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# EVALUATION OF A SOCIAL MARKETING CAMPAIGN: 4 DAY THROW AWAY

By

Katie J. James

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Philosophy

Major: Human Sciences

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EVALUATION OF A SOCIAL MARKETING CAMPAIGN: 4 DAY THROW AWAY

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University of Nebraska, 2012

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Children are at a heightened risk for foodborne illness. Handling leftover food safely was identified as a concern from focus groups with the main food preparer in families with young children in two Midwestern states. To design, implement, and evaluate a theory-based food safety education intervention to raise awareness of the USDA guideline for handling leftover food. The food safety social marketing campaign "4 Day Throw Away" launched in towns throughout Nebraska and Iowa. The campaign included both traditional and social media methods to relay the message of discarding leftovers after four days. A total of 600 guardians of young children participated in the study along with the 7 professionals who were involved with the development and implementation of the campaign.

Intercept surveys were conducted in 6 separate locations. Comments were extracted from the social media outlets utilized during the campaign. A process evaluation was conducted of how the team worked to develop and implement the campaign. Of the 300 participants surveyed from the test sites, 24% provided unprompted or prompted awareness of the 4 Day Throw Away campaign. Half of the participants from test locations reported throwing away leftovers 4 days or less after preparation compared to 38% from the control locations. The key strategies that emerged from the process evaluation included strong communication techniques, opportunities for

personal and professional development, and clear roles and schedule of team member expectations. There continues to be a need to educate parents of young children on proper leftover food safety practices. This campaign was effective in reaching young audiences with the intended message.

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# TABLE OF CONTENTS

List of Tables ..... viii

List of Appendices ..... ix

**Chapter I: Introduction**

Research Problem ..... 2

Significance of this study ..... 2

Purpose of this study ..... 3

Objectives ..... 4

**Chapter II: Literature Review**

Leftover Knowledge and Behaviors ..... 5

Hierarchy Of Effects Model ..... 8

Traditional Marketing Campaigns ..... 10

Social Marketing Campaigns ..... 16

Evaluation Techniques ..... 17

**Chapter III: Campaign Evaluation Article**

Introduction ..... 22

Methods ..... 24

Results ..... 27

Discussion ..... 30

**Chapter IV: Process Evaluation Article**

Introduction ..... 37

Literature Review ..... 39

Materials and Methods.....41

Results.....45

Discussion.....58

**Chapter V: Discussion, Conclusion and Limitations**

Discussion.....64

Conclusion.....68

Limitations.....69

Implications for Further Research.....69

References.....71

Appendices.....77

# LIST OF TABLES

1. Grocery Store Intercept Survey Results From 6 Midwestern Cities.....28
2. Chi Square Values for Grocery Store Intercept Survey.....28
3. Selected Facebook Comments .....29
4. Results of the Communication Factor From the Process Evaluation Checklist ....53
5. Results of the Research, Planning, and Evaluation Factor From the Process Evaluation Checklist .....54
6. Results of the Resources Factor From the Process Evaluation Checklist.....55
7. Results of the Personal and Professional Development Factor From the Process Evaluation Checklist .....56
8. Results of the Effectiveness and Efficiency Factor From the Process Evaluation Checklist .....56
9. Results From Process Evaluation Checklist and Themes .....57

# LIST OF APPENDICES

A IRB Approval ..... 77

B-1 Intercept Survey Script ..... 80

B-2 Intercept Question Protocol ..... 82

B-3 Intercept Survey Record Form ..... 84

C-1 Process Evaluation Informed Consent Form ..... 86

C-2 Process Evaluation Checklist ..... 89

C-3 Process Evaluation Interview Protocol ..... 93

# CHAPTER 1

# INTRODUCTION

Foodborne illnesses remain a common problem in the United States accounting for an estimated 48 million illnesses, 127,839 hospitalizations, and 3,000 deaths annually (CDC, 2011). There are numerous behaviors linked to the growth and spread of microorganisms in foods that consequently lead to undesirable health effects within those who consume the contaminated food items. One of these behaviors is the improper storage of leftovers. Most consumers are unaware and do not refrigerate leftovers within 2 hours of purchasing the food (Trepka et al., 2006) nor do they discard most leftovers during the recommended time frame (Lum, 2010).

The use of social marketing campaigns to influence health behaviors have increased dramatically within the past 20 years. The Social Marketing Institute defines social marketing as "the planning and implementation of programs designed to bring about social change using concepts from commercial marketing" (Andreasen, 1999) Traditional mass media campaigns have included the use of television and radio public service announcements (PSAs) along with numerous print materials including newspaper articles, posters, brochures, and flyers. With the increase of the complexity and use of the internet, there is an increased potential for social marketers to use the internet and social media for promotion through today's Web 2.0. Thackeray and colleagues (2008) stated that "Web 2.0 allows for sharing, linking, collaborating, and inclusion of use-generated content." The ability of social media to engage target

audiences in sometimes greater capacities makes it crucial for social marketers to utilize Web 2.0 applications to promote health behavior change.

**Research Problem**

Parents or guardians are largely responsible for preparing food for their young children who fall into a high risk category of developing foodborne illness. Safe food handling practices among these parents or guardians are vital in reducing the risk of foodborne illness. Lack of knowledge in how long leftovers should be kept is a common theme in the limited research that has been done on leftover practices. Lum (2010) found that young parents do not discard most leftovers during the recommended time frame stated by FightBac!™ guidelines. Studies focusing on primary food handlers with young children in regards to leftovers are very limited.

**Significance of Study**

Foodborne illness affects millions of people each year with a sizeable proportion of these cases due to the lack of preventable actions taken by consumers. Home food preparers need to take many precautions to minimize pathogen contamination which comes from knowledge of effective food handling skills and the need to be motivated to act on that knowledge (Medeiros et al., 2004).

The literature contains very limited information on the knowledge, beliefs and practices of primary food handlers for families with young children. The USDA PR/HACCP Rule Evaluation Report (2000) stated that only 22% of participants studied refrigerate leftovers containing meat or poultry immediately. Another study supported these findings by reporting that refrigerating leftovers within two hours was a new

concept to most participants and was reportedly not widely practiced (Trepka et al., 2006). FightBac!™ recommends throwing away foods after two to four days of storage (Partnership for Food Safety Education, 2006). However, Lun (2010) found that participants were keeping different types of leftovers over the recommended four days.

Perceived susceptibility and perceived severity in regards to leftovers is another factor that dictates proper food handling behaviors. Trepka and colleagues (2006) found that participants did not perceive foodborne illness as an important problem. They also found that none of the participants stated that their own food handling practices at home put them at risk for foodborne illnesses.

Because social media and the use of Web 2.0 is fairly new in social marketing campaigns, little research has been done on how to evaluate the effectiveness of social media in increasing knowledge and behavior change. Also, there is limited research showing comparisons of traditional mass media campaigns and the use of social media.

Numerous individuals could potentially benefit if these deficiencies in the literature are remedied. Extension professionals and other food and nutrition professions including dietitians would benefit from more research being completed for leftover food knowledge and behaviors. Government entities and other researchers who are interested in designing and funding social marketing campaigns would benefit from the added knowledge on the use and effectiveness of social media.

**Purpose**

The purpose of this study was to determine the effectiveness of a social marketing campaign on impacting awareness, knowledge, attitude, and intended

behaviors for leftover food safety practices in two Midwestern states among parents or guardians of young children under 10 years old.

**Objectives**

1. At the end of the social marketing campaign, an implementation and effectiveness evaluation will be completed to determine if the campaign was successful or not in relaying the target message to the intended audience. It is hypothesized that the test sites will have a higher awareness level of how long to keep leftovers and that the test sites will have a higher percentage of individuals keeping leftovers for the recommended time frame.
2. At the end of the social marketing campaign, a process evaluation will be conducted to determine why the campaign was successful or not.

# CHAPTER II

# REVIEW OF LITURATURE

## Leftover Knowledge and Behaviors

In 2000, the Research Triangle Institute (RTI) conducted an evaluation for the U.S. Department of Agriculture Food Safety and Inspection Service. Part of this evaluation of the Hazard Analysis and Critical Control Point (HACCP) Systems was to collect information on consumers' confidence in the safety of meat and poultry, their general food safety knowledge and use of safe handling practices. A total of eight focus groups were conducted with four target populations: young parents, young adults, seniors, and general (PR/HACCP RULE EVALUATION REPORT 2000). The RTI found that consumers were not aware of or have an understanding of the phrase "refrigerate leftovers immediately." They also found that only 22% of participants refrigerate leftovers containing meat or poultry immediately. The RTI listed targeting education to prompt refrigeration of leftovers as a main recommendation from the results of the focus groups (PR/HACCP RULE EVALUATION REPORT 2000).

Numerous surveys have been conducted to determine consumer food safety attitudes, knowledge and practices (Albrecht, 1995; Angelillo et al., 2000; Brewer and Prestate, 2002; Kennedy, et al., 2005; Redmond and Griffith, 2004). Many of these articles report findings for consumers with little segmentation of the consumers. Surveys have been conducted to determine the food safety knowledge and practices of specific populations, such as college students (Unklesbay et al., 1998), low income

adults (Wenrich et al. 2003), mature/elderly people (Boone et al., 2005), and pregnant women (Cates et al., 2004). Very limited research has been targeted specifically to the primary food handler from families with young children.

Another study conducted by Trepka et al. in 2006 examined food safety behaviors and knowledge. The study was designed to determine what beliefs Women Infants and Children (WIC) clients have regarding food safety, what barriers they encounter in practicing proper food safety practices, and what might motivate them to improve food handling practices. Five focus groups were conducted in a WIC clinic and there were a total of 32 participants aging from 18-55 years. The researchers used a discussion guide to structure the conversations of the focus groups which were based on the Health Belief Model. A total of 94 themes were identified from the data analysis. Results reported that in no group did participants state that their own food handling practices at home put them at risk for foodborne illness (Trepka et al, 2006). Participants did not mention pregnant women or infants as being at increased risk for foodborne illness. The researchers indicated that it is problematic that participants neither perceived foodborne illness as an important problem nor were they aware of the higher perceived susceptibility of infants and pregnant women (Trepka et al, 2006).

A need for enhanced food safety education has been recognized by the findings from these previous studies, however, little is known about consumer perceptions of personal threat and coping abilities related to food safety. Haapala et al. (2004) conducted a study designed to evaluate the current level of food safety knowledge, perceptions, and safety of food handling behaviors among middle school students.

Baseline data was assessed as part of a 5-week educational intervention. A total of 178 participants were included in the study. Evaluation tools were developed with the use of an expert panel and were pilot tested in a classroom of 20 students. T tests and Pearson correlations were performed on the data collected from the questionnaires. Results indicated that scores for student perceptions of self-efficacy and the severity of foodborne illness were high. However, scores for perceived personal susceptibility were low. The researchers stated that participants seem to have an irrational optimism about not contracting foodborne illness (Haapala et al, 2004).

Despite different educational efforts, numerous foodborne disease outbreaks occur each year in the United States. Hanson and Benedict conducted a study in 2002 which was designed to evaluate how cues to action and perceived threat, concepts from the Health Belief Model, were related to safe food handling. A total of 266 participants filled out and returned the mailed survey. The researchers reported that women scored significantly higher than men did on the Perceived Severity Subscale ($p=0.030$) and on the Perceived Susceptibility Subscale ($p=.013$) (Hanson and Benedict, 2002). However, the researchers concluded that educational materials describing safe food handling may be more beneficial than messages focusing on the severity of foodborne illness.

