 (50.0%)	1 (12.5%)	1 (12.5%)	0 (0.0%)
4. Have you seen or read any food safety literature?				
Yes	2 (33.3%)	4 (50.0%)	2 (25.0%)	5 (55.6%)
No	4 (67.7%)	4 (50.0%)	6 (75.0%)	4 (44.4%)
5. Did you try to find FightBAC! ® materials at your local grocery after the meeting?				
Yes	2 (33.3%)	2 (25.0%)	1 (12.5%)	1 (11.1%)
No	4 (67.7%)	6 (75.0%)	7 (87.5%)	8 (88.9%)
6. Did you own a food thermometer before the meeting?				
Yes	3 (50.0%)	3 (37.5%)	5 (62.5%)	4 (44.4%)
No	3 (50.0%)	5 (62.5%)	3 (37.5%)	5 (55.6%)
7. Did you purchase a food thermometer after the meeting? (Asked of persons who responded “no” to Question 6.)				
Yes	1 (33.3%)	1 (20.0%)	1 (33.3%)	1 (20.0%)
No	2 (67.7%)	4 (80.0%)	2 (67.7%)	4 (20.0%)
8. Did you use separate cutting boards for meats and ready-to-eat foods prior to the meeting?				
Yes	1 (16.7%)	4 (50.0%)	5 (62.5%)	6 (66.7%)
No	5 (83.3%)	4 (50.0%)	3 (37.5%)	3 (33.3%)
9. Did you purchase separate cutting boards after the meeting? *Asked of persons who responded “no” to Question 8.)				
Yes	1 (20.0%)	2 (50.0%)	1 (33.3%)	3 (33.3%)
No	4 (80.0%)	2 (50.0%)	2 (66.7%)	0 (00.0%)
10. Did you use the T-Stick thermometers?				
Yes	2 (33.3%)	3 (37.5%)	*	5 (55.6%)
No	4 (67.7%)	5 (62.5%)		4 (44.4%)

- T-Stick™ thermometers were not distributed to this group.

## DISCUSSION

Of the participants surveyed, 25% of those who reported not owning a thermometer prior to participating in the focus groups said that they had purchased one since participating in the meetings, bringing the total of participants reporting that they owned a thermometer to 61.3%. Similarly, 46.6% of the participants reporting that they did not use separate cutting boards for meats and other foods reported purchasing a new cutting board, bringing the total of participants reporting using separate cutting boards for meats and other foods to 74.2%. Information collected in 1998 and 2001 Food Safety Surveys revealed that the percentage of consumers who own a food thermometer increased from 46% in 1998 to 60% in 2001. (RTI, 2002b). The same study reported that 85% of consumers reported in 2001 that they properly clean cutting boards after cutting raw meat/poultry, compared to 68% in 1993. (RTI, 2002b).

The results from the self-reporting of thermometer and separate cutting board ownership indicate that participants in general found that the interventions to prevent cross-contamination were more important, easier, less expensive or more convenient than the use of a thermometer to indicate safe final cooking temperatures of potentially hazardous foods. Participants had indicated during focus groups that they relied on varying methods (feel, color) to determine doneness of meats. These results indicate the development of more successful strategies or messages are needed to encourage the use of thermometers to determine safe final cooking temperatures.

## **CONCLUSION**

Participation in the focus group discussion on food safety messages provided education as members reviewed the educational materials and discussed the issues and questions asked by the moderator. A majority of the participants, except the males, took the educational materials with them when the group meetings concluded.

One finding of note was the 40% response rate for the limited resource group participants. This was the lowest response rate of all groups. Participants were either no longer at the phone number they had provided or did not recall participating in the focus group. These results point toward an inherent barrier to reaching this group with educational messages.

In general, based on the responses to the follow up telephone survey, the information presented resulted in raised awareness of food safety practices in the home of the participants. The opportunity to provide group education in a non-threatening atmosphere can be a successful facet of a targeted campaign to deliver food safety messages and affect behavior change.

## **CHAPTER 5: FROM KNOWLEDGE TO PRACTICE**

Food safety educational materials continue to evolve as sophisticated evaluation tools are used to measure their success. These tools incorporate adult learning styles, social marketing methodologies, feedback from focus groups and observational studies to determine if educational interventions are resulting in actual behavioral change. In reviewing the findings of this study, it became apparent that there is no single approach that will successfully educate different demographic groups and affect change within those groups. In developing educational programs and materials, one must consider the audience to be reached.

