



**Review of Literature to Support the Development of a
Multi-Year Mass Media Campaign Plan**

***“Identifying Target Audiences and Influencing
Their Safe Food Handling Behaviors”***

**Prepared for:
United States Department of Agriculture
Food Safety and Inspection Service
Food Safety Education Staff**

**Prepared by:
ORC Macro/APCO
Beltsville, MD**

December 9, 2004

Background

The Food Safety and Inspection Service (FSIS) and Food Safety Education Staff (FSES) have conducted consumer education programs for more than 20 years. These programs are designed to teach consumers about safe food handling and change consumers' behaviors to reduce the risk of foodborne illness.

FSIS education programs revolve around an “integrated marketing” approach that encompasses mass media, targeted audience communications, and one-on-one interventions. These programs are unique in that they utilize consumer research, epidemiological information, and social marketing to develop educational messages that are based on sound research to deliver programs that target the “right message” to the “right audience” at the “right time.”

In 1996, FSIS spearheaded work identifying four key safe food handling messages: clean, separate, cook, and chill. These messages became the core components of a national education campaign entitled, “Fight Bac!®,” launched in 1997 by the Partnership for Food Safety Education (PFSE). The PFSE is a nonprofit organization dedicated to educating the public about safe food handling to help reduce foodborne illness. Members represent all aspects of the food and consumer industry from meat and produce to marketers, and allied trade as well as government and consumers.

The campaign has yielded impressive outreach results, distributing hundreds of thousands of publications, educational programs, media releases, and other educational tools. Research indicates that consumer knowledge about safe food handling has increased and that consumer awareness of safe food handling behaviors is significant. However, this same research also demonstrates that many consumers remain unaware of the “correct” and “specific” practices to adopt to ensure their food is safely prepared (FDA/FSIS Consumer Food Safety Survey, 2001).

ORC Macro/APCO was selected by FSIS to develop a new Multi-Year Mass Media Campaign Plan that will reflect these changes in audience awareness and understanding of food safety, and promote safe food handling messages among consumers utilizing social marketing concepts. In the following report, ORC Macro/APCO has assembled and documented a review of literature and research pertaining to topics relevant to the development of a Mass Media Campaign Plan focused on changing audience behaviors around safe food preparation.

This review examines existing published and unpublished research on social marketing campaigns, including food safety, overall nutrition, health and behavior change programs with similar objectives to extract key learnings with regard to potential audience influences, motivations, challenges, and messages. More specifically, using the elements of the marketing mix—*product*, *price*, *promotion*, and *place*—this task seeks to: 1) identify audiences within the general population receptive to food safety messages and, 2) determine what messages and channels will be most effective in reaching them and changing their behaviors.

How Can Prior Research Help Us Identify Target Audiences?

A new Mass Media Campaign Plan based on the four key areas of safe food handling will naturally target those consumer audiences that prepare foods. Today, this is an overwhelming majority of the population, including, those in caregiver roles within families, single adults, as well as youth, who increasingly prepare snacks, lunches, and even dinners for themselves and/or other family members. Prior food safety research identifies two basic food safety audience types: 1) those that have some awareness and adoption of food safety behaviors, and 2) those with relatively low food safety knowledge and skills (FDA/FSIS Consumer Food Safety Survey, 2001).

A campaign based on social marketing principles will correlate specific evaluation measures to desired outcomes, where target audiences are typically more narrowly defined based on such factors as the ability to move them along the continuum of behavior change as highlighted in the Stages of Change Model (Maibach & Cotton, 1995). Therefore, here, we review target audiences for the Mass Media Campaign Plan based on a review of research and literature that demonstrates segments of these groups that are most receptive to food safety and other similar messages, and subsequently, more likely to adopt behavior changes.

Social Marketing Campaign Target Audiences

A number of social marketing and behavioral change campaigns have captured media and audience attention in recent years. As we work to develop a Mass Media Campaign Plan that will successfully outreach to audiences, an assessment of several such target audiences is informative:

- The Got Milk? national media campaign was initially designed to educate women, age 25-44 about the nutritional qualities of milk and its importance in a healthy diet. The target audience was later expanded to include males, college-age students, and teens. These groups were targeted because together, they represent approximately 56 percent of all milk consumers in the United States (USDA/ERS, 1995). The targeted campaign has resulted in increases in fluid milk sales and retail fluid price, netting dairy farmers a high return on their investments in advertising (Cornell University, 1997).
- The Five-A-Day for Better Health media program targets people who are trying to eat more fruits and vegetables, and are currently eating two to three servings a day, but have not achieved the Five-a-Day minimum. These groups were chosen as they already demonstrate some of the desired behaviors. Research also indicated that this audience seeks “moderation,” not “transformative” changes. Common demographic data on the target group includes: 25-55 in age, two-thirds white, minimum high school diploma-maximum college degree, often with