Children are at risk for foodborne illness (Gerba et al., 1996; Gerald and Perkin, 1996). Buzby (2001) estimates that one-third of the total foodborne costs ($2.4 billion) are the result of illnesses in infants and children under the age of 10. The primary food handler in families with children needs food safety information to help them use safe

food handling practices whether preparing food in the home or making food choices when eating away from home.

**Hierarchy of Effects Model**

Evaluations of mass media campaigns should establish the difference between proximal effects such as awareness and understanding, and distal effects such as changes in beliefs, intentions and behavior. According to the Hierarchy-of-Effects model (McGuire, 2003), awareness of campaigns should influence behavior by changing mediators among the target population. This model proposes that campaigns influence the target audience through a series of sequenced steps in a hierarchy starting with awareness and ending with the final step of performing the behavior of interest. Researchers are beginning to incorporate and test this model in association with health related mass media campaigns.

The VERB campaign was developed by the CDC and launched in 2002 (Bauman et al., 2003). This campaign was marketed towards “tweens” (boys and girls aged 9-13 years) whose level of physical activity was decreasing. This campaign was designed to test the Hierarchy-of-Effects Model (HOEM) because it used this type of logic model to describe how awareness would consequently result in changing physical activity behavior. Figure 1 shows the adaptation to the hierarchy of effects model for the VERB campaign.

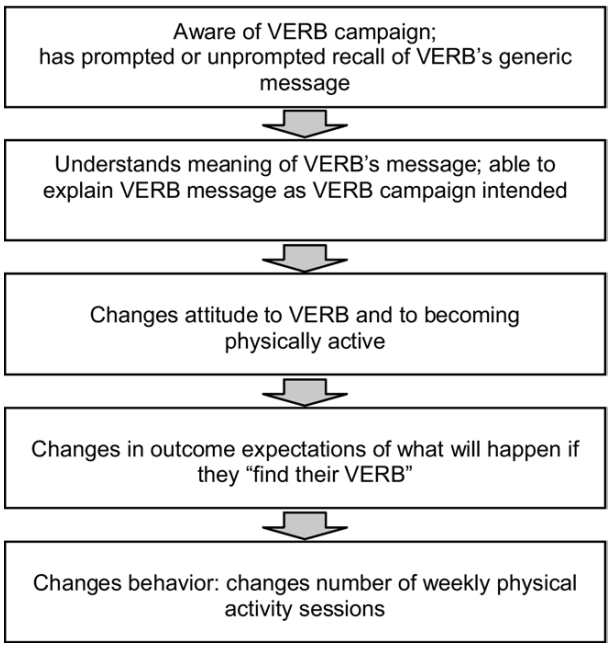


**Figure 1.** McGuire's hierarchy of effects for mass-media campaigns; adapted to the VERB campaign, 2003.

Data was collected at baseline and at a 12-month follow-up survey. Results indicated that understanding the VERB message was a necessary mediator of campaign effects. In their study, understanding the meaning of the message did not lead to changes in attitudes and expectations which would be expected with a linear sequence of cascading HOEM variables. However, this model was developed for adults, thus its testing on young people may be different from testing it with adults. The researchers concluded that empirical evidence was found in their study to support the HOEM model as a cascade of events in using awareness to initiate behavior change (Bauman et al., 2003).

ParticipACTION is another campaign in which the Hierarchy of Effects Model was utilized in the development and evaluation of the campaign (Spence et al., 2009).

ParticipACTION integrated social marketing strategies to promote physical activity in Canada for over 30 years. The purpose of the study done by Spence et al. was to determine the awareness of the campaign and to examine whether awareness of ParticipACTION was associated with physical activity related intentions, physical activity and beliefs as suggested by the HOEM. The final sample size of participants who responded to the survey or telephone interview was 4,424 Canadian adults. A series of one-way ANCOVAs were used to examine the utility of the HOEM in relationship to leisure time physical activity. Results indicated that higher levels of outcome expectations, self-efficacy, and intention for physical activity were held by those who were aware of the campaign. The researchers concluded that there is good support for the use of the Hierarchy-of-Effects Model in evaluating the mechanisms of influence media campaigns have on physical activity and related beliefs. However, they also stated that although awareness and knowledge of the campaign is necessary, it is not sufficient if the campaign is designed to change beliefs and behavior (Spence et al., 2009).

**Traditional Social Marketing Campaigns**

Social marketing involves increasing the acceptability of ideas or practices in a target group and it emphasizes “nontangible” products such as attitudes and lifestyle changes. Formative research has been identified as a key component in the effectiveness of a social marketing campaign (Lefebvre and Flora, 1988). Social marketing is a communication strategy to inform and influence individual behavioral changes to enhance a social situation. Key elements of social marketing are audience-

centered program development, audience segmentation and profiling, formative research to develop and test programs, a range of products based on audience research, product distribution based on audience research, audience involvement in the planning process and process and outcome evaluation (Maibach et al., 1997). Brawley and Latimer (2007) authored a review paper in which they provided a brief outline of strategies for designing effective messages and messaging campaigns, summarized conclusions about mass-media approaches and suggested a planning and evaluation framework to promote an effective campaign. They stated that for messages to be successful the campaign needs to be theoretically based, strategically persuasive to a specific audience, and target individuals who have the opportunity to change behavior after message delivery. Emphasizing the short-term benefits with long-term benefits increases the impact of messages on participants' attitudes. The tone of the messages, whether positive or negative, is critical in improving its persuasiveness (Brawley and Latimer, 2007).

Neiger and Thackeray (2002) developed SMART (Social Marketing Assessment and Response Tool) a process guide for the development of the social marketing campaigns. There are seven phases of SMART: Preliminary planning, consumer analysis, market analysis, channel analysis, develop and test intervention materials, implementation, and evaluation. Tobacco prevention has been one of the most successful uses of a social marketing approach to change undesirable health behavior to a desirable behavior (Schar et al., 2006). Social marketing utilizes the 4 "P's" of marketing and policy (Turning Point, 2002). Product represents the desired behavior of

the target audience and the associated benefits. Price is the cost or barriers the targeted audience faces in making the desired behavior change. Place is where the targeted audience will make the desired behavior changes and promotion is the communication messages, materials, channels and activities that will effectively reach the targeted audience.

Increasing physical activity in a multitude of age groups has been a primary focus of numerous social marketing campaigns. One such campaign was Canada on the MOVE (COTM) which was designed to increase pedometer awareness as well as pedometer ownership and usage in Canadian adults. A sample of 9935 adults were involved in a telephone interview which asked if they had heard of the campaign brand COTM, the generic message of the campaign, and the specific COTM tagline in the previous month (Craig et al, 2006). Results indicated that there was a 2.3% higher prevalence of walking among participants that recognized the campaign brand COTM. The researchers concluded that COTM had impacted walking behaviors among those who had heard of the campaign (Craig et al, 2006).

Another campaign focusing on physical activity was the VERB campaign. In 2008, Huhman et al. published results from this mass-media social marketing campaign designed to inspire children to be physically activity every day. The VERB campaign was launched in 2002 and was composed of school and community promotions, the Internet, mass media, and partnerships with national organizations and local communities. A longitudinal study was used to evaluate the short and long term effects of the campaign and was used to assess a total of 2729 tweens' awareness of the VERB

campaign and its messages. Unprompted, prompted, and no awareness were selected as the proximal outcome indicators. Participants were also asked open-ended questions on where they had seen the VERB advertising. Results indicated that 17% of participants had unprompted awareness of VERB and 57% had prompted awareness with television reported as the largest source of awareness at 89% (Huhman et al., 2008). Tweens with both prompted and unprompted awareness were more likely to self-report being physically active during the week before the survey was administered. These results helped to strengthen the HOEM which was used in the campaign design.

Huberty and colleagues (2009) also recognized that there was need for and designed a social marketing campaign to increase community awareness about active lifestyles and a need to change the environment in Omaha, Nebraska. Activate Omaha was developed to change the community's perception of the importance of an active community and to shift behavior to take steps forward into making Omaha more active. Activate Omaha was designed with the use of a 5P model which included Preparation, Promotion, Programs, Policy and Physical projects (Huberty et al., 2009). A website was set up and became the community's portal to find out about events, programs, and places to be physically active. The campaign was split into three phases each with specific objectives. Surveys were conducted to evaluate the effectiveness of each phase. Results indicated that numerous community wide changes were initiated due to the success of Activate Omaha. The researchers stated that the success of the campaign was due primarily to having a strong programming component within each of the 5Ps as

well as the fact that Activate Omaha had strong partnerships as its backbone (Huberty et al., 2009).

BC Walks was a campaign that also promoted increasing physical activity in adults (Nash et al., 2006). It used a quasi-experimental design and social marketing principles to promote walking during an 8-week period in Broome County, New York. The campaign consisted of paid media, public relations and community health activities. Evaluation of the intervention was determined by random-digit-dial telephone surveys conducted at baseline and follow-up one month following the campaign. The telephone survey included 56 questions at baseline and 48 questions at follow-up. Data indicated that participants who reported viewing campaign media messages reported walking more per week than those who had not been introduced to the messages. Results from the collected data lead the researchers to conclude that print news media may have a stronger impact on community behavior than other media (Nash et al., 2006).

Other health behaviors besides physical activity have been targeted in mass-media social marketing campaigns. A study conducted by Watson and colleagues (2009) was designed to assess the impact of a media campaign designed to increase awareness of oral cancer exams and to assess campaign efficacy in the target population. Printed media materials and radio public service announcements (PSAs) were created based on results from focus groups. To assess the impact of the campaign, surveys were conducted in the intervention city as well as in the control city immediately prior to the campaign and immediately after the campaign was completed. In the intervention city, a significant increase in awareness of the oral cancer exam was found from baseline

(30%) to follow-up (40%). Participants showed a significant increase in interest in getting an oral cancer exam when compared to the control city (Watson et al., 2009). Based on these findings, the oral cancer media campaign was successful at increasing awareness of the oral cancer exam in the target audience.

Another campaign, which used a variety of mass media components, was that of Project LEAN (Low-Fat Eating for America Now). This national nutrition campaign which aimed to reduce dietary fat consumption was one of the first of its kind. Formative research was done prior to the start of Project LEAN in which both focus group and The Food Marketing Institute's survey were utilized to guide the development of the messages and strategies for the campaign. Project LEAN's media strategies consisted of two television ads, two radio ads, and three print ads which appeared in newspapers, magazines, and as transit ads (Samuels, 1993). When evaluating the effectiveness of the media used in this campaign, the researcher found that the public service ads did not increase the impact of the messages for the target audience. Samuels concluded that media monitoring and tracking must be built into the program as well as partnering with other organizations as an essential ingredient for campaign success.

Lastly, a food safety social marketing campaign utilized many traditional methods in the attempt to increase the use of food thermometers by parents of children under age 10 to reduce the incidence of foodborne illness. The *Is It Done Yet?* campaign chose to use a variety of channels for their message such as a web site, color brochures, magnets with a punch-out temperature chart, print advertisements for newspapers and magazines and radio public service announcements(USDA 2005). The

campaign effort achieved more than 5 million media impressions through the collaboration of these different media outlets. Of the target audience that were not using and not thinking about using a food thermometer, 15% became aware of the need and importance of using a food thermometer as a result of the campaign (USDA 2005). The *Is It Done Yet?* campaign was effective in reaching the audience and accomplishing its intended outcome.