While educators may have a desire for their audience to understand the underlying science or theory of a concept, when it comes to food safety educators will be more successful in general if they target the actual behavior. Being practical, adults are more apt to focus on a message and how to apply it to their situation. They have accumulated many life experiences and knowledge and connect new concepts to this knowledge base. Educators must also realize that there is a gap between what consumers think they know and their actual knowledge. This gap can be reached by providing additional information, based on the target audience's level of knowledge. More specific information can be provided on the basis of food safety messages, clean, separate, cook and chill. Members of all demographic groups will benefit from additional information that is provided in a way that addresses their needs, wants, values and perceptions. .

As observed as an underlying theme of the responses of the males participating in this study, they do not perceive a high level of personal risk. They also expressed concern that food safety advice is constantly changing, making it difficult to know when

the warning message is scientifically solid. Males also reported personal preference for undercooked eggs, rare ground meats, etc., which may negatively impact their willingness to change in their food handling practices. The males in this study favored short, concise messages. Males indicated a preference for messages delivered through television and radio, and were less likely to read print material.

Mothers of young children, while motivated by the health of their families, expressed that they have limited time to learn food safety as a major barrier. While the mothers expressed a preference for concise messages, they also wanted additional information such as temperature charts included in brochures. They indicated that messages would not be heard if they were aired on television before children's bedtimes. This group also expressed desire for information that was scientifically grounded.

Members of the limited resource group expressed confidence in cooking techniques learned from their parents. As described, these practices were often not consistent with what is considered safe today. This group also expressed concern for people they considered more at risk, elderly and children, while not acknowledging their own risk. The limited resource group stood out as the group that favored BAC and the FightBAC!® materials more than the others. They expressed that BAC, as a cartoon character made them think the information would be easy to use.

The group made up of homemakers with Cooperative Extension based food preparation background expressed trust in their personal cooking experience, citing trust in their own ability to follow directions and safely prepare foods. This group expressed confidence in government regulations to protect the public from illness.

Given the information gathered during his study, food safety messages that may be successful with the demographic groups represented by the study are:

- (1) Limited Resource: Print materials incorporating cartoon characters with basic information that is easy to follow will reach the limited resource demographic. A campaign that targets limited resource parents through their children may be successful in reaching this group.. FightBAC!® received favorable responses from this group.
- (2) Males: Television or radio messages will be more successful in reaching males. Concise messages that incorporate scientific study results presented without frills were favored. General reaction of males to FightBAC!® was negative.
- (3) Mothers of Young Children: Time to devote to reading educational materials or listening to messages is limited for this group. Messages that can be delivered through the children will reach this group, as well as news stories that report outbreaks and warn them of dangers. This group did not believe that FightBAC!® targeted them, expressing that it was for people of low literacy or less education.
- (4) Homemakers with Food Preparation Background: Materials developed for these women should be attractive and provide more than the basic information, which they already know. It should incorporate charts and instructions that can be posted or kept in the kitchen.

Once campaigns are developed and launched, educators must continue to evaluate their success in affecting consumer behavioral change. A continuing challenge will be to assure that the message being broadcast rises above the din of competing media messages without resorting to sensationalism.

## **Appendix A.**

Food Safety Focus Group

Moderator Guide

May 2000

Good afternoon and welcome. Thank you for taking the time to join our discussion of food safety. My name is Holly Coleman and with me is Janet Kurzynske. Janet is with the University of Kentucky's Coop. Ext. Service and is a Registered Dietician. I am a graduate student at UK. The university has a grant from the USDA for a project to help determine how consumers prepare food in their own homes. You were selected because you share certain common interest and experiences. The information we gather from this discussion will be used to help design educational materials to help others. There are no right or wrong answers, but rather differing points of view and experiences. Please feel free to share your point of view, even if it differs from what others have said. Keep in mind that we are interested in both positive and negative comments, as we often learn the most from the negative ones.