Implications:

Similar social marketing campaigns target audiences that:

- **Represent large segments of the buying audience**
- **Already perform at least some of the required behaviors**
- **Demonstrate a willingness to change because of personal motivations**

children under the age of 16, with a household income of \$20-70,000 per annum (Prevention Research Center, 1997).

- The Partnership for Food Safety Education’s “Fight Bac!®” campaign was designed to increase awareness of the four key safe food handling practices: clean, separate, cook, and chill. General public audiences are targeted through PSAs and other educational materials; a grassroots component localizes the campaign to community and school groups.
- The Food Safety and Inspection Service’s “Is It Done Yet?” campaign is focused on improving thermometer use in “at risk” populations. The campaign’s primary audience target is parents with children under the age of 10 with technology savvy identified as “Boomburbs;” research indicates that audiences who act as caregivers for others are more likely to change food safety behaviors (The Baldwin Group, 2003).

Target Audience Knowledge and Attitudes

In a 2004 study for the Partnership for Food Safety Education: *American Attitudes and Behaviors to Safe Food Handling*, almost three-in-four Americans strongly agree that it is important to them to follow basic safe food handling practices. Another 19 percent moderately agree—totaling a staggering majority—92 percent of the sample audience. In this study, women, older individuals, and those with lower levels of education were among the most likely to agree. Interestingly, the gap in gender information may vary by behavior type. More women than men know to wash hands/surfaces, but more men than women know to cook food properly (Food Marketing Institute, 1998). Some survey participants, both male and female, examine Nutrition Facts Panels (NFP) because they themselves or someone in their family has a health condition such as diabetes or heart problems (ORC Macro, 2004). Overall, female participants report checking the NFP on food labels more often than males (ORC Macro, 2004).

Those most “at risk” for foodborne illness (over the age of 60, pregnant, have kidney disease or diabetes, or a weakened immune system) are slightly more aware that they are at greater risk than others in the population and are generally more interested in these consumer messages (Porter Novelli, 2004).

However, older populations are less likely to change previously ingrained behaviors as further detailed in this review (ORC Macro, 1995).

Implications:

Audiences that demonstrate the greatest food safety knowledge and skills include those who are:

- **Less educated**
- **Over age 25**
- **Racial or ethnic minorities**
- **Parents of children**

These findings are consistent with other audience studies. The *1998 FDA/FSIS Consumer Food Safety Survey* revealed that young people (ages 18-25), people with higher education, whites, and men have less food safety knowledge and skills. Blacks and other ethnic minorities, as well as people with less education demonstrated greater food safety knowledge and skills. Because children often fit into “at risk” health categories, parents of young children (ages 0-10) are also likely to seek information about food safety and

respond to communication messages. Parents of young children demonstrate willingness to change behaviors in order to protect their children.

Parents of young children express confidence in their ability to safely handle and prepare meat and poultry at home. However, many report being more careful about food safety since having children and take a number of precautions when cooking at home to prevent foodborne illness, such as washing hands and surfaces often and promptly refrigerating leftovers (RTI, March 2002). In focus group research conducted by ORC Macro in 1998, parents also stated that the risks of *Salmonella* would make them more cautious about serving eggs to their children.

Product: Behavior Change

The Stages of Change Model suggests that there are five stages to the performance of behavior: *precontemplative*, where individuals do not intend to change their behavior because they are completely unaware of the behavioral options available to them; *contemplation*, as individuals begin to think about the behavior that is putting them at risk for harm; *preparation*, where there is a commitment to change and take some action to prepare for the behavioral change; in *action*, a new behavior is performed consistently; and finally in the *maintenance* stage, the new behavior is continued and steps are taken to avoid lapsing into the formerly risky behaviors (Michigan State University, 1997).

Despite the attention food safety and safe food handling has received in the media in recent years, research demonstrates that while many consumers have moved from stages of precontemplation and contemplation, many more are still to move to the preparation, action and maintenance stages. For example, although consumers report improved knowledge of food safety practices and could name the four basic handling behaviors, consumers do not always follow these practices, such as using a thermometer or, when doing so, using it properly. Moreover, even among audiences that are more educated, observational studies reveal at least one critical violation of safe handling practices (FDA/FSIS Consumer Food Safety Survey, 1998) and that actual practices often differ from reported practices (Utah State University, 2000).