**Social Media Campaigns**

With the dramatic advancement of technology and the emergence of Web 2.0, second generation of Internet-based applications, there is an increased potential for social marketers to use the Internet for promoting health related behavior change. In a recent report by the Pew Research Center (2001), they stated that 29% of Internet users look online for information about food safety or recalls. Among Internet users, social networking sites are most popular with women and young adults under age 30. As of May 2011, 65% of online adults age 18 and older use a social networking site such as Facebook or LinkedIn, and 13% of online adults use Twitter (Madden & Zickuhr, 2011).

Web 2.0 allows for sharing, linking, and collaborating of user generated content. It also provides users with the technology to both produce and distribute information. An important characteristic of Web 2.0 social media is that it facilitates an increase in viral marketing. Viral marketing is also called word-of-mouth or buzz marketing and it encourages people to share information about a product or marketing message. This can become an important component in a social marketing campaign which attempts to promote behavior change. Using viral marketing strategies, increases the speed at

which consumers share experiences and opinions with larger audiences especially when taking into account that approximately 75% of adults in the United States use the Internet, with more than 90% of users in the 18 to 29 range (Thackeray et al, 2008).

**Evaluation Techniques**

Planning and evaluation are essential elements in social marketing campaigns. Planning provides a blueprint for evaluation, whereas evaluation provides evidence of program effectiveness. Bauman and colleagues (2006) stated that social marketing campaigns need to have a clear process of intervention planning, formative evaluation, process evaluation, and impact and outcome evaluation for it to succeed. In 1987, Flay evaluated the development, dissemination and effectiveness of mass media health programming. He developed different categorizes that are needed to effectively evaluate a social marketing campaign. Figure 2 illustrates the phases of evaluation.

**Figure 2**. *Phases of Evaluation*

| | |
|---|---|
| A. Pre-production | |
| 1. Planning research | Formative |
| 2. Concept testing | |
| 3. Message pretesting | |
| B. Post-production but pre-dissemination | |
| 4. Acceptability | |
| 5. Efficacy | |
| C. Post-dissemination | |
| 6. Implementation evaluation | |
| 7. Effectiveness evaluation | Summative |
| 8. Process evaluation | |

Flay (1987) *Health Education Research Theory and Practice*

The Internet provides a mass medium for health campaigns to generate awareness and influence behaviors. Tian and colleagues (2009) conducted a study to

evaluate the usage of the Center for Disease Control's (CDC) Chronic Fatigue Syndrome (CFS) website. For their study, they focused on website utilization, outcomes of a CDC CFS public awareness campaign, and user behavior related to campaign public awareness. Website usage data was collected for over 18 months. Evaluation of website utilization was determined by page views, visits, geo-location, visiting density and referring domain. In 2006, CDC launched a national CFS public awareness campaign which consisted of TV and radio PSAs, press releases, and a traveling public photo exhibit. Data was collected pre-campaign, at launch of the campaign, and post-campaign to evaluate awareness of the campaign (Tain et al., 2009). The researchers found that analysis of geographic-specific website utilization provided important information, but visiting density is a better index that indicates the likelihood of individuals visiting the site. They also discussed how evaluation of the website use provides quantitative data concerning the effectiveness of messaging in a social marketing campaign.

Active for Life (AFL) was a social-marketing campaign by Emery et al. (2007) that ran from 2002-2004. It was designed to improve public policies and built environments that influence physical activity. Emery and colleagues conducted a study to provide a formative evaluation of the environmental change component of the AFL Campaign. Three strategies were addressed in this study, raising awareness of physical environment barriers, auditing the "walkability" of the physical environment, and facilitating community action to influence decision makers. Campaign resources did not permit a formal evaluation of the environmental-change component to be

accomplished. A total of 237 conference calls and 17 site visits along with telephone interviews were conducted to gather data. During the 2.5 years that the AFL campaign was running, the environmental change component achieved the most measurable changes (Emery et al., 2007).

Proper food safety behaviors is an issue that until more recently has not been a topic of much social marketing research, however the consequences of inadequate practices can be life threatening. Knowledge and behaviors on leftovers have not been studied sufficiently and the literature would thus benefit from studies targeting leftover behavior practices. Also, social marketing campaigns have been widely utilized to impact health related behaviors for more than 30 years. With the advancement in technology, these mass media campaigns should also include the use of social media outlets. Little literature exists evaluating social media campaigns and comparing their effectiveness versus the traditional media campaigns that have gained increasing popularity.

# CHAPTER III

# IMPLEMENTATION AND EFFECTIVENESS EVALUATION ARTICLE

## A Summative Evaluation of a Food Safety Social Marketing Campaign: "4 Day Throw-Away."

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**Title:** A Summative Evaluation of a Food Safety Social Marketing Campaign: "4 Day Throw-Away."

**JFSE—Research in Food Science Education**

**ABSTRACT:**

Foodborne illnesses remain a common problem in the United States. Focus group results indicated that lack of knowledge and improper handling of leftovers was common among food preparers in families with young children. Based on USDA recommended storage time for leftovers, a food safety social marketing campaign, **4 Day Throw Away**, was developed and conducted using traditional and social media. A procedural model for developing a theory-based nutrition education intervention and the Health Belief Model were used as frameworks to design, implement, and evaluate this campaign. For the traditional campaign, the #4 mascot made numerous public appearances (in person and TV) to convey the **4 Day Throw Away** message; 5000 magnets were distributed; and 500 posters with tear-off note card were posted. Magnets and note card directed recipients to a website (over 4000 visits) with leftover food safety information. The viral campaign included 4 YouTube videos (over 9000 views); a Facebook page (150 users with over 18,000 post views); and 48 followers on Twitter. The use of multiple media methods was necessary to have the greatest success in increasing awareness and changing health behaviors especially with young parents of children 10 and younger. Both traditional and social media methods used in the **4 Day Throw Away** campaign reached the intended audience demonstrating that interventions that use a mix of methods broadens the reach and increases capabilities to succeed in program objectives.

**Key Words:** food safety, media campaign, leftovers, social media, evaluation

## Introduction

Foodborne illnesses remain a common problem in the United States accounting for an estimated 48 million illnesses, 127,839 hospitalizations, and 3,000 deaths annually (CDC 2011). Numerous behaviors are linked to the growth and spread of microorganisms in foods that consequently lead to undesirable health effects within those who consume the contaminated food. One of these behaviors is the improper storage of leftovers. Most consumers are unaware and do not refrigerate leftovers within two hours of cooking food (Trepka et al., 2006) nor do they discard most leftovers during the FightBac!™ recommended time frame of two to four days of storage (Lum, 2010).

The Health Belief Model provides a theoretical basis for food safety research. The Health Belief Model, originally developed by Rosenstock et al. (1988) employed four constructs: perceived susceptibility, perceived severity, perceived benefits and perceived barriers. Self-efficacy and cues to action were added later (Janz and Becker, 1984). Health Belief Model concepts, perceived susceptibility and perceived severity, dictates proper food handling behaviors with leftover food practices. Trepka and colleagues (2006) found that participants did not perceive foodborne illness as an important problem. In their study, none of the participants stated that their own food handling practices at home put them at risk for foodborne illnesses. Meysenburg (2009) conducted focus groups on main food preparers for children 10 years and under. Results indicated that these individuals believe that their children are susceptible to foodborne illness but do not perceive the consequences to be severe enough to adversely affect their child's health. They also believed that practicing food safety may reduce their children's risk for foodborne illness, but the barriers of time lack of knowledge, and family demands

outweighed the benefits. Home food preparers need to take precautions to minimize pathogen contamination which comes from knowledge of effective food handling skills and the need to be motivated to act on that knowledge (Medeiros, 2004).

The use of social marketing campaigns to influence health behaviors has increased dramatically within the past 20 years. The Social Marketing Institute defines social marketing as "the planning and implementation of programs designed to bring about social change using concepts from commercial marketing" (Andreasen, 1999). Traditional mass media campaigns have included the use of television and radio public service announcements (PSAs) along with numerous print materials including newspaper articles, posters, brochures, and flyers. With the increase of the complexity and use of the internet, there is an increased potential for social marketers to use the Internet and social media for promotion through Web 2.0. Thackeray and colleagues (2008) stated that Web 2.0 allows for sharing, linking, collaborating, and inclusion of use-generated content. In a recent report by the Pew Research Center (2001), researchers stated that 29% of Internet users look online for information about food safety or recalls. Among Internet users, social networking sites are most popular with women and young adults under age 30. As of May 2011, 65% of online adults age 18 and older use a social networking site such as Facebook or LinkedIn, and 13% of online adults use Twitter (Madden & Zickuhr, 2011). The ability of social media to engage target audiences in greater capacities makes it crucial for social marketers to utilize Web 2.0 applications to promote health behavior change.

The literature contains very limited information on the knowledge, beliefs and practices of primary food handlers for families with young children 10 and younger, as

well as the effectiveness of large food safety social marketing campaigns. However, studies do reveal that parents of children 10 and under are most likely to change their behavior, but only for their children (USDA, 2005). Extension professionals and other food and nutrition professions including dietitians would benefit from more research being conducted on the effectiveness of social marketing campaigns with a food safety message. Government entities and other researchers who are interested in designing and funding social marketing campaigns would benefit from the added knowledge on the use and effectiveness of social media to disseminate a food safety message.

The purpose of this study was to conduct a summative evaluation of the mass media food safety social marketing campaign, **4 Day Throw Away**, on impacting awareness, knowledge, attitudes, and intended behaviors for leftover food safety practices in two Midwestern states among parents or guardians of young children 10 and under. This study intended to discover if the campaign reached the intended audience and if positive behaviors with leftover food safety were obtained through awareness of the campaign.

## Materials and Methods:

The procedural model for developing a theory-based nutrition education intervention (Contento, 2011) and the Health Belief Model were used as a framework to design, implement, and evaluate the 4 Day Throw Away food safety social marketing campaign. The campaign used both traditional and social media methods to deliver the target message of: “after four days, throw your leftovers away.” Based off of the 2005 Food Code, foods can be stored in a refrigerator longer than four days set at 41 degrees Fahrenheit and can be kept safely for only four days in refrigerators set at 45 degrees

Fahrenheit. Since the temperatures of home refrigerators are unknown, the conservative time of four days for food storages was used in the target message of the campaign. A total of three test cities and three control cities in two Midwestern states were chosen and matched for population size. Subjects were selected from both the test and control sites. A minimum age of 19 was required for participation, and all ethnic backgrounds were included in the study. Individuals with children 10 years of age or younger were targeted and IRB approval was granted.

Traditional Methods

In test sites, the social marketing campaign was implemented with the use of numerous traditional and social media tactics. Traditional methods included delivering the message with over 500 posters with pull off pads placed in locations where the target audience frequented. Over 5,000 magnets were distributed at local stores and handed out at scheduled health and nutrition fairs. Public Service Announcements (PSAs) were developed and distributed to local radio and television programs. A website was developed for individuals to have a place to learn more about the campaign to find important information about safe leftover practices. Polling questions and leftover myths were created by food safety experts to be displayed on the website. These questions rotated every week and asked individuals questions about their behaviors and knowledge on leftover topics. Another key method utilized in the traditional social marketing campaign was appearances by the campaign mascot, **#4**. The mascot visited local grocery stores and fairs to hand out food safety materials and educate individuals on the **4 Day Throw Away** message.