Before we begin, let me remind you of some ground rules. Please speak up with only one person speaking at a time. We are taping recording the session because we do not want to miss any of your comments. If several are talking at the same time, the tape will become garbled and we will miss your comments. Janet will be taking notes during our discussion. We will be on a first name basis tonight and it will be helpful to us if you would identify yourself by first name every time you begin a comment. No names will be used in the write up of this project. Some of you may receive a call later to discuss the session. You filled out some paperwork when you arrived. You will receive a check in



the mail to thank you for your participation in the next few weeks. To get us warmed up and started, I will ask each of you to introduce yourselves and please:

- Tell us your first name and your “specialty in the kitchen, i.e., what dish your family requests most often or one that you prepare for special events or when you are feeling creative.
- Which health risk from food do you worry about most?
- In the past few years, we have heard the term “food safety” more often in the news. What come to mind when you hear this?
- How concerned are you about food poisoning. Food poisoning is an illness caused by food being handled improperly either before or after you buy it.
- Where do you think food safety problems are MOST likely to occur?
- What would you say causes food poisoning?
- What types of food do you think are high risk for food poisoning?
- What groups of people do you think are more likely or at high risk of getting food poisoning?
- Describe some food safety practices you follow in your kitchen
- Think back to where you learned about “right or safe” and “wrong or unsafe” ways to prepare food. Where did you learn these things?
- What food safety changes have you made in your kitchen in the last five years?
- Why did you make these changes?
- What is the best way to get a food safety message to you?
- What particular facet of the media do you pay the most attention to?
- Who do you trust most to provide you with food safety messages?

- Probes: newspapers, TV, radio, Extension Agents, health department, doctors, nurses, nutritionists, family, friends.
- Outdoor cookouts, picnics: Tell me what special precautions you take when cooking or serving food outdoors.
  - Probes: using thermometer, icing down cold dishes, throwing out leftovers, covering to protect from flies and insects, using hand wipes or soap and water for handwashing.
- Tell us when you use a thermometer to check the temperature of foods.
- What reasons do you have for not using a thermometer?
  - In comparing the two messages, what do they mean to you?
  - Why is this message important?
  - Is this message clear? If no, how do you suggest re-wording to make it clearer?
- Show single, double and triple folded materials. Which format do you like best?
- Some educational materials use cartoons to illustrate their messages? When you look at these materials, how do you feel about the cartoon characters?
- Show FightBac™ and ConAgra logos. Which of these materials do you find more appealing. Which would you be more likely to read?

#### DELIVERY MECHANISMS

- Introduce FightBac™ materials and Home Food Safety fact sheet. Please take a few moments to read this information. Please consider the content and not the pictures or graphics in answering the next few questions.
- What does FightBac mean to you?

- Have you seen the FightBac™ pamphlet anywhere before?
- The first message, Clean: Wash hands and surfaces often vs. Wash Hands Often
  - Are you familiar with this message
  - Do you recall where you heard this message?
  - Why is this message important?
  - Is this message clear? How would you suggest it be made clearer?
- Second message, Separate: Don't cross contaminate vs. Keep Raw Meats and Ready-To-Eat Foods Separate
  - Are you familiar with this message?
  - Do you recall where you heard this message?
  - Why is this message important?
  - Is this message clear? How would you suggest it be made clearer?
- Third message, Cook: Cook to proper temperatures vs. Cook to proper temperatures.
  - Are you familiar with this message?
  - Do you recall where you heard this message?
  - Why is this message important?
  - Is this message clear? How would you suggest it be made clearer?
- Fourth message, Chill: Refrigerate promptly vs. Refrigerate Quickly Below 40 degrees.
  - Are you familiar with this message?
  - Do you recall where you heard this message?
  - Why is this message important?

- Is this message clear? How would you suggest it be made clearer?
- What do you like best about the FightBac materials?
- What do you like least about the FightBac materials?
- If you could change, add or remove one thing, what would it be?
- Would this information encourage you to change any of your present food handling practices? If so, what would you do differently?
  - What do you like best about the Home Food Safety materials?
  - What do you like least about the Home Food Safety material?
  - If you could change, add or remove one thing, what would it be?
  - Would this information encourage you to change any of your present food handling practices? If so, what would you do differently?

#### GROUP-SPECIFIC QUESTIONS

- Seniors
  - If food safety messages were developed to target individuals over 60, what is the best phrase to use when referring to this group?
    - Probes: seniors, senior citizens, elderly.
  - What is the best way to reach this group?
- Men
  - If food safety messages were developed to target men who are responsible for food preparation, what messages will work best?
    - Probes: use men in commercial, artwork
  - What is the best way to reach this group?
- Parents of Young Children

- If food safety messages were developed to target parents, what messages will work best?
- What is the best way to reach this group?
  - Probes: Through children, cartoon characters, group meetings

We have just a few minutes remaining. Does anyone have any last thoughts or comments to add?

Pass out food safety information and T-Sticks.

Give directions for use of T-sticks.