Implications:

Audiences that demonstrate food safety knowledge must still be educated about:

- **The specifics of certain behaviors**
- **The risks of not following the behaviors**
- **The benefits of performing practices consistently**

Research conducted by the Research Triangle Institute in 2002 identified the following areas where additional audience education to influence behavior change is needed:

- Food Thermometer usage,
- The two-hour rule: refrigerate or freeze foods within two hours or less,
- Proper handling, storage, and reheating of leftovers,
- Refrigerator thermometer usage,
- Practices to defrost meat and poultry safely, and
- The “when in doubt, throw it out” rule.

More recent findings demonstrate similar gaps in audience knowledge, attitudes, and behaviors as they relate to the four areas of safe food handling:

- Virtually all American adults have said that they have seen or heard basic safe food handling messages about washing and sanitizing cutting boards and other surfaces (94 percent), and 67 percent and 76 percent respectively report that that “always” follow these instructions.
- Although a majority of American adults have seen or heard messages telling them to keep fresh fruits and vegetables separate from raw meat and poultry, and seafood when shopping (78 percent) and to use different cutting boards for these foods (78 percent), they don’t always follow these recommendations (47 and 53 percent).
- Most American adults (82 percent) report seeing or hearing the message that they should “refrigerate or freeze foods within two hours of cooking,” yet only 45 percent “always” follow this recommendation.
- Only half to two-thirds of this audience “always” follow recommended behaviors for cooking and defrosting, although the majority have heard or seen these messages.
- American adults are more likely to wash their hands after, rather than before, handling raw meat, poultry, seafood, or eggs.
- 44 percent of American adults know what listeriosis is; less than half (46 percent) of those at risk are aware.

Such data indicates that many consumers practice safe food handling, yet even of this group, most do not “always” follow correct practices. Such groups are likely to respond to new communications messages, as they currently practice at least some of these behaviors. These audiences must be educated about the risks of not practicing recommended behaviors “always” (Porter Novelli, September 2004). Importantly, increasing the risk consumers perceive does help to change their behavior. Respondents who had experienced foodborne illness reported significantly higher levels of risk aversion—a willingness to choose less risky alternative behaviors to food preparation to avoid becoming ill again—than those who had not (USDA/ERS Consumer Food Safety Behavior, 1998).

Price: Barriers and Challenges to Behavior Change

In Social Marketing Theory, the “price” of compliance with behavior change refers to the requirements made of the consumer to comply with a change—any physical, social, or psychological cost related to compliance—that may present as barriers to action. For consumers, these often include time, energy, and money. In designing food safety messages, educators must also consider consumer tradeoffs between safety and other aspects of food consumption such as convenience and palatability.

In food safety education, it is important to understand that consumers make their decisions on how to cook foods based on several factors including taste, palatability, and perceived food safety risk that are influenced by personal preferences, experiences, and

challenges. (USDA/ERS Consumer Food Safety Behavior, 1998). For example, participants in focus group research conducted by ORC Macro in 1995 on *E.Coli* felt those cooking hamburgers past medium makes them “tough,” “less juicy,” and “less flavorful.” Additionally, because many participants prefer the taste of undercooked hamburger, they felt the risk of infections would have to be, “very high,” in order for them to change the way they eat, even if education information is widely disseminated. In consumer testing on *Salmonella*, participants also felt that there must be a “major threat” to their well-being, and were willing to take a “chance” on getting sick as opposed to giving up a desired food (ORC Macro, 1998).

Implications:

Major barriers to consumer food safety behavior change include:

- Perceptions of scarcity of time
- Personal preferences of taste and palatability
- Perception that personal illness risk is “low”
- Overconfidence in handling practices
- Difficulty in breaking through warning message clutter

Many factors also contribute to consumers’ lack of familiarity with safe food handling. Increased participation in the paid labor force has lessened the exposure of young people to food handling practices in the home; few schools offer or require food preparation classes; and the partially prepared foods commonplace in the fast-paced lives of many consumers have different, less familiar handling requirements. (Centers for Disease Control and Prevention (CDC), 1997).

One of the most significant influences affecting food choices is the lack of time in the rapidly changing lifestyle of people in the United States and other Western societies (American Dietetic Association, 2002). Similarly, an evaluation *Probing Consumer Benefits and Barriers for the National Five-a-Day Campaign* finds that audiences’ sense of time scarcity seemed to drive their lives (Prevention Research Center, 1997).