Social Media Methods

Different types of social media avenues were utilized in the **4 Day Throw Away** campaign. A Facebook page was developed with constant posting of leftover tips, links to the website and Twitter account, and pictures of #4's appearances. A Twitter account was created and the mascot **#4** tweeted about food safety topics on a regular basis. Finally, a marketing team created and produced six short informational videos with **#4** interacted in different food safety situations and posted them on YouTube and on the website**.** There was a constant flow of interaction between individuals using the social media avenues and the campaign team.

The control cites were isolated from the campaign messages, received no contact from the researchers during the campaign, and utilized for evaluation purposes only. The campaign was launched in November 2010 targeting three specific cities in two Midwestern states**.**

Evaluation Methods

A survey to evaluate the traditional campaign was developed with four questions to evaluate awareness, knowledge, and behaviors of leftover food safety of the target audience. Grocery stores were contacted four months after the launch of the social marketing campaign in the test and control cities as sites for the evaluation surveys to be completed. Individuals were intercepted as they walked in the door of grocery stores and asked if they had children or grandchildren living with them under the age of 10. If they answered "yes" they were then asked to fill out the survey. A total of 100 individuals completed the survey from each city. The data were recorded and compiled into one form and were separated between test and control sites for analysis. The data were

analyzed using Chi Square function in the statistical computer software SAS and a P value was set at 0.05.

Data were also collected from the social media sites used in the campaign. Quantitative data collected included number of friends on Facebook, Twitter followers, views on YouTube, and visits on the campaign website. Results from the polling questions were collected as quantitative data. Qualitative data included comments extracted from all of the social media outlets utilized.

## Results

A total of 600 individuals (554 females and 46 males) completed the grocery store intercept survey. Participants were asked how long they currently kept leftovers in their homes. Half of the participants (150 people) from test locations reported throwing away leftovers four days or less after preparation compared to 38% (114 people) from the control locations. Of the 300 participants surveyed from the test sites, 24% (N=70) provided unprompted or prompted awareness of the **4 Day Throw Away** campaign. In the control sites, only 3 (1%) individuals had heard of the campaign even when prompted. To get a sense of intended behaviors, participants were asked to rank their ability from 1-5 for how comfortable it would be for them to throw away all leftovers after 4 days. In the test sites, 284 participants (95%) reported they felt comfortable or very comfortable to throw away their leftovers after 4 days. Similar results were found in the control sites with 94% of participants feeling comfortable with the ability to throw away leftovers during the recommended time frame. Table 1 illustrates these results.

| Table 1: Grocery Store Intercept Survey Results From 6 Midwestern Cities | | | | |
|---|---|---|---|---|
| | Test Sites (N=300) | | Control Sites (N=300) | |
| Awareness of Campaign | N | % | N | % |
| Prompted | 40 | 13 | 3 | 1 |
| Unprompted | 30 | 10 | 0 | 0 |
| Current Behaviors (≤ 4 days) | 149 | 50 | 115 | 38 |
| Intended Behaviors (comfortable/very comfortable) | 284 | 95 | 282 | 94 |

The test sites had a significantly higher number (P=.0001) of individuals that had heard of a recommendation on how long you can safely keep leftovers. There was also a significant difference (P=.0001) between those that were aware of the campaign in the test sites versus the control sites. Lastly, results showed that individuals from the test sites were throwing away their leftovers within the recommended timeframe significantly more than those from the control sites (P=.0093). These results are reported in Table 2.

| Table 2: Chi Square Values for Grocery Store Intercept Survey | |
|---|---|
| **Variables** | **P Value** |
| Gender | 0.7634 |
| Heard of Recommendation | 0.0001* |
| How long keep leftovers | 0.0093* |
| Seen/Heard of Campaign | 0.0001* |
| Comfortable with throwing away leftovers | 0.4801 |
| *Significant value: P≤ .05 | |

The magnets and notecards that were distributed directed recipients to the campaign website which had over 4000 visits and continues to increase. A total of 400 website visitors responded to the polling function on the website. When asked how long leftovers stay in the refrigerator before being used, the most frequent answer chosen was

3-4 days. Over 53% of respondents reported that they threw out leftovers they brought home from a restaurant before 4 days. When determining if leftovers were alright to eat, 55% of respondents said they label leftovers and use them within 4 days. The six YouTube videos that were produced and posted had over 12,000 views combined. Although YouTube allows for comments to be left by users, no comments have been made on any of the campaign videos. The Facebook page that was developed has 150 "friends" with over 18,000 post views. Facebook friends continue to engage in a variety of interactions on the Facebook page including comments on pictures and posts of **#4**. Selected comments can be found in Table 2. The Twitter account has over 50 followers of **#4** and no comments have been recorded by followers on the page.

| **Table 3: Selected Facebook Comments** |
|---|
| "I didn't listen and ate last weekend's leftover chicken tacos...I've learned my lesson. 4 days and throw it away!" |
| "Our frig is cleaner lately, but it's really hard to part with some leftovers!" November 17, 2010 at 9:08pm |
| "My husband and I usually take our leftovers to work the next day for lunch. So, we usually don't have leftovers past 2 days." |
| "I have teenagers -- so leftovers usually aren't an issue. But when we have had leftovers, I used to chuck them out if they'd been in the fridge a week. As I've learned about this campaign I've revised that to 4 days." |
| "The trick is to think about WHEN you will eat leftovers. If it will be more than 4 days freeze it." |
| "I thought I was going to see #4 show up in our kitchen last night!...I am still working on Kurt to get on board with the 4 day rule! It is nice to have these guidelines from ISU and UNL back me up when I argue with his "scientific" method of smelling and looking at leftovers to decide if they are OK to eat." |
| "Practicing Food Safety means keeping healthy!" |
| "Can you eat bean burritos stored in the fridge "on" the 4th day, cuz I took a bite of a bean burrito after heating it up, and I am a bit worried. I tossed it out tho…" |

## Discussion

Foodborne illness affects millions of people each year with a sizeable proportion of these cases due to the lack of preventable actions taken by consumers. Young children are at high risk for developing foodborne illness and parents or guardians are largely responsible for preparing food for their young children at home. Safe food handling practices among parents and/or guardians are vital in reducing the risk of foodborne illness. The **4 Day Throw Away** campaign was developed to increase the awareness of leftover food safety which utilized both traditional and social media methods.

### Traditional Campaign

Traditional methods which included PSAs, distributions of campaign magnets and posters as well as appearances by the campaign's mascot #4, were all utilized in the three test cities. A greater number of individuals from the tests sites were aware of the **4 Day Throw Away** campaign than those from the control cities (70 individuals vs. 3). The tests sites also had a greater percentage of individuals (50%) who throw their leftovers away after four days suggesting that the campaign has impacted their leftover food safety behaviors. All of the participants who were surveyed were very comfortable with disposing of their leftovers during the recommending time frame of four days indicating that if the individuals have the appropriate knowledge, they are likely to behave accordingly. A large number of magnets and notecards were distributed which directed recipients to the campaign website. The website was successful in reaching over 4,000 individuals. Results indicate that the use of traditional media methods remain effective in reaching young parents/guardians with health related information.

Social Media Campaign

YouTube, Facebook, and Twitter were social media avenues used in the **4 Day Throw Away** campaign. Facebook and YouTube were more effective than Twitter in engaging individuals with leftover food safety knowledge. Facebook has over 150 "friends" and the YouTube videos have been watched a combined total of 12,000 times. However, all social media avenues were positively received by individuals and had a positive impact on those that were reached. Comments left by users of Facebook indicated positive behavior change in the area of leftover food safety. Two-thirds of adult internet users (65%), which has more than doubled since 2008, now say they use a social networking sites like those used in this campaign (Fox, 2011). The pace with which new users have flocked to social networking sites has been staggering, thus as the campaign continues, these media avenues will be critical in the success of reaching the intended audience with the target message.

Future research should focus on ways to evaluate the effectiveness of large multifaceted public health interventions similar to the **4 Day Throw Away** campaign evaluated in this study. As social media continues to advance, comparison between using social media methods as opposed to more traditional methods should be done. Also, an important part of evaluation is to not only determine if an intervention was effective in reaching the intended outcomes or not, but to answer the question of why it was effective or not. Incorporating more process evaluation techniques should be utilized in evaluation methodologies.

There continues to be a need to educate parents of young children on proper leftover food safety practices. The procedural model provided a roadmap for the

development of a research based social marketing campaign, **4 Day Throw Away**. This campaign was effective in reaching young audiences with the intended message. The use of traditional social marketing methods continues to be an effective strategy in increasing awareness and impacting food safety behaviors. The **4 Day Throw Away** website was an effective tool in assessing individuals' leftover knowledge and behaviors. The majority of individuals responded to the polling questions in a manner that represent safe food handling practices. As social media continues to increase in popularity, use of these avenues will be vital in the success of public health intervention. Large social marketing campaigns should utilize an appropriate mix of these methods when focusing on food safety topics.

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# CHAPTER IV

# PROCESS EVALUATION ARTICLE

## Process Evaluation of the "4 Day Throw Away" Social Marketing Campaign: A Mixed Methods Study

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**Title: Process Evaluation of the "4 Day Throw Away" Social Marketing Campaign: A Mixed Methods Design**

JFSE—Research in Food Science Education

**ABSTRACT:**

Social marketing campaigns have been utilizing health behavior messages long before the turn of the century. Although evaluating the effectiveness of these campaigns is a major component of the continued success of social marketing campaigns, little research has been conducted specifically on the process evaluation. Most intervention research leaves the mechanisms that contribute to positive outcomes largely unexplored. The current study used mixed method techniques to conduct a process evaluation of the food safety social marketing campaign, **4 Day Throw Away**. The seven professionals who were involved in the development and implementation were involved in semi-structured focus groups and phone interviews. The professionals also completed a Process Evaluation Checklist. Results indicated that having ample face-to-face meeting time, understanding of roles and schedules, and experiencing professional and personal growth were key elements in the success rate of the campaign. This process evaluation documented what key components were vital in the team working effectively to produce a social marketing campaign that accomplished its intended outcomes. The results from both the quantitative and qualitative data supported each other to give a clear picture of how and why the team was successful in accomplishing the tasks performed in the multi-state project.

**Key Words:** food safety, process evaluation, media campaign, leftovers, social media

# Process Evaluation of the "4 Day Throw Away" Social Marketing Campaign: A Mixed Methods Design

## Introduction

The rates of foodborne illness and reported deaths in children continues to rise among young parent households. Buzby (2001) estimated that one-third of the total foodborne costs results from illnesses in infants and children under the age of 10. These high rates are primarily due to lack of knowledge and safe food handling practices among young parents or guardians (Meysenburg 2009). Proper storage of leftovers seems to be one of the most common insufficient practice of parents related to safe food handling due to the lack of knowledge (Lum, 2010). The Research Triangle Institute found that consumers are not aware of or do not have an understanding of the phrase "refrigerate leftovers immediately" (PR/HACCP RULE EVALUATION REPORT 2000). Holding leftovers too long or at improper temperatures can lead to illness or death in children due to their less developed immune system, lower body weight and less control over their meal preparation. To overcome this problem, a variety of programming and interventions have been developed with the primary goal to influence food-safety health behaviors. One specific type of food safety intervention which has yet to be utilized until recently is social marketing campaigns.