Thank the groups for participating.

## Appendix B.

FightBAC!® Pamphlet (2000)

Page 1

### Be a BAC Fighter

Although an invisible enemy may be in your kitchen, you have four powerful tools to Fight BAC!®: washing hands and surfaces often, avoiding cross-contamination, cooking to proper temperatures, and refrigerating promptly. So, be a BAC Fighter and make the meals and snacks from your kitchen as safe as possible.



### For More Information About Safe Food Handling and Preparation

USDA's Meat and Poultry Hotline  
1-800-535-4555

FDA's Food Information and Seafood Hotline  
1-800-332-4010

Partnership for Food Safety Education Web Site  
[www.fightbac.org](http://www.fightbac.org)

Or contact your local cooperative extension office.

### Apply the Heat ...and Fight BAC!™

Cooking food to the proper temperature kills harmful bacteria. So Fight BAC!™ by thoroughly cooking your food as follows:

Raw Food	Internal Temperature
<b>Ground Products</b>	
Hamburger	160°F
Beef, veal, lamb, pork	160°F
Chicken, turkey	165°F
<b>Beef, Veal, Lamb</b>	
Roasts & Steaks	
<i>medium-rare</i>	145°F
<i>medium</i>	160°F
<i>well-done</i>	170°F
<b>Pork</b>	
Chops, roasts, ribs	
<i>medium</i>	160°F
<i>well-done</i>	170°F
Ham, fresh	160°F
Sausage, fresh	160°F
<b>Poultry</b>	
Chicken, whole & pieces	180°F
Duck	180°F
Turkey ( <i>unstuffed</i> )	180°F
<i>Whole</i>	180°F
<i>Breast</i>	170°F
<i>Dark meat</i>	180°F
<i>Stuffing (cooked separately)</i>	165°F
<b>Eggs</b>	
Fried, poached	<i>Yolk &amp; white are firm</i>
Casseroles	160°F
Sauces, custards	160°F

This chart has been adapted for home use and is consistent with consumer guidelines from the U.S. Department of Agriculture (USDA) and U.S. Food & Drug Administration (FDA).



## Fight BAC!™



### Four Simple Steps to Food Safety

**R**ight now, there may be an invisible enemy ready to strike. He's called BAC (bacteria) and he can make you and those you care about sick. In fact, even though you can't see BAC — or smell him, or feel him — he and millions more like him may have already invaded the food you eat.



But you have the power to *Fight BAC!*® and to keep your food safe from harmful bacteria. It's as easy as following these four simple steps:

### Clean: Wash hands and surfaces often



Bacteria can spread throughout the kitchen and get onto cutting boards, utensils, sponges and counter tops. Here's how to *Fight BAC!*®

- Wash your hands with hot soapy water before handling food and after using the bathroom, changing diapers and handling pets.
- Wash your cutting boards, dishes, utensils and counter tops with hot soapy water after preparing each food item and before you go on to the next food.
- Use plastic or other non-porous cutting boards. These boards should be run through the dishwasher — or washed in hot soapy water — after use.
- Consider using paper towels to clean up kitchen surfaces. If you use cloth towels, wash them often in the hot cycle of your washing machine.

### Separate: Don't cross-contaminate



Cross-contamination is the scientific word for how bacteria can be spread from one food product to another.

This is especially true when handling raw meat, poultry and seafood, so keep these foods and their juices away from ready-to-eat foods. Here's how to *Fight BAC!*®

- Separate raw meat, poultry and seafood from other foods in your grocery shopping cart and in your refrigerator.
- If possible, use a different cutting board for raw meat products.
- Always wash hands, cutting boards, dishes and utensils with hot soapy water after they come in contact with raw meat, poultry and seafood.
- Never place cooked food on a plate which previously held raw meat, poultry and seafood.

### Cook: Cook to proper temperatures



Food safety experts agree that foods are properly cooked when they are heated for a long enough time and at a high enough temperature to kill the harmful bacteria that cause foodborne illness. The best way to *Fight BAC!*® is to

- Use a clean thermometer, which measures the internal temperature of cooked foods, to make sure meat, poultry, casseroles and other foods are cooked all the way through.
- Cook roasts and steaks to at least 145°F. Whole poultry should be cooked to 180°F for doneness.

■ Cook ground beef, where bacteria can spread during processing, to at least 160°F. Information from the Centers for Disease Control and Prevention (CDC) link eating undercooked, pink ground beef with a higher risk of illness. If a thermometer is not available, do not eat ground beef that is still pink inside.