The *Food and Drug Administration’s Report to Congress in 1998* and other relevant sources identify several additional knowledge, attitude and behavioral barriers to food safety behavior change including:

- Warnings are so commonplace that audiences ignore them,
- Perception that nutrition and dietary advice is constantly changing,
- Overconfidence in safe food handling practices (RTI, 2000),
- Confidence in government and grocery groups to ensure food safety limits incentive for personal action (ORC Macro 1995, 2003, 2004; Gallup, 1999; Porter Novelli 2004),
- Belief that “everything is bad for you these days” and desire to enjoy foods as they please that outweighs perceived risks (ORC Macro, 1995), and
- Trust in personal cooking experience (RTI, March 2002).

Promotion: Communication Messages and Channels

Successful communication messages and delivery mechanisms consider the: 1) desired behavior change, 2) personal opinions and motivations of target audiences, and 3) costs for their compliance. The literature and research review of food safety issues and messages reveals a number of characteristics common to food, health, nutrition, and safety messages that most influence audiences. The following highlights key learnings with regard to these messages and channels of communication:

Messages

To communicate effectively with consumer audiences around health issues, research indicates that messages must be:

- Consistent,
- Clear
- Science-based,
- Definitive,
- Frequent, and
- Personalized.

(ORC Macro, 1998; University of California-Davis, 1997)

Focus group and other studies indicate that communication messages should also:

- Provide proactive, positive, and practical messages whenever possible,
- Tailor messages to meet individual needs and personal assessments of risk,
- Add depth to individual messages so that consumers understand specific actions to take under the four basic safety instructions (ORC Macro, 2004; Porter Novelli, 2004),
- Meet the specific behavioral objectives (Health Systems Research, Inc., 2002),
- Emphasize benefits, including the secondary benefit of improved food quality and taste (RTI, 2002),
- Give fairly detailed and specific information; however the line between being too long in the message is tight (ORC Macro, 2000),
- Personalize with pictures and consumer information on how to regain the taste they feel is lost (ORC Macro, 1995), and
- Ask consumers to do something they feel is possible (IFIC, 2002).

Because warnings to consumers often have mixed results, such admonitions to consumers should:

- Provide new or “added value” information,
- Clearly state the nature of the hazard,
- Put the most important information first—don’t bury the lead,
- Be concise,
- Attention getting, either visually or written in a novel way,
- Believable, and

- Thoroughly tested.

(USDA/FSIS, 1998)

Message Channels

In general, mass media has been found to be effective in increasing awareness of nutrition and physical activity messages. Consumers get most of their information on food safety and safe handling practices from the *media*, such as television news shows, and the local news. Cooking programs are a key source of food safety information for many consumers (ORC Macro, 2004; RTI, 2002).

Developing messages with the press should be a primary activity of a food safety education program. Consumers judge a message by the credibility of the person conveying it, its appeal to their common sense, and the frequency of the message. Moreover, these are factors that can motivate audiences to change behaviors. (CDC, 1997). Additionally, *paid advertising* is a major component of several major outreach campaigns. For example, both generic and branded advertising has proven highly effective in increasing consumption of milk and cheese products, as highlighted by a six percent increase in sales over a 12-year period (USDA/ERS, 1997). Subsequently, an evaluation of the “1% or less” campaign to increase sales and consumption of low-fat milk revealed that the combination of paid advertising with public relations activities produced the strongest results (West Virginia University, 2004).

Implications:

Research indicates that the primary channels and sources of credibility with audiences include:

- **Media—PSAs and news stories on television, radio, and magazines**
- **Paid advertising**
- **Integrated promotional opportunities—events, educational materials, online outlets**
- **Targeted newsletters**
- **Health professional and wellness programs and partnerships**
- **Packaging**

Research also indicates that consumers who cite magazines, television, and hotlines are 15 to 17 percent more risk averse—or more likely to perceive unsafe food handling practices as a relevant risk—than those who did not. Interestingly, consumers who cite brochures as a food safety information source had lower risk motivation. Consumers citing labels had neither higher nor lower risk motivation, after accounting for other characteristics and information sources (USDA/ERS, 1998).

Furthermore, audiences need to hear messages frequently, via a number of different sources to ensure they are “ingrained” in thoughts and habits (RTI, 2002). Comprehensive strategies to accomplish this level of saturation with consumers often include public service announcements, radio advertisements, promotional items such as t-shirts, and bumper stickers, newspaper articles, and the like (University of California-Davis, 2000).