Social marketing involves increasing the suitability of ideas in a specific group and it emphasizes "nontangible" results such as attitudes and behavior changes. Campaigns using these social marketing techniques can use both traditional media methods and social media methods. Use of social media in social marketing campaigns,

have increased with the creation of the second generation of Internet-based applications, "Web 2.0." Although evaluating the effectiveness of these campaigns is a major component of the continued success of social marketing campaigns, little research has been conducted specifically on the process evaluation. Most intervention research leaves the mechanisms that contribute to positive outcomes largely unexplored.

Bauman and colleagues (2008) stated that social marketing campaigns need to have a clear process of intervention planning, formative evaluation, process evaluation, and impact and outcome evaluation to succeed. An important indicator of the effectiveness of a social marketing campaign in the achievement of its desired outcomes is depended upon how effective the team that creates and implements the campaign is. Thus, it is vital to conduct a process evaluation to understand how this type of team works.

The current study is significant in that it gave a picture of the experience involved in working in a multi-state team to create and manage a large social marketing campaign. Numerous individuals could potentially benefit from this study; extension professionals and other food and nutrition professionals, including dietitians. Additionally, government entities and other researchers who are interested in designing and funding social marketing campaigns would benefit from the added knowledge on the use and effectiveness of social marketing campaigns.

This mixed methods study will address the process evaluation of the food safety social marketing campaign **4 Day Throw Away**. A convergent parallel mixed methods

design in which qualitative and quantitative data were collected in parallel, analyzed separately, and then merged was used in this research. In this study, a survey was used to rank participants opinions on different topics related to how the team worked together. The qualitative data comprised from focus groups and one-on-one phone interviews explored in depth how the team of seven Midwestern professionals worked together on a multi-state project. The reason for collecting both quantitative and qualitative data was to validate the two forms of data to bring greater insight into the process than would be obtained by either type of data separately. Some of the questions this study aimed to answer were: How does the team work; is communication techniques related to effectiveness of team interaction; and to what extent do the quantitative and qualitative results corroborate?

## Literature Review

This study focused on the process evaluation of the social marketing campaign **4 Day Throw Away** by interviewing the professionals involved in the team that produced and disseminated the campaign. Process evaluation focuses on how a specific program operates and is also known as implementation evaluation (Casey 2002). Process evaluation uses empirical data to assess the delivery of programs and it verifies what the program is and whether it is being implemented as designed. Process evaluation is important to conduct on social marketing campaigns for numerous reasons: to provide validity for the relationship between the campaign and the outcomes; to provide what components of the intervention are responsible for outcomes; to understand the relationship between program context and program process; and to improve the quality of

the campaign (Bliss & Emshoff 2002). In 1987, Flay evaluated the development, dissemination and effectiveness of mass media health programming and categorized what was needed to effectively evaluate a social marketing campaign. Figure 1 illustrates the phases of evaluation.

**Figure 2**. *Phases of Evaluation*

| | |
|---|---|
| A. Pre-production | |
| 1. Planning research | Formative |
| 2. Concept testing | |
| 3. Message pretesting | |
| B. Post-production but pre-dissemination | |
| 4. Acceptability | |
| 5. Efficacy | |
| C. Post-dissemination | |
| 6. Implementation evaluation | |
| 7. Effectiveness evaluation | Summative |
| 8. Process evaluation | |

Flay (1987) *Health Education Research Theory and Practice*

Three main questions process evaluation can answer are: why was this program developed; how was this program operated; and lastly, was the program operating as intended? By obtaining the perceptions and experiences of the team members, this study primarily answers the second question of "how is this program operated." Answering this question is necessary to guide any attempts at program replication and to analyze activities that cannot be easily quantified (Casey 2002).

Little process evaluation conducted on multi-institutional interventions has been reported (Rosecrans 2008). Assessment of the team involved assumes greater importance in the case of large, complex community-based intervention projects which

deliver multiple, non-standardized interventions tailored to specific communities (Fotu 2011). The team members that participated in the current study gave a detailed perception of the process behind a large complex community-based intervention by sharing their experiences working with the team.

## Materials and Methods

Campaign Intervention

**4 Day Throw Away** was developed based on research that was conducted with main food preparer in family with children 10 years of age and younger. Lack of knowledge in how long leftovers should be kept was a common theme from research conducted by Meysenburg, (2010). Lum (2010) found that young parents do not discard leftovers during the recommended time frame stated by FightBac!™ guidelines. This theme became the basis of the development of a food safety social marketing campaign, **4 Day Throw Away,** designed to increase leftover food safety awareness and positive behavior change with the target message of: "After four days, throw your leftovers away." The campaign consisted of both traditional media methods and the use of social media methods. Traditional methods included delivering the message through posters with pull off pads, magnets distributed, Public Service Announcements (PSAs), a website, newspaper articles, displays, and appearances by the campaign mascot #4. Different types of social media avenues that were utilized included Facebook, Twitter,

and YouTube. The campaign was launched in November, 2010 and targeted specific cities in two Midwestern states.

Demographics of Participants

The team that developed the social marketing campaign and were used in this study consisted of professionals from the two Midwestern Universities. The team was made up of two university professors who were the project leads and research consultants, two marketing specialists, one graduate student, and two nutrition educators. Each had a specific role within the team, but all were involved in major decisions of the project. The time frame for professional involvement ranged from six months to three years. The purposeful sampling strategy of a complete collection criterion was utilized. The same participants were used in both the qualitative and quantitative data collection processes.

Design and Data Collection

Creswell and Plano Clark (2011) define mixed methods as a research design with philosophical assumptions as well as methods of inquiry that focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. A parallel convergent mixed methods design was used. In this design, the researcher collected the quantitative and qualitative data concurrently and analyzed the two data sets separately. The researcher mixed the two databases by merging the results

to develop a more complete understanding of the variables and central phenomenon being studied.

Qualitative data collection consisted of one taped, semi-structured focus group with five team members and two taped, one-on-one semi-structured phone interviews of the two program leaders. The semi-structured focus group lasted for 55 minutes and was recorded with an audio tape player. The project leads were extracted from the focus group to diminish areas of bias from the other team members during the session. Separate phone interviews were completed with the project leads and they lasted 25 and 35 minutes. An interview protocol was developed to assist the researcher in collecting data. This interview protocol consisted of six open ended questions that were used in both of the phone interviews and in the focus group. These questions were designed to gather the perceptions of the team members on how the team worked. The interview protocol included the following questions:

1. How did you feel about the communication between team members?
2. How did you feel about your role and responsibilities in the team?
3. Explain the types of resources that were available for you as a team member.
4. Discuss what the leadership was like.
5. What did you gain from working in the team?
6. Discuss what you have learned from being a part of this project.

The interview protocol allowed for the researcher to ask emerging questions as the interviews and focus group unfolded. The emerging interview protocol enhanced the talkative nature of the professionals.

Quantitative data collection consisted of the participants completing the Process Evaluation Checklist which was developed from modifying Borden and Perkins Collaboration Checklist (Borden & Perkins 1999). The Checklist asked participants to rate their experiences of working to develop and implement the campaign on a variety of categories that included: communication; research, planning and evaluation; resources; personal and professional development; and effectiveness and efficiency. The participants were asked to complete the Checklist within a week and return it to the researcher via email. Numbers were then assigned to each completed Checklist to defend against bias as the researcher continued to the data analyses process. Institutional Review Board approval was obtained and all team members granted permission.

Data Analysis

After transcribing the interviews and focus group data, qualitative analysis took place in the form of hand-coding and theme formation after each transcript was read through carefully. After the interviews and focus group were transcribed, data were separated into segments by general subjects, hand-coded, and emerging themes were recorded. An inductive process was utilized and five general themes developed.

The completed quantitative data from the Process Evaluation Checklists was compiled and converged into a single document. Answers from each category were tallied and percentages were developed to differentiate what factors of the team experience were important to the participants and what factors were effective to help the team accomplish its desired goals.

Validity was accomplished through three strategies. The first strategy used was in the sample acquired. It was essential that the researcher obtain data from all members

of the team to gain a complete and wide perception of the framework of the team. Second, triangulation between participation was used. Each theme was reexamined to ensure it originated from multiple perspectives. Lastly, the researcher reflexivity was used as a validation technique. The researcher has been a part of the team for over a year and understood how the team interacted and worked together through much of the process. Results were shared back with members of the team for member checking.

Ethical considerations for the study involved informed consent from participants for inclusion in the study as well as being taped during the focus group. All information derived from the data collection procedures was kept confidential. Due to the small number of participants and that many of them have been listed as authors on research publications tied to the social marketing campaign, it is possible that one could figure out the identities of the professionals. Thus, the utmost care was given to use pseudonyms and protect identifying information.

After analyses of both data sets, the researcher merged the results to compare the themes found from the focus group and interviews to the major factors affecting effectiveness of the team identified from the completed Checklists. Merging the two data sets developed a more complete understanding of these strategies that could be utilized for future teams working with large multi-disciplinary health programs.

## Results

### Qualitative Findings

The codes from the focus group data were collapsed into five major themes: Clear roles, timing, clear schedule, face-to-face time, and learning and networking.

"Clear Role"

The team consisted of a variety of professionals each with a specific role within the team as well as specific expertise and skills that were essential to the working of the team. From the very beginning of the project, it became apparent that the team members needed to be aware of and understand what their specific role in the team was and secondly how their role fit into the overall scheme. Most of the participants commented on the importance of understanding their specific role and how that "helped the team work effectively". One participant remarked:

> "It was very clear to me what my role was in the project. I think we worked at making sure everyone understood the goals which helped us have a good group dynamic."

For some team members, their role within the group changed as projects changed or team members left. Allowing the roles to be flexible helped to ensure team members continued to work effectively when the project changed. Also, it was important that the team members understood the clear role of each team member as well as how this role fit into the entire project. This allowed for the team members to stay focused and feel "important." One participant commented:

> "My roles changed so personal goals changed. In the beginning I had an overall grasp of the goals but as we moved towards the end it became clearer as to what the goals were. They were written to be flexible especially for the evaluation piece."

Having this clear understanding of what the roles of each member was and how these fit into the overall goal of the project was vital for the team to continue to work together and "not second guess each other which allowed things to continue to move onto the next step."

"Timing"

With any project, there are deadlines and due dates that must be met for the project to be successful. These deadlines can become a stressor for many members of a team but can be particularly difficult on the team leader(s) whose primary role was to ensure the team consistently produces the outcomes that is intended. In developing and implementing a large social marketing campaign with a variety of different media methods being utilized and team members spread between two states, timing of completing all the tasks required can be especially challenging. Sometimes unexpected deadlines arise and the distance between group members can be a problem causing individuals to feel like "we were rushed at points so changes couldn't be made."

For all the participants, being a part of the social marketing team was not their only responsibility. Having to fit their role in the team within their many other jobs responsibilities also put a strain on the timing of different pieces of the project. Two participants commented:

> "Sometimes I felt rushed to finish a piece of the project or respond to a problem because everyone is so spread out. Life just gets in the way sometimes."
>
> "We are all busy so sometimes this made communication feel ineffective. A couple things in the videos were not clear but it was too late to change them because of distance and other responsibilities."

Having to juggle working on the social marketing campaign along with their normal day-to-day duties was a challenge for some of the team members. Although, the timing of certain projects of the campaign was presented as a problem due to geography and job responsibilities of team members, the team continued to move forward with a positive attitude.