- Cook eggs until the yolk and white are firm. Don't use recipes in which eggs remain raw or only partially cooked.
- Fish should be opaque and flake easily with a fork.
- When cooking in a microwave oven, make sure there are no cold spots in food where bacteria can survive. For best results, cover food, stir and rotate for even cooking. If there is no turntable, rotate the dish by hand once or twice during cooking.
- Bring sauces, soups and gravy to a boil when reheating. Heat other leftovers thoroughly to at least 165°F.

### Chill: Refrigerate promptly



Refrigerate foods quickly because cold temperatures keep harmful bacteria from growing and multiplying. So, set your refrigerator no higher than 40°F and the freezer unit at 0°F. Check these temperatures occasionally with an appliance thermometer. Then, *Fight BAC!*® by following these steps:

- Refrigerate or freeze perishables, prepared foods and leftovers within two hours or sooner.
- Never defrost food at room temperature. Thaw food in the refrigerator, under cold running water or in the microwave. Marinate foods in the refrigerator.
- Divide large amounts of leftovers into small, shallow containers for quick cooling in the refrigerator.
- Don't pack the refrigerator. Cool air must circulate to keep food safe.




## Appendix C.

FightBAC!® Pamphlet (2007)

Page 1

### Be a BAC Fighter

Make the meals and snacks from your kitchen as safe as possible. **CLEAN:** wash hands and surfaces often; **SEPARATE:** don't cross-contaminate; **COOK:** to proper temperatures, and **CHILL:** refrigerate promptly. Be a BAC Fighter and *Fight BAC!*®



**For More Information about Safe Food Handling and Preparation**

USDA's Meat and Poultry Hotline  
1-888-MPHotline (1-888-674-6854);  
TTY 1-800-256-7072

FDA's Food Information Hotline  
1-888-SAFEFOOD (1-888-723-3366)  
[www.foodsafety.gov](http://www.foodsafety.gov)

**To locate food safety educators in your state or community:**

Cooperative Extension Service, local offices:  
[www.csrees.usda.gov/Extension/incex.html](http://www.csrees.usda.gov/Extension/incex.html)

Food and Drug Administration Public Affairs Specialists:  
[www.fda.gov/ora/fed\\_state/dfsr\\_activities/dfsr\\_pas.html](http://www.fda.gov/ora/fed_state/dfsr_activities/dfsr_pas.html)

See [www.fightbac.org](http://www.fightbac.org) for free brochures, fact sheets, stickers, and other great stuff!


Sign up to be a BACFighter at [www.fightbac.org](http://www.fightbac.org)

### Apply the heat... and Fight BAC!®

Cooking food to the proper temperature kills harmful bacteria. So *Fight BAC!*® by thoroughly cooking your food as follows:

SAFE COOKING TEMPERATURES	
	Internal temperature
<b>Ground Meat &amp; Meat Mixtures</b>	
Beef, Pork, Veal, Lamb	160°F
Turkey, Chicken	165°F
<b>Fresh Beef, Veal, Lamb</b>	
Medium Rare	145°F
Medium	160°F
Well Done	170°F
<b>Poultry</b>	
Chicken & Turkey, whole	180°F
Poultry breasts, roast	170°F
Poultry thighs, wings	180°F
Duck & Goose	180°F
Stuffing (cooked alone or in bird)	165°F
<b>Fresh Pork</b>	
Medium	160°F
Well Done	170°F
<b>Ham</b>	
Fresh (raw)	160°F
Pre-cooked (to reheat)	140°F
<b>Eggs &amp; Egg Dishes</b>	
Eggs	Cook until yolk & white are firm
Egg dishes	160°F
<b>Seafood</b>	
Fin Fish	145°F
	or flesh is opaque & separates easily with fork
Shrimp, Lobster & Crabs	flesh pearly & opaque
Clams, Oysters & Mussels	Shells open during cooking
Scallops	milky white or opaque & firm
<b>Leftovers &amp; Casseroles</b>	165°F

# FIGHT BAC!



**FIGHT** FOODBORNE BACTERIA

Four Simple Steps to Food Safety

2005 PFSE





**BAC** (foodborne bacteria) could make you and those you care about sick. In fact, even though you can't see BAC—or smell him, or feel him—he and millions more like him may have already invaded the food you eat. But you have the power to *Fight BAC*®.