A review of literature and research also recommends the following delivery mechanisms including:

- Online opportunities leveraging partnership sites and news organizations (Porter Novelli, 2004),
- Food labels (ORC Macro 2002; RTI, 2002),
- Promotional activities (RTI, March 2002), and
- Educational/Promotional materials (e.g. magnets, brochures).

Moreover, *educational and promotional materials* should reflect the principles of the program messages to:

- Include self-directing information such as Web addresses and phone numbers,
- Inform about food safety and foodborne illness overall, but get quickly to the point of the specific message,
- Emphasize benefits, and
- Personalize messages to specific audience types and behavior changes.

Message Sources

Although consumers get most of their nutrition and health information from the media, they also receive this news from a variety of other sources. As highlighted previously, the media are consumers' leading source of nutrition information, with television (48 percent), magazines (47 percent), and newspapers (18 percent) cited as the top three information sources. Other sources cited include books (12 percent), doctors (11 percent), and family and friends. Dietitians (1 percent) and nutritionists (1 percent) were not frequently cited (ADA Nutrition and You Trends Survey, 2000).

Credible sources with consumers for this type of information—*Prevention* magazine, Dr. Merkin, *Good Housekeeping*, and *Family Circle*, organizations and “figureheads,” for example the USDA, articles in newspaper style sections, and television anchors. However, audiences express concern about information coming from affiliated organizations such as meat packers associations or restaurant associations because of lack of trust towards these groups.

These same focus group participants in *E.Coli* studies suggested that the information would reach the widest possible audience through TV spots on the evening news, segments on the news, doctor programs, nutrition classes taught in schools, AARP newsletters, and other printed literatures, meat packages, literature at point of purchase and grocery counters, and recipes accompanied by information on specific issues (ORC Macro, 1995).

Partnerships

In addition to the Partnership for Food Safety Education, literature and research identifies further opportunities to leverage relationships and shared goals with influencer groups to implement outreach in efforts to educate and engage audiences:

- Consumers trust health care professionals and other partners to engage in the food safety education effort (ORC Macro, 2004; RTI 2002), and

- “At risk” influencer organizations provide additional outreach possibilities (Porter Novelli, 2004).

Place: Access to Information

Finally, not only it is important to develop personalized, frequent messages—and deliver them via multiple channels—but to provide the critical reinforcement of behaviors through ease of access to information necessary for audiences to take action. The literature and research review also highlights that audiences need and respond to information from and in the following environments:

- *Homes*: by and large, most consumers still think that problems are most likely to occur in restaurants or processing plants, not their own homes. Forty percent think that it is not common to get sick from food preparation at home (FDA/FSIS Consumer Food Safety Survey, 1998).
- *Schools*: participants in multiple surveys suggest that educating children about food safety issues such as thermometer usage in schools so they can bring messages home to their parents is an effective education tactic (ORC Macro, 2004; RTI, March 2002). For example, several state Five-a-Day programs focused on school-to-home education interventions through partnerships between parents, teachers, food service staff, and children for the purpose of dietary change (Health Promotion, 1998).
- *Point of Purchase*: although consumers highlight point of purchase opportunities for education, evaluation of sites such as grocery stores as an intervention strategy in the purchase of fruits and vegetables methods demonstrated that 70 percent of all shoppers had purchased fruits or vegetables on the day they were interviewed, which did not differ between intervention stores who distributed flyers and coupons, and control stores that did not (University of Washington, 1996).

Summary of Literature Review

- A Mass Media Campaign Plan based on Social Marketing Principles targets audience segments whose behavior change can be measured, rather than developing a “one size fits all” approach for the general public.
- Research and literature suggests that consumers are more aware of food safety and have improved some handling practices, but remain unaware of many of the “correct” practices to adopt.
- Additionally, there are significant gaps in audience knowledge, attitudes, and behaviors as they relate to the four key safe food handling practices: clean, separate, cook, and chill.
- While audience segments may practice one or more of these behaviors, “usually,” audiences need help understanding the risks of not practicing recommended behaviors “always.”