"Clear Schedule"

"It was vital that we all knew where we were going and when, so the schedule we were giving was like a bible." Being organized is always an important necessity to help any project be successful. The social marketing campaign had many different pieces to it with different people working on each piece at different times and in different locations. In a large project like this, being organized can keep the project from sinking. One of the program leaders, created an Excel document of a detailed schedule called the Project Implementation Schedule with the major components of the social marketing campaign. The document consisted of a timeline of when specific pieces needed to be accomplished and who was involved with each piece. This type of organizational sheet was a positive component in the workings of the team:

> "Vicki's chart helped us. I always knew where we were at and what needed to be done."
>
> "Vicki's excel sheet made things very clear for all involved."
>
> "I had clear responsibilities laid out for me. Vicki's schedule helped immensely. You always knew what to do next."

The schedule not only helped each team member stay on track but it also laid out how everyone fit into the project. This helped with communication between group members and helped them stay connected between group meetings. It was important for the schedule to be flexible as the project went on and the project changed. The schedule would only be effective if the information on it was correct thus, "the schedule was updated every meeting so it was always current which was helpful."

"Face-to-Face Time"

For a large team that is spread between many locations within two states, finding the time for team members to come together to meet and discuss components of the project can be a challenge. When group meetings do occur and team members are all together, the meetings need to be organized and effective so that pieces of the project could be completed. The team involved in the social marketing campaign met as a whole two times a year over three years and mini-meetings with parts of the team met on a more frequent basis. All team members commented on how these face-to-face meetings impacted the workings of the team:

> "Group meetings were good and needed to be more. When you're alone in your office it is easy to get distracted so face-to-face is much more effective."
>
> "Continue funding for future projects so that face-to-face opportunities are a possibility is a necessity."
>
> "Face-to-face is always the best. It allows for ideas to be bounced around better."

Due to the fact that the participants were from a multi-state team working on a large project, it was necessary to find ways to keep the communication strong outside of face-to-face meetings. A variety of different technology methods were used by the group members to stay in contact with each other throughout the project. Email was used on a regular basis to quickly get information or opinions from other members. Also, computer programs for webinars were used when in-person get-togethers were not feasible but a group meeting was still necessary. The theme of "face-to-face time" was surprising in that all team members commented on meetings were more effective and successful when everyone was present in person. This included comments from the marketing team members who are very versed on technology and primarily use these different technology methods on a day-to-day basis for their job. However, even these professionals agreed

that the "frequency of the whole team getting together needs to increase because face-to-face meetings were best. In-person meetings were definitely more successful and effective."

"Learning and Networking"

The last theme, "learning and networking," was also a surprising theme. This was the strongest theme out of the 5 that emerged from the codes transcribed. Throughout both interviews and the focus group, participants constantly brought up what they learned through working on this project and how important it was to meet new people from different areas and other states. All of the participants learned something new that they were not expecting to learn. One participant commented:

> "I learned a lot about different topics which include social marketing, how to work in a multistate team, and the research that goes behind a social marketing campaign. I also gained a better understanding of the scope of this size project. I've worked a lot with smaller projects, so I now understand more of all the things that go into a project this large."

Some of the team members took the new information they learned and immediately changed their own behavior. One of the marketing team members was excited to share:

> "Our group learned a lot about food safety. We have changed our lifestyles specifically about leftovers and food safety. I have begun enforcing the 4-day throw away rule in my home and my spouse is ecstatic!"

Along with learning a variety of new things, the participants also commented on how much they enjoyed meeting new professionals and working with individuals with different areas of expertise. Interacting and working with a variety of new people helped the team members grow both professionally and personally. Some of the participants shared:

> "It was a neat project. It was great to work in a multistate project with new focuses and outcomes. I appreciate being able to expand my horizon and get to know graduate students and people from other states and seeing them all be team players. I also got to know extension specialists that we worked with on a better level rather than just calling them. I learned a lot from my education and this project."

> "I really enjoyed working with people from the university especially being a new extension educator. I gained a relationship with people I will be working with in the future much quicker than I would have outside of this project. This will benefit me in the future."

> "I learned a lot about many things while working with different people. It was great to have the opportunity to learn about social media as well as food safety. I enjoyed networking with out-of-state individuals."

Participants learned new things and had the opportunity to meet new people, which subsequently increased their interest in the project and kept them motivated throughout all components of the social marketing campaign project. The participants felt that working on this project and being a part of the team was a positive experience and was related to the numerous opportunities to grow professionally and personally. One team member summed it up by saying:

> "I was able to grow in a setting like this. I gained knowledge and experience outside of what I normally would have. I met all kinds of people that will be very beneficial for me in the future. I was always excited to work on things for this project even when it was stressful. Definitely a positive experience that I am proud of and glad to have had."

Quantitative Findings

The five different factors that were addressed in the Process Evaluation Checklist that participants completed were "Communication," "Research, Planning, and Evaluation," "Resources," "Personal and Professional Development," and Effectiveness and Efficiency." Each factor had a variety of questions stating positive beliefs of the team experience. Participants have the option of selecting one of six different choices to

rank their feelings on the question. These rankings included: Strongly Agree, Somewhat Agree, Neither Agree or Disagree, Somewhat Disagree, and Strongly Disagree.

The first factor addressed on the Process Evaluation checklist was "Communication." Eight questions were asked to gain a perceptive of how the team members rated different aspects of the communication among members throughout the social marketing campaign project. Four of the team members (57%) either somewhat or strongly agreed that communication among team members was effective and all 7 team members (100%) strongly agreed with the statement "Team members demonstrated mutual respect." How team members answered questions under the "Communication" factor is listed in Table 1.

**Table 1: Results of The Communication Factor From The Process Evaluation Checklist (N=7)**

| Statements | Strongly Agree | Somewhat Agree | Neither Agree or Disagree | Somewhat Disagree | Strongly Disagree | N/A |
|---|---|---|---|---|---|---|
| Communication among team members was effective. | N=2 28% | N=2 28% | N=2 28% | N=1 17% | N=0 | N=0 |
| I was kept informed of the project progress, even thought I was not involved in all aspects of the project. | N=4 57% | N=2 28% | N=0 | N=1 17% | N=0 | N=0 |
| I felt that my contribution to the team was acknowledged and important to the project outcome. | N=6 86% | N=1 17% | N=0 | N=0 | N=0 | N=0 |
| My contributions to the project were valued. | N=6 86% | N=1 17% | N=0 | N=0 | N=0 | N=0 |
| Our team agreed upon decisions/directions, etc. | N=5 74% | N=2 28% | N=0 | N=0 | N=0 | N=0 |
| As a team member, I knew what my role and responsibilities were. | N=5 74% | N=2 28% | N=0 | N=0 | N=0 | N=0 |
| As a team member, I understood the role of other team members. | N=3 43% | N=4 57% | N=0 | N=0 | N=0 | N=0 |
| Team members demonstrated mutual respect. | N=7 100% | N=0 | N=0 | N=0 | N=0 | N=0 |

When examining the factor "Research, Planning, and Evaluation," 100% of participants agreed that team members reviewed goals and developed measures to attain these goals. Some of the participants (28%) neither agreed nor disagreed that processes were developed to establish the business of the team. Table 2 displays these results.

**Table 2: Results of The Research, Planning, and Evaluation Factor From The Process Evaluation Checklist (N=7)**

| Factor | Strongly Agree | Somewhat Agree | Neither Agree or Disagree | Somewhat Disagree | Strongly Disagree | N/A |
|---|---|---|---|---|---|---|
| The program outcomes have impact (potential impact). | N=5 74% | N=2 28% | N=0 | N=0 | N=0 | N=0 |
| Team members reviewed goals and developed measures to attain these goals. | N=4 57% | N=3 43% | N=0 | N=0 | N=0 | N=0 |
| Processes were developed to establish the business of the team. | N=2 28% | N=3 43% | N=2 28% | N=0 | N=0 | N=0 |
| Evaluation data on in-services, workshops, and seminars were useful to team members. | N=2 28% | N=4 57% | N=1 14% | N=0 | N=0 | N=0 |
| I had a vision of where the project was going. | N=4 57% | N=3 43% | N=0 | N=0 | N=0 | N=0 |
| As a team member, I understood the goals of the project. | N=5 74% | N=2 28% | N=0 | N=0 | N=0 | N=0 |

On the Process Evaluation Checklist, two items were utilized to gain team members' beliefs about resources available for the social marketing campaign. All seven of the participants (100%) strongly agreed that the team used technology effectively and 71% agreed to some degree that the team had resources to achieve the goals of the project. Table 3 displays the results collected from the "Resources" factor.

| Table 3: Results of The Resources Factor From The Process Evaluation Checklist (N=7) | | | | | | |
|---|---|---|---|---|---|---|
| **Factor** | **Strongly Agree** | **Somewhat Agree** | **Neither Agree or Disagree** | **Somewhat Disagree** | **Strongly Disagree** | **N/A** |
| The team used technology effectively. | N=7 100% | N=0 | N=0 | N=0 | N=0 | N=0 |
| The team had resources to achieve the goals of the project. | N=4 57% | N=1 17% | N=2 28% | N=0 | N=0 | N=0 |

Personal and professional development was another factor that was addressed in this study and was found to be very important to the team members and the success of the project. Participants strongly agreed with the majority of the statements in this category. All of the participants strongly agreed to the statement, "As a team member, I gained personal and professional satisfaction." Eight-six percent of the participants strongly agreed that the project provided them with new professional opportunities. Results of 5 statements relating personal and professional development are provided in Table 4. The last factor addressed in the Process Evaluation Checklist is "Effectiveness and Efficiency." Of the participants, 74% strongly agreed that the products of the project are of high quality and 86% strongly agreed that they were brought into the project at the appropriate time. Table 5 displays these results.

**Table 4: Results of The Personal and Professional Development Factor From The Process Evaluation Checklist (N=&)**

| Factor | Strongly Agree | Somewhat Agree | Neither Agree or Disagree | Somewhat Disagree | Strongly Disagree | N/A |
|---|---|---|---|---|---|---|
| This project allowed me to engage in ongoing learning opportunities to enhance my skills and knowledge. | N=6 86% | N=1 17% | N=0 | N=0 | N=0 | N=0 |
| I am able to utilize project activities/outcomes/impacts etc. for yearly performance review/promotion. | N=7 100% | N=0 | N=0 | N=0 | N=0 | N=0 |
| As a team member, I gained personal and professional satisfaction. | N=7 100% | N=0 | N=0 | N=0 | N=0 | N=0 |
| Team members share results of the project at national meetings. | N=7 100% | N=0 | N=0 | N=0 | N=0 | N=0 |
| The Multi-State project provided me with new professional opportunities | N=6 86% | N=1 17% | N=0 | N=0 | N=0 | N=0 |

**Table 5: Results of The Effectiveness and Efficiency Factor From The Process Evaluation Checklist (N=7)**

| Factor | Strongly Agree | Somewhat Agree | Neither Agree or Disagree | Somewhat Disagree | Strongly Disagree | N/A |
|---|---|---|---|---|---|---|
| The products of this project are of high quality. | N=5 74% | N=2 28% | N=0 | N=0 | N=0 | N=0 |
| Team member(s) accomplishments were appropriate and timely. | N=4 57% | N=3 43% | N=0 | N=0 | N=0 | N=0 |
| I was brought into the project at the appropriate time. | N=6 86% | N=1 17% | N=0 | N=0 | N=0 | N=0 |

Mixed Methods Results:

After completion of the analysis of both sets of data, results were merged together. Factors from the Process Evaluation Checklist where aligned with themes extracted from the focus group and interviews. Quotes were found to validate the data collected from the Checklist. Table 6 highlights these results.