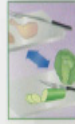
Foodborne illness can strike anyone. Some people are at a higher risk for developing foodborne illness, including pregnant women, young children, older adults and people with weakened immune systems. For these people the following four simple steps are critically important:



**CLEAN: Wash hands and surfaces often**

Bacteria can be spread throughout the kitchen and get onto hands, cutting boards, utensils, counter tops and food. To *Fight BAC*®, always:

- Wash your hands with warm water and soap for at least 20 seconds before and after handling food and after using the bathroom, changing diapers and handling pets.
- Wash your cutting boards, dishes, utensils and counter tops with hot soapy water after preparing each food item and before you go on to the next food.
- Consider using paper towels to clean up kitchen surfaces. If you use cloth towels wash them often in the hot cycle of your washing machine.
- Rinse fresh fruits and vegetables under running tap water, including those with skins and rinds that are not eaten.
- Rub firm-skin fruits and vegetables under running tap water or scrub with a clean vegetable brush while rinsing with running tap water.



**SEPARATE: Don't cross-contaminate**

Cross-contamination is how bacteria can be spread. When handling raw meat, poultry, seafood and eggs, keep these foods and their juices away from ready-to-eat foods. Always start with a clean scene—wash hands with warm water and soap. Wash cutting boards, dishes, countertops and utensils with hot soapy water.

- Separate raw meat, poultry, seafood and eggs from other foods in your grocery shopping cart, grocery bags and in your refrigerator.
- Use one cutting board for fresh produce and a separate one for raw meat, poultry and seafood.
- Never place cooked food on a plate that previously held raw meat, poultry, seafood or eggs.



**COOK: Cook to proper temperatures**

Food is safely cooked when it reaches a high enough internal temperature to kill the harmful bacteria that cause illness. Refer to the chart on the back of this brochure for the proper internal temperatures.

- Use a food thermometer to measure the internal temperature of cooked foods. Make sure that meat, poultry, egg dishes, casseroles and other foods are cooked to the internal temperature shown in the chart on the back of this brochure.
- Cook ground meat or ground poultry until it reaches a safe internal temperature. Color is not a reliable indicator of doneness.
- Cook eggs until the yolk and white are firm. Only use recipes in which eggs are cooked or heated thoroughly.
- When cooking in a microwave oven, cover food, stir and rotate for even cooking. Food is done when it reaches

the internal temperature shown on the back of this brochure.

- Bring sauces, soups and gravy to a boil when reheating.



**CHILL: Refrigerate promptly**

Refrigerate foods quickly because cold temperatures slow the growth of harmful bacteria. Do not over-stuff the refrigerator. Cold air must circulate to help keep food safe. Keeping a constant refrigerator temperature of 40°F or below is one of the most effective ways to reduce the risk of foodborne illness. Use an appliance thermometer to be sure the temperature is consistently 40°F or below. The freezer temperature should be 0°F or below.

- Refrigerate or freeze meat, poultry, eggs and other perishables as soon as you get them home from the store.
- Never let raw meat, poultry, eggs, cooked food or cut fresh fruits or vegetables sit at room temperature more than two hours before putting them in the refrigerator or freezer (one hour when the temperature is above 90°F).
- Never defrost food at room temperature. Food must be kept at a safe temperature during thawing. There are three safe ways to defrost food: in the refrigerator, in cold water, and in the microwave. Food thawed in cold water or in the microwave should be cooked immediately.
- Always marinate food in the refrigerator.
- Divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator.
- Use or discard refrigerated food on a regular basis. Check USDA cold storage information at [www.fightbac.org](http://www.fightbac.org) for optimum storage times.

**Appendix D.**

Conagra/ADA Home Food Safety *It's in Your Hands*™





# Take Control of

**24-hour bug?** Or something you ate? Very often what seems like the flu may be foodborne illness, commonly called food poisoning. Unfortunately, mishandling of food at home is a leading cause of foodborne illness.

## 1. Wash Hands Often

Proper hand washing may eliminate nearly half of all cases of foodborne illness and significantly reduce the spread of the common cold and flu.

### When you wash

Hands should be washed in warm, soapy water before preparing foods and after handling raw meat, poultry and seafood.

Always wash your hands front and back up to your wrists, between fingers and under fingernails.

Never forget to wash your hands after switching tasks, such as handling raw meat and then cutting vegetables.

Dry hands with disposable paper towels, clean cloth towels or air dry.

Sing two choruses of "Happy Birthday" while you lather up — cleaning your hands for 20 seconds.