- Women, older individuals (60 or older), those with lower education, ethnic minorities, and parents are more likely than other groups to seek information about food safety and respond to communication messages.
- Challenges related to audience perception of risk, scarcity of time, and personal cooking experience that pose barriers to action by consumers.
- Communication messages to target audiences must be personalized, emphasize benefits, positive, frequent, and consistent.
- Although mass media outlets are the primary channels of successful distribution of messages to audiences, research identifies the need to use additional delivery mechanisms including influencer groups, schools, and online resources to increase audience access to information and reinforce messages in a variety of environments.

Sources Cited

- “Food Safety Survey: Summary of Major Trends in Food Handling Practices and Consumption of Potentially Risky Foods,” Center for Food Safety and Applied Nutrition, Food and Drug Administration, 2001.
- Maibach, E.W., & Cotton, D, “Moving People to Behavior Change: A Staged Social Cognitive Approach to Message Design,” 1995.
- Brandt, AM, “AIDS in Historical Perspective: Four Lessons From the History of Sexually Transmitted Diseases,” American Journal of Public Health, 1988.
- “Consumer Food Safety Behavior: Modeling Behavior Change,” Economic Research Service, United States Department of Agriculture (USDA), 1998.
- “Impact of National Dairy Advertising on Dairy Markets,” Cornell University, *Journal of Agricultural and Applied Economics*, 1997.
- Balch, George et. al., “Probing Consumer Benefits and Barriers for the National Five-a-Day Campaign: Focus Group Findings,” Prevention Research Center, *Society for Nutrition Education*, 1997.
- “FTEC Boomburbs Communications Concept Testing,” USDA Food Safety and Inspection Service (FSIS) Food Safety Education Staff (FSES), The Baldwin Group, 2003.
- “Safe Food Handling: American Attitudes and Behaviors,” The Partnership for Food Safety Education, Porter Novelli, 2004.
- “Snapshot of Consumer Behavior and Attitudes,” Food Marketing Institute, 1998.
- “Health Claims and Design Formats of Product Labels,” Food and Drug Administration, ORC Macro, 2004.
- “E.Coli and Uncooked Hamburgers,” United States Department of Agriculture, ORC Macro, 1995.
- “Labeling of Untreated Shell Eggs,” Food and Drug Administration, ORC Macro, 1998.
- “Changes in Consumer Knowledge, Behavior, and Confidences Since the 1996 PR/HACCP Final Rule,” United States Department of Agriculture/Food Safety and Inspection Service, Research Triangle Institute (RTI), 2002.
- Witte, Kim, “Theory-Based Interventions and Evaluations of Outreach Efforts,” Michigan State University, 1997.

- “Thermometer Usage Messages and Delivery Mechanisms for Parents of Young Children,” PR/HACCP Rule Evaluation Report, United States Department of Agriculture/Food Safety and Inspection Service, Research Triangle Institute, 2002.
- Bruhn, Christine, “Consumer Concerns: Motivating to Action,” *Emerging Infectious Diseases*, National Center of Infectious Diseases/Centers for Disease Control and Prevention, 1997.
- Freeland-Graves, Jeanne, Nitzke, Susan, “Total Diet Approach to Communicating Food and Nutrition Information,” *Journal of the American Dietetic Association*, 2002.
- “Food and Drug Administration’s Report to Congress 1998.”
- “Focus Group Study on Food Safety Messages and Delivery Mechanisms,” PR/HACCP Rule Evaluation Report, United States Department of Agriculture/Food Safety and Inspection Service, Research Triangle Institute (RTI), 2000.
- “Agency Imprimatur,” United States Department of Agriculture, ORC Macro, 2003, 2004.
- “Safe Fish Consumption,” United States Department of Agriculture, ORC Macro, 2004.
- “Food Safety Issues,” Gallup Poll: National Telephone Surveys, 2004.
- “Food Stamp Nutrition Education,” USDA/Food and Nutrition Service, Health Systems Research Inc., 2002.
- “How Consumers Feel About Food and Nutrition Messages,” International Food Information Council (IFIC), 2002.
- “Communicating Foodborne Disease Risk,” *Emerging Infectious Diseases*, National Center of Infectious Diseases/Centers for Disease Control and Prevention, 1997.
- “Listeriosis Food Safety Messages and Delivery Mechanisms for Pregnant Women,” PR/HACCP Rule Evaluation Report, United States Department of Agriculture/Food Safety and Inspection Service, Research Triangle Institute (RTI), 2001.
- Booth-Butterfield Steve & Reger, Bill, “The Message Changes Belief and the Rest is Theory: “the 1% or less” Milk Campaign and Reasoned Action,” West Virginia University, *The Institute for Cancer Prevention and Elsevier Inc.*, 2004.