**Table 6: Results From Merging Data From Process Evaluation Checklist with Themes**

| Factors | Percentages That Agree | Quotes |
|---|---|---|
| **Communication**<br><br>Communication among team members was effective. | 56% | "Group meetings were good and needed to be more."<br>"We are all busy so sometimes this made communication feel ineffective." |
| **Research, Planning, Evaluation**<br><br>I had a vision of where the project was going. | 100% | "Vicki's chart helped us always know where we were at and what needed to be done."<br>"You always knew what to do next."<br>"Goals were very clear for all involved." |
| **Resources**<br><br>The team had resources to achieve the goals of the project. | 74% | "Our budget and contract was well defined. No problems there."<br>"You learn after the fact what is the best way to allocate the resources you have." |
| **Personal & Professional Development**<br><br>As a team member, I gained personal and professional satisfaction. | 100% | "I was able to grow in a settling like this."<br>"I gained knowledge and experience outside what I normally would have."<br>"I have grown a lot in my profession. This will benefit me in the future."<br>"I learned a lot about many things while working with different people." |
| **Effectiveness & Efficiency**<br><br>The products of this project are of high quality. | 100% | "I have high hopes that many abstracts from this project will be accepted." |

## Discussion

This study begins to conceptualize the process of how a multi-state team works to effectively create and implement a large social marketing campaign. This study is one of the first attempts to evaluate the process that occurs when a social marketing campaign is developed by a multi-state team of professionals. Planning and evaluation are essential elements in social marketing campaigns. Planning provides a blueprint for evaluation, whereas evaluation provides evidence of program effectiveness.

This process evaluation documented what key components were vital in the team working effectively to produce a social marketing campaign that accomplished its intended outcomes. The results from both the quantitative and qualitative data validated each other to give a clear picture of how and why the team was successful in accomplishing the tasks performed in the multi-state project. The themes extracted from the qualitative data aligned with the key factors identified in the Process Evaluation Checklist the participants completed.

With such a variety of professional background and location differences, positive communication was extremely important in the success of the campaign. The majority of the team members agreed that the team members communicated effectively. Team members felt as though face-to-face time increased the strength of communication and should be budgeted for future projects. Understanding the role of each team member and being clear on what their own role within the project was crucial in keeping progress moving forward. Having clear expectations for each individual in the team should be a priority of team leaders.

Another area that was addressed in this process evaluation was that of the research, planning, and evaluation strength of the team. The members of the team illustrated the importance of needing a clear understanding of the vision and goals of the project. The Project Implementation Schedule that one of the team leaders developed and shared with the other members capitalized on this and the consensus of the team was that "It was vital that we all knew where we were going and when, so the schedule we were giving was like a bible."

For all of the team members working on the **4 Day Throw Away** campaign, this was not their only commitment or job responsibility. The results indicated that because the team members believed that working on this project had given them numerous opportunities for both personal and professional development, the motivation and focus remained high throughout the different phases of the project. The team members spoke numerous times during the focus group about how working with the campaign had exposed them to new experiences they would not encounter in their normal daily responsibilities.

Having appropriate resources is always crucial in any type of intervention. Utilizing these resources and the timing of when these resources become available is also an important piece to the success of an intervention. Team members need to feel that they have the appropriate resources to do the tasks the project requires.

The process evaluation was relatively inexpensive and could be replicated easily. Efforts for future research should be done to examine differences between how a multi-state team works compared to that of a social marketing team whose team members are all from one central location. Providing a process evaluation in this context would

provide insights into what types of team members are crucial to recruit when developing a social marketing campaign. Also, since this is one of the first process evaluations conducted on a large, multi-faceted community-based project, this evaluation should be considered a base on which to build and strengthen future public health research particularly around social marketing campaigns.

This process evaluation builds the evidence base for multi-state social marketing campaigns by documenting the key strategies that help the multi-faceted team work effectively to increase the successfulness of the intervention. Increasing communication through face-to-face time, being clear on expectations of the project and roles of each team member through some type of organizational table, and highlighting the professional and personal development opportunities that will arise from working on aspects of the campaign increases the success and strength of the development and implementation of large social marketing campaigns.

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# CHAPTER V

# DISCUSSION, CONCLUSION AND LIMITATIONS

Foodborne illness continues to affect millions of people each year, most of which is due to improper food handling skills by home food preparers. Young children have a decreased immune system making it even more crucial for parents and guardians to handle food properly, however when studied most adults have a low perceived severity and susceptibility to leftover food safety issues. Until recently there has been no large food safety intervention to target increasing leftover knowledge and behavior change. The social marketing campaign **4 Day Throw Away** was developed by a multi-state team of professionals with the clear message to throw leftovers away after four days based off of FightBac!™ recommendations. Social marketing campaigns using traditional media methods have been utilized in public health interventions for over a decade however with the growing of the internet and Web 2.0, it is becoming vital for professions to utilize social media avenues. Little research has been conducted on the use of social media in being effective in changing health behaviors.

This study used a variety of evaluation techniques to determine if the 4 Day Throw Away campaign was effective in reaching the intended audience with the target message. Evaluation is a key component in programming development. Understanding if a program or intervention was successful in reaching its desired outcomes is necessary for future funding opportunities. However, recent literature has reported that it is not only appropriate to evaluate if the intervention worked but it is also necessary to go a step further to understand why or why not it was effective. Performing a process evaluation

specifically gives researchers, educators, and funders a more complete picture of the effectiveness of their intervention and what adjustments need to be made to continue.

**Implementation and Effectiveness Evaluation of Campaign**

One of the most important aspects of a public health social marketing campaign is the message. Previous research has reported that the message of a campaign needs to be thought-out and for it to be successful, it needs to be theoretically based, strategically persuasive to a specific audience, and target individuals who have the opportunity to change behavior after message delivery. Also, emphasizing the short-term benefits along with long-term benefits increases the impact of messages on participants' attitudes. The **4 Day Throw Away** campaign message was well received, clear, and easy to understand. This was critical in the effectiveness of the campaign.

Knowing how the intended audience would best receive the message is also important. With the advancements of social media usage especially in individuals under 30, it was crucial for the professionals designing the **4 Day Throw Away** campaign to utilize as many of these media avenues as possible. Facebook, Twitter, and YouTube accounts were developed and used to increase the reach of the message. Comments left by "friends" of the Facebook page were very positive and showed increased awareness and positive behavior change. A total of six different small videos were created with the campaign's mascot #4. As of April 2012, the videos have over 12,000 views. The utilization of these methods was very effective in reaching a large audience with the campaign's message.

The campaign evaluated in this study used more traditional media methods, such as PSAs, posters, magnets, and appearances by the mascot #4. Three different test cities

were chosen in two Midwestern states to promote the social marketing campaign. Four months after the launch of the campaign, the researcher visited both the test sites and the three control cities asking individuals to fill out a four question survey. In the test cities 23% of those surveyed compared to 1% from the control sites were aware of the campaign. The participants in test sites also indicated a higher incidence of throwing leftovers away during the recommended time frame. The implementation and effectiveness evaluation of the campaign in this study showed that the campaign was effective in increasing the awareness and positive behavior change with leftover food safety.

**Process Evaluation of Campaign**

Process evaluation is important to conduct on social marketing campaigns for numerous reasons: to provide validity for the relationship between the campaign and the outcomes; to provide what components of the intervention were responsible for outcomes; to understand the relationship between program context and program process; and to improve the quality of the campaign (Bliss & Emshoff 2002). Process evaluation tells the story of why an intervention was successful or not. Little research has been done using a process evaluation on large social marketing campaigns.

In the current study, a parallel convergent mixed methods design was used to perform a process evaluation on the multi-faceted team of professionals that developed and implemented the **4 Day Throw Away** Campaign. One focus group and two semi-structured interviews were conducted on the 7 professionals involved with the campaign. Each team member was asked to fill out the Process Evaluation Checklist ranking their feelings on statements under key categories. The results from both the quantitative and

qualitative data validated each other to give a clear picture of how and why the team was successful in accomplishing the tasks performed in the multi-state project. The themes extracted from the qualitative data aligned with the key factors identified in the Process Evaluation Checklist the participants completed.

Multiple techniques to build strong communication lines between team members was found to be a vital component in the efficiency and effectiveness of the team. Although technology has opened up numerous avenues to communicate from distances, there was an overwhelming response that face-to-face meeting time was not only ideal but necessary. Having a clear understanding of the roles of each team member and a schedule of what projects where due when was also found to be important to keep progress moving forward. Also, the process evaluation found that if team members had a high sense of both personal and professional growth by working on the project, they were more likely to continue to be motivated throughout the entirety of the intervention.

This process evaluation builds the evidence base for multi-state social marketing campaigns by documenting the key strategies that help the multi-faceted team work effectively to increase the successfulness of the intervention. Increasing communication through face-to-face time, being clear on expectations of the campaign and roles of each team member through some type of organizational table, and highlighting the professional and personal development opportunities that will arise from working on aspects of the campaign increases the success strength of the development and implementation of large social marketing campaigns.

## Conclusion

Based on the data collected from this study, key themes presented themselves to remember when designing and implementing a large multi-state intervention. First of which was that using a variety of both traditional and social media methods is the best way to reach the greatest amount of the intended audience with the target message. This does, however, take more resources and investment of time by professionals. As social media continues to rise in popularity, learning how to use these avenues will become vital. It is important to always understand how the intended audience best receives their health information and utilize as many of those methods as possible.

Next, results from the current study found that understanding what aspects make the team of professions who develop and implement the intervention the most successful in working together is crucial for the intervention itself to be successful. Having clear roles and a clear idea of what the specific goals are of each piece of the project is important for the professionals to stay organized and work efficiently. Also, capitalizing on the professional development opportunities for each team member helped to keep motivation high.

Lastly, it is important to not only focus on formative evaluation of an intervention but also to perform a comprehensive summative evaluation which includes effectiveness and process evaluation methods. Without each of these components of evaluation, an incomplete picture of the effectiveness of a campaign is gained. This becomes even more important as large social marketing campaigns continue to be utilized for public health interventions with the addition of social media methods.

## Limitations

While this study will be invaluable in providing insight into key strategies to be used in large mass media public health interventions, some limitations exist that should be taken into account. The intercept surveys that were used to gather quantitative data on the effectiveness of the campaign increasing awareness and behavior change in the tests sites was only preformed four months after the campaign launched. Stronger results may have been found if the same data collection procedure was repeated again one year after the launch. Also, the answers to these surveys were all self-reported by the participants which could impact the accuracy of the data if the individuals were not being honest. Another limitation to the study is that the test sites received both traditional and social media methods from the campaign, thus it is not known which type of media method was more successful than the other or if a mixing of the two produced the statistically significant results.

## Implications for Future Research

Leftover food safety practices and beliefs is an area that would be valuable to pursue further. Little research exists on how families are storing and handling leftovers and how discrepancies may be affecting the health of family members. Understanding the primary practices of individuals will better guide food safety experts to prepare educational materials in this area.

It would be beneficial to collect more data on the use of social media in public health interventions and the key strategies to use to gain the best results. Little research is available on how avenues like Facebook, Twitter, and Youtube are being used and how

to evaluate the effectiveness of these methods. Also, literature is lacking in the comparison of traditional media versus social media methods in being most effective for different public health topics and audiences. This information would be vital to all public health professionals who wish to incorporate mass media outlets to disseminate a message.