### Wash Your Hands More Often

#### Before You

Handle or prepare food  
Eat meals  
Feed children

#### After You

Prepare food  
Touch raw food, especially meats  
Switch food preparation tasks  
Touch eggs and egg-rich foods  
Use the restroom  
Change a diaper  
Cough or sneeze  
Handle garbage, dirty dishes  
Smoke a cigarette  
Pet animals  
Use the phone  
Touch face, hair, body, other people  
Touch a cut or sore  
Clean or touch dirty laundry

### ...And don't forget surfaces

- Keep kitchen surfaces such as appliances, countertops, cutting boards and utensils clean with hot, soapy water.
- A smelly dishcloth, towel or sponge is a sure sign that unsafe bacterial growth is lurking nearby. Bacteria live and grow in damp conditions.
  - Wash dishcloths and towels often in the hot cycle of your washing machine.
  - Disinfect sponges in a chlorine bleach solution.
  - Replace worn sponges frequently.



## 2. Keep Raw Meats and Ready-to-Eat Foods Separate

Be careful with cutting boards. When juices from raw meats or germs from unclean objects accidentally touch cooked or ready-to-eat foods (such as fruits or salads), cross-contamination occurs. If not cleaned correctly, the board harbors harmful bacteria.

### Acrylic, glass, marble, plastic or solid wood?

You choose. Just follow these guidelines:

- Use two cutting boards: one strictly to cut raw meat, poultry and seafood; the other for ready-to-eat foods, like breads and vegetables. Don't confuse them.
- Wash boards thoroughly in hot, soapy water after each use or place in dishwasher.
- Discard old cutting boards that have cracks, crevices and excessive knife scars.



### Special precaution:

After cutting raw meats on your board, first clean thoroughly with hot soapy water, then disinfect with chlorine bleach or other sanitizing solution, and last rinse with clean water.

### Reminders to prevent cross-contamination

- Wash plates between uses or use separate plates: one for holding raw meat, poultry and seafood; another for cooked foods.
- Store raw meats, poultry and seafood on the bottom shelf of the refrigerator so juices don't drip onto other foods.
- Place washed produce into clean storage containers, not back into the original ones.
- Use one utensil to taste and another to stir or mix food.
- Make sure you use clean scissors or blades to open bags of food.
- Wear latex gloves if you have a sore or cut on your hand.

# Home Food Safety

The American Dietetic Association (ADA) and the ConAgra Foundation suggest four simple actions to take control of food safety in your kitchen. Here are some tips to guide you through the world of "*Home Food Safety... It's in Your Hands.*"

### 3. Cook to Proper Temperatures

Harmful bacteria are destroyed when food is cooked to proper temperatures. Buy a meat thermometer and use it! This is the only reliable way to ensure safety and to determine the doneness of cooked foods.

<i>Safe Cooking Temperatures</i>	
Food Item	Internal Temperature
<b>Beef, Lamb, Veal</b>	
<i>Ground products</i>	
Hamburger (prepared as patties, meatloaf, meatballs, etc.)	160°F
<i>Non-ground products</i>	
Roasts and steaks	
Medium-rare	145°F
Medium	160°F
Well-done	170°F
<b>Poultry</b>	
Ground chicken, turkey	165°F
Whole chicken, turkey	180°F
Boneless turkey roasts	170°F
Poultry breasts and roasts (white meat)	170°F
Poultry thighs, wings and drumsticks (dark meat)	180°F
Duck, goose	180°F
Stuffing (cooked alone or in bird)	165°F
<b>Pork</b>	
<i>All cuts including ground products</i>	
Medium	160°F
Well-done	170°F
Fresh, raw ham	160°F
Fully cooked ham, to reheat	140°F
<b>Egg dishes, casseroles</b>	160°F
<b>Leftovers, reheated</b>	165°F

#### How to get an accurate reading

- Red meats, roasts, steaks, chops and poultry pieces: insert in center of the thickest part, away from bone, fat and gristle.
- Poultry (whole bird): insert in inner thigh area near the breast, but not touching bone.
- Ground meat and poultry: place in the thickest area of meatloaf or patty; with thin patties, insert sideways reaching the very center with the stem.
- Egg dishes and casseroles: insert in center or thickest area of the dish.
- Fish: cook until opaque and flakes easily with a fork.



*Remember to wash the thermometer stem thoroughly in hot, soapy water after each use!*

### 4. Refrigerate Promptly Below 40°F

Refrigerate foods quickly and at a proper temperature to slow the growth of bacteria and prevent foodborne illness. Leftover foods from a meal should not stay out of refrigeration longer than 2 hours. In hot weather (80°F or above), this time is reduced to 1 hour.

Also, make sure your refrigerator is set below 40°F. This will keep perishable foods out of what's called the "danger zone" — 40°F or above. Keep a refrigerator thermometer inside your refrigerator at all times!



#### *General Guidelines for Leftovers*

Perishable Food	Keeps Up To
Cooked fresh vegetables	3-4 days
Cooked pasta	3-5 days
Cooked rice	1 week
Deli counter meats	5 days
Greens	1-2 days
<b>Meat</b>	
Ham, cooked and sliced	3-4 days
Hot dogs, opened	1 week
Lunch meats, prepackaged, opened	3-5 days
Cooked beef, pork, poultry, fish and meat casseroles	3-4 days
Cooked patties and nuggets, gravy and broth	1-2 days
Seafood, cooked	2 days
Soups and stews	3-4 days
Stuffing	1-2 days

*When in doubt, throw it out!*



THE AMERICAN DIETETIC ASSOCIATION/FOUNDATION  
*Your link to nutrition and health.™*

Home Food Safety *It's in Your Hands*™  
Page 4




The American Dietetic Association and its Foundation, and the ConAgra Foundation have joined together in a consumer education program, "*Home Food Safety...It's in Your Hands*", to communicate the important role consumers play in preparing foods safely in their own homes.

The American Dietetic Association is the largest organization of food and nutrition professionals in the world. Its Foundation, a non-profit organization, raises funds for vital education and research projects that promote optimal nutrition, health and well-being of the public.

ConAgra, Inc. is a diversified international food company, operating in 35 countries around the world. This program is funded by the ConAgra Foundation, the philanthropic arm of ConAgra, which works to improve the quality of life in communities around the world.



 THE AMERICAN DIETETIC ASSOCIATION/FOUNDATION  
*Your link to nutrition and health.™*

# Home Food Safety

## Wash Hands Often

- ★ to reduce colds and flu
- ★ to reduce food poisoning



## Wash Hands in Warm, Soapy Water

- ✪ before you touch food or eat
- ✪ after you touch raw foods, face, nose or hair, dirty clothes, pets
- ✪ after you use the restroom, change a diaper, or smoke

Wash hands on fronts, backs, and between fingers for two choruses of "Happy Birthday".

Wash kitchen surfaces with hot, soapy water.

Use clean dishcloths and towels each day.

## Keep Raw Meats and Ready-to-Eat Foods Separate

- ★ foods will taste better
- ★ germs will stay away from other foods

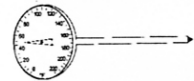
Use two different cutting boards, one for raw meat, poultry, and seafood and the other for ready-to-eat foods such as bread and vegetables.

Wash with hot, soapy water cutting boards, plates, knives, and spoons between uses such as raw meat and cooked meat.



## Cook to Proper Temperature

- ★ for tasty,
- ★ juicy, and safe foods.



## Buy a meat thermometer and use it.

- ✪ put in thickest part of meat, poultry or casserole
- ✪ put in sideways for thin patties
- ✪ cook fish until opaque and flakes easily

## Temperatures for Tasty, Juicy, Safe Foods

Ground beef .....	160°
Steaks and roasts	
medium-rare .....	145°
medium .....	160°
well-done .....	170°
Chicken white meat .....	170°
Chicken dark meat .....	180°
Whole chicken or turkey .....	180°
Pork .....	160°
Leftovers .....	165°

## Refrigerate Quickly Below 40°F

- ★ foods stay fresh longer, saving you money
- ★ germs grow slower

Throw away leftovers that are out of the fridge more than two hours.

Defrost meat and casseroles in the refrigerator.

Take the temperature of your fridge. It should be below 40°F.



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## VITA

Holly Holbrook Coleman was born March 11, 1953 in Lexington, Kentucky. She graduated from the University of Kentucky's College of Agriculture with a Bachelor of Science in Animal Science in 1974 and a Master of Science in 2007. She was employed in Kentucky for 22 years in the field of public health, specifically environmental health and food safety. She retired from the Lexington-Fayette County Health Department in 1999 from her position as Deputy Commissioner for Environmental Health and is currently employed as the Public Health Director for the Chatham County Health Department in Pittsboro, North Carolina.

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August 6, 2007

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Date