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# APPENDIX A

## Institutional Review Board Letter of Approval

March 22, 2011

Katie James
Department of Nutrition and Health Sciences
401 N 44th St #1108 Lincoln, NE 68503

Julie Albrecht
Department of Nutrition and Health Sciences
119 LEV, UNL, 68583-0806

IRB Number: 20110311689 EX
Project ID: 11689
Project Title: Evaluating Four Day Throw-Away Campaign-Focus Group

Dear Katie:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 2.

You are authorized to implement this study as of the Date of Final Approval: 03/22/2011. This approval is Valid Until: 03/25/2012.

1. The approved informed consent form has been uploaded to NUgrant (file with -Approved.pdf in the file name). Please use these form to distribute to participants. If you need to make changes to the informed consent form, please submit the revised form to the IRB for review and approval prior to using it.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:
* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to
recur;

* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
* Any breach in confidentiality or compromise in data privacy related to the subject or others; or
* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman, CIP
for the IRB

# APPENDIX B-1

## Intercept Survey Script

**Intercept Survey Script:**

Hi my name is Katie James and I am a graduate student at the University of NE-Lincoln working on my Ph.D. research. The purpose of this study is to determine the effectiveness of a social marketing campaign on awareness, knowledge, and behaviors to leftover food safety practices in Nebraska and Iowa among parents or guardians of young children.

Would you be willing to be a part of this research project by answering a few questions? There are no risks involved in participating. The survey should last 1-2 minutes and the data I receive from these answered surveys will be used for research purposes in publications and conferences.

# APENDIX B-2
## Intercept Question Protocol

Intercept Questions for Evaluation:

**Screening questions:**

1) Do you have children 10 or under living in the household?
2) Male/Female

**Leftover Questions:**

1) How long do you keep leftovers? (Behavior)
2) Have you heard of the recommendation on how long to keep leftovers? (Knowledge)
    a. (If answer "Yes")—Where/How did you hear it? (Unprompted Awareness)
    b. (If answer "No")—Have you seen or heard of "4 Day Throw Away?" (Prompted Awareness)
3) How comfortable is it for you to throw leftovers away at four days? (Attitude/Self-efficacy)
    a. Use scale of 1-5 with 1 being "not at all" and 5 being "very" comfortable.

# APENDIX B-3
## Intercept Survey Record Form

Intercept Survey Record Form

| | | | |
|---|---|---|---|
| **Location:** | **Number:** | **Gender:** | |
| | | | |
| How long do you keep leftovers: | | | |
| | | | |
| Have you heard the recommendations on how long to keep leftovers: | | **(YES)** Where/How did you hear it: | **(NO)** Have you seen or heard of 4 Day Throw Away: |
| | | | |
| How comfortable is it for you to throw leftovers away after 4 days: 1="not at all" 5= "very comfortable" | | | |
| | | | |
| | | | |
| **Location:** | **Number:** | **Gender:** | |
| | | | |
| How long do you keep leftovers: | | | |
| | | | |
| Have you heard the recommendations on how long to keep leftovers: | | **(YES)** Where/How did you hear it: | **(NO)** Have you seen or heard of 4 Day Throw Away: |
| | | | |
| How comfortable is it for you to throw leftovers away after 4 days: 1="not at all" 5= "very comfortable" | | | |

# APENDIX C-1
## Process Evaluation Informed Consent Form

College of Education and Human Sciences
Department of Nutrition and Health Sciences

**Informed Consent**

**Title of Project:** Process Evaluation for the Food Safety for Families with Young Children Project

**Purpose of the research:** The purpose of this research is to evaluate the process of developing and disseminating a social marketing campaign.

**Procedures:** You were involved with the Food Safety for Families with Young Children project
and we would like you to participate in a discussion about our multi-state project. The discussion is being held in a meeting room at the Cass County Extension Office (Iowa). The discussion will be taped and a person will be taking notes during the focus group session. After you read and sign this consent form, you will be participating in a discussion on the Food Safety for Young Families project. The discussion leader, Katie James (University of Nebraska-Lincoln graduate student) will be asking a series of open ended questions for you to respond to. Your input is important to us in the evaluation of our project. Prior to the discussion, you will be asked to complete a Process Evaluation Checklist. It will take approximately 1 hour for the discussion and completion of the survey. The focus group will be audio recorded and the tapes will be transcribed and compared with the notes taken during the session. Your names will not be linked to any information given during the discussion or on the survey. All data collected from the discussion and survey will be compiled and used in the final report.

**Risks:** There are no known risks associated with this study.

**Benefits:** The benefit of participating in this study is that you will help provide data on the effectiveness of the multi-state team in accomplishing a food safety program.

**Confidentiality**: The information collected during this study will be kept strictly confidential. It will only be seen by the discussion leader and the two PI's. The information will be stored in a locked cabinet in Room HE 10 at the University of Nebraska-Lincoln. All of the information, including the tapes of the discussion, will be destroyed after 2 years. Your name will **not** be used in any reports or publications. The compiled information from all of the participants may be presented at a scientific meeting and/or published.

**Opportunity to Ask Questions:** You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.

You may contact the investigators listed on the form at any time. Please contact the investigator if you want to voice concerns or complaints about the research or in the event of a research related injury. Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 for the following reasons: you wish to talk to someone other than the research staff to obtain answers to questions about your rights as a research participant, to voice concerns or complaints about the research, to provide input concerning the research process or in the event the study staff could not be reached.

**Freedom to Withdraw:** You are free to decide not to participate in this study or to withdraw at any time without negatively affecting your relationship with the focus group discussion leader, researchers, the University of Nebraska-Lincoln or Iowa State University. Your decision will not result in any loss of benefits to which you are otherwise entitled.

**Consent:** By signing this form, you indicate that you have read and understood the information presented and all questions have been answered. You will be given a copy of this consent form to keep.

☐ **By checking this box, I agree to be audio taped during the discussion.**

**Signature of Participant**

_____ _____

Signature of Participant Date

**Signature of Primary Investigator**

_____ _____

Katie James Date

**Name and Phone Number of Researchers**

*Primary Investigator:*
Katie James, Graduate Student
University of Nebraska-Lincoln
Office (402) 472-3717

*Secondary Investigators:*
Julie A. Albrecht, Ph.D, PI
University of Nebraska-Lincoln
Office (402) 472-8884

Ruth Litchfield, Ph.D. PI
Iowa State University
Office (515)

# APENDIX C-2
## Process Evaluation Checklist

# Process Evaluation Checklist
# Food Safety for Families with Young Children (10 and Under)
# USDA-CSREES Project 2008-51110-19237

**Directions:** The Food Safety for Young Families grant is a multi-state research and extension/outreach project funded by USDA. We would like you to help evaluate your participation in the project. Not everyone was involved with the project from the beginning and some factors may not apply to you.

Please check the appropriate box for the factors listed below as it applies to you for this project.

| Factor | Strongly Agree | Somewhat Agree | Neither Agree or Disagree | Somewhat Disagree | Strongly Disagree | N/A |
|---|---|---|---|---|---|---|
| **Communication** | | | | | | |
| Communication among team members was effective. | | | | | | |
| I was kept informed of the project progress, even thought I was not involved in all aspects of the project. | | | | | | |
| I felt that my contribution to the team was acknowledged and important to the project outcome. | | | | | | |
| My contributions to the project were valued. | | | | | | |
| Our team agreed upon decisions/directions, etc. | | | | | | |
| As a team member, I knew what my role and responsibilities were. | | | | | | |
| As a team member, I understood the role of other team members. | | | | | | |
| Team members | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| demonstrated mutual respect. | | | | | | |
| **Research, Planning, and Evaluation** | | | | | | |
| **Factor** | **Strongly Agree** | **Somewhat Agree** | **Neither Agree or Disagree** | **Somewhat Disagree** | **Strongly Disagree** | **N/A** |
| The program outcomes have impact (potential impact). | | | | | | |
| Team members reviewed goals and developed measures to attain these goals. | | | | | | |
| Processes were developed to establish the business of the team. | | | | | | |
| Evaluation data on in-services, workshops, and seminars were useful to team members. | | | | | | |
| I had a vision of where the project was going. | | | | | | |
| As a team member, I understood the goals of the project. | | | | | | |
| **Resources** | | | | | | |
| The team used technology effectively. | | | | | | |
| The team had resources to achieve the goals of the project. | | | | | | |
| **Personal and Professional Development** | | | | | | |
| This project allowed me to engage in ongoing learning opportunities to enhance my skills and knowledge. | | | | | | |
| I am able to utilize project | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| activities/outcomes/impacts etc. for yearly performance review/promotion. | | | | | | |
| As a team member, I gained personal and professional satisfaction. | | | | | | |
| Team members share results of the project at national meetings. | | | | | | |
| **Factor** | **Strongly Agree** | **Somewhat Agree** | **Neither Agree or Disagree** | **Somewhat Disagree** | **Strongly Disagree** | **N/A** |
| The Multi-State project provided me with new professional opportunities | | | | | | |
| **Effectiveness and Efficiency** | | | | | | |
| The products of this project are of high quality. | | | | | | |
| Team member(s) accomplishments were appropriate and timely. | | | | | | |
| I was brought into the project at the appropriate time. | | | | | | |

**Comments:**

# APENDIX C-3
## Process Evaluation Interview Protocol

# Process Evaluation Interview Protocol

## Process Evaluation Script

Good Morning and welcome to our process evaluation session today.
Thank you for taking the time to join our discussion. My name is Katie James and I am graduate student at the University of NE-Lincoln working on the evaluation component of this project. The University of NE and Iowa State University are both part of this USDA multi-state grant.
I have provided you with the grant objectives and I would ask you to take a few minutes to look over them at this time. These objectives can be used as a reference point as we proceed with the discussion. (give time to read objectives)

## Grant Objectives

Based on the limited research and the need to reach families with young children with food safety information due to increased risk for foodborne illness for children, we propose to:

1. Conduct 6-8 focus groups (elicitation interviews) to ascertain current food safety behavior, barriers and beliefs of the primary food handler from families with young children utilizing the constructs of the Health Belief Model.

2. Develop a survey based on knowledge gained from the focus groups (elicitation interviews), prior research, and FightBac™ and Be Food Safe (USDA) materials using the constructs of the Health Belief Model. Conduct the survey to a nationwide population of families with young children.

3. Based on the results of the focus groups (elicitation interviews) and survey, a multifaceted food safety educational program using many delivery methods, including technology, will be developed. A social marketing framework will be used in the educational program development and delivery.

4. Conduct an outcome based evaluation of the educational programming.

First I would like you to complete the informed consent. If you choose not to participate, I will ask that you leave the room during our discussion – which may last approximately 1 hour. (give time to read and sign the form).

This is a process evaluation to gain information about the process of developing and maintaining the Four Day Throw Away media campaign. We will need to tape record the session because we don't want to miss any of your comments. If several are talking at the same time, the tape will get garbled and we'll miss your comments, so try to speak one at a time. I will make sure that everyone gets a chance to say what they would like to say. We will be on a first name basis; however in our reports we will not attach any names to comments. Your responses will be kept private. As we talk about our project, there are no right or wrong answers but rather differing points of views and opinions.

Please feel free to share your point of view or opinion even if it differs from what others have said.

Let's begin. We've given name cards to everyone but let's go around the room/table and tell everyone your name. I would like you to share how you have been involved with this